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PORT STATE CONTROL AND SHIPPING SAFETY

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Abstract

The purpose of this thesis is to investigate how the implementation of the Port State Control (PSC) inspections have affected the safety and in general the quality of the global shipping industry.

The first part of this thesis is mainly of a theoretical nature, as there is brief information given concerning the legal framework of international conventions relevant to shipping, the inspection content and inspection providers, as well as the general remedial actions to be taken in response to detected non-conformities. In the second part, the collection methodology of the PSC data capable of producing meaningful results and ultimately a reliable assessment of the PSC influence is described. In the third part, the statistical analysis of the collected PSC data is performed and presented in the form of various graphs and tables, and the results are discussed. It is shown that the detention rate it is improving through the years, and shipping industry react to new laws and conventions.

Finally, in the fourth part of the thesis, it is concluded that PSC inspections have in general significantly contributed over the recent years towards the improvement of quality in the shipping industry, with minor differences with regard to ship flag, type or other ship-related key parameters.

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1.1 Introduction

International shipping is one of the most important globalized industries because of its ability to provide economic and efficient long-distance transport. Shipping's capacity to transport energy cargoes, materials, food and manufactured goods, from where they are produced to where they will be ultimately consumed, underpins modern life.

Seaborne trade represents nearly 90% of global trade by volume or 11 billion tons of goods by ships each year. This represents an impressive 1.5 tons per person based on the current global population. For an economic region such as the European Union, shipping accounts for 80% of total exports and imports by volume, and some 50% by value.

As of 2019, the total value of the annual world shipping trade had reached more than 14 trillion USD. At the same time, shipping also offers the ability to transport goods cheaply and in large volumes, and with a minimal environmental footprint. Over the last four decades, seaborne trade has quadrupled in size, bringing benefits for consumers worldwide through competitive freight rates. Today, there are more than 50,000 merchant ships transporting all kinds of cargo between 150 nations and manned by more than a million international seafarers.

The aforementioned global socio-economic significance of international shipping dictates the need to strive always for a high quality of service in terms of the offered productivity, safety (incl. security) and pollution prevention.

Every vessel belongs to a Flag State, which is known as the nationality of the ship or its flag. The ship is registered in a port of the flag state known as the registration port. Any state that requires ships to register under its flag has the authority to monitor their technical integrity and operational compliance, according to the applicable IMO Conventions and flag regulations.

The Flag State must take measures for the ships sailing under its flags to ensure maritime safety in shipbuilding and ship operation, e.g., the ship's seaworthiness as well as the crew competence and working conditions, onboard and ashore safety management for accident prevention and control etc.

The Flag State shall take all the necessary measures and harmoniously combine all the international regulations, in order to ensure that the vessel flying its flag have the ability to sail in all seas and ports. This is achieved with regular inspections carried out by authorized inspectors, which are called Flag Inspections.

The fact that not all the Flag States act responsibly as defined by the existing international regulations, has forced many states to introduce inspections of foreign ships in national ports under the regime of Port State Control (PSC). These inspections were initially intended to be a back up to Flag State implementation, but experience has shown that they can be extremely effective.

The International Maritime Organization (IMO) adopted resolution A.682(17) on regional co-operation in the control of ships and discharges promoting the conclusion of regional agreements. A ship going to a port in one country will normally visit other countries in the region and therefore it can be more efficient if inspections can be closely coordinated in order to focus on substandard ships and to avoid multiple inspections.

This ensures that as many ships as possible are inspected but at the same time prevents ships being delayed by unnecessary inspections. The primary responsibility for ships' standards rests with the flag State - but port State control provides a "safety net" to catch substandard ships.

Nine regional agreements on port State control - Memoranda of Understanding or MoUs - have been signed: Europe and the north Atlantic (Paris MoU); Asia and the Pacific (Tokyo MoU); Latin America (Acuerdo de Viña del Mar); Caribbean (Caribbean MoU); West and Central Africa (Abuja MoU); the Black Sea region (Black Sea MoU); the Mediterranean (Mediterranean MoU); the Indian Ocean (Indian Ocean MoU); and the Riyadh MoU. The United States Coast Guard maintain the tenth PSC regime.

These MoU agreements define the control that will be carried out during the inspections and give instructions to the inspectors. Lists with possible irregularities and measures to be taken, are made that inspector may encounter onboard. The inspection results are published so that all the ports and the shipowners know the history of each vessel. When the vessel does not comply with the international regulations, they detain the vessel or even worse they banish the vessels that have been repeatedly detained according to other MoU records.

1.2 International Conventions and Legislation.

Shipping as an international activity requires international rules with global recognition and uniform application.

IMO (International Maritime Organization) is the only responsible international organization relating to maritime safety, vessels' seaworthiness, protection of the marine environment and taking actions against illegal activities on the marine environment.¹

IMO, in which all interested countries and organizations participate, is responsible for establishing the basic safety principles. The main conventions adopted with the establishment of IMO in 1958 are the following

1. International Convention for the Safety of Life at Sea (SOLAS, 1974, as amended).
2. International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto and by the Protocol of 1997 (MARPOL)
3. Convention on the International Regulations for Preventing Collisions at Sea (COLREG), 1972
4. LOADLINE (International Convention of Loadlines,1966)
5. ISPS (The International Ship and Port Facility Security Code, 2002)

¹ <https://www.imo.org/en/About/HistoryOfIMO/Pages/Default.aspx>

6. ISM (The International Safety Management Code, 1993)
7. International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) as amended, including the 1995 and 2010 Manila Amendments
8. ILO 147 (The ILO Merchant Shipping Convention 1976)²

The development of international maritime conventions is included in the work program of many international organizations, such as the IMO, ILO, UN. Usually a contract results from a recognized need. More often is a suggestion submitted to a committee or subcommittee of the IMO. As a result of those discussions, regulation plans are being prepared, then the diplomatic conference is convened to review discuss, amend, and finally adopt the treaty. The implementation of the ratified international conventions needs to be included into the national law giving the fact that the conventions themselves do not contain enforcement orders, the way depending on the state constitution. In some cases, the convention become a part of national law automatically through the act of ratification or addition. In case that the convention obligates impose sanctions or controls on the public, then an approval will be required by the legislature.

Since the IMO lacks authority in this area, national laws must frequently be changed in order to enforce the provision agreement. Contracting nations enforce IMO that concerns their vessel, the formation of infringements and their introduction penalties for the infringements. Port authorities have limited enforcement forces in relation to foreign vessels. Some contracts require from the vessels to have several certificates showing that they have been inspected and meet the required standards. These certificates are typically accepted as a proof by port authorities that the vessel has met the required standards, although in some cases additional measures may be required. According to the regulation, these certificates will be accepted unless there are reason to believe that the condition of the vessel or its equipment does not substantially correspond to the details of the certificates. In this case the official carrying out the inspection shall take all the necessary measures to ensure that the

² <https://www.imo.org/en/About/Conventions/Pages/ListOfConventions.aspx>

vessel does not sail before it is able to proceed at sea without endangering the passengers or crew, in such case the vessel can be detained. Furthermore, the flag state and IMO should be informed, and port authorities should avoid any unreasonable delay of the vessel.

1.3 Port state Control

1.3.1 Historical Frame

The ship inspection regulations were amended and copied at other international conferences as soon as SOLAS approved the implementation of foreign ship inspection in ports.

Port State controls officers' duties were legally defined on SOLAS 74/78 with reference to the IMO resolution. The first agreement, which named "The Hague Memorandum of Understanding", was signed in 1978 and focuses primarily on the enforcements of living and working conditions on ships.

Even though the memorandum was about to come into effect in 1978, a serious oil spill caused series of reaction regarding stringent shipping safety regulation. As a result, the memorandum became more stringent as far as it concerns the safety of Life at Sea, prevention of pollution by ships and living and working conditions on board ships³. So, in January in 1982 a new memorandum was signed in Paris, since that date, the Paris memorandum has been amended several times in order to fulfill new safety and marine requirements of IMO, as well as requirements regarding seafarers' working and living condition. Over the years, the Organization has grown to include 27 members.⁴

Port State Control (PSC) is defined as "the inspection of foreign ships in national ports to verify that the condition of the ship and its equipment comply with the requirements of international regulations and that the ship is manned and operated

³ <https://www.parisMoU.org/about-us/history>

⁴ <https://www.parisMoU.org/about-us/history>

in compliance with these instruments in order to ensure maritime safety and security and to prevent pollution.”⁵

Port State Control seems to appear when shipowners, classifiers and services fail to comply with international maritime requirements agreements. Even though flag states have the final responsibility for the contracts, port authorities have the right to inspect foreign vessels in their ports to ensure that any deficiencies are repaired before they are allowed to sail. Port state control is thought to be a supplement to flag state control.

The significance of port state control has been widely recognized, in recent years, and there has been considerable mobilization in various areas to develop a harmonized approach to the successful implementation of control benefits.

Port state control was established by the IMO, which showed an improvement in maritime safety vessels (Li & Zheng, 2008) The importance of ship age has been confirmed by Cariou et al. (2007) from a dataset of inspections. Also, recent studies have shown the importance of inspection which improves the efficiency of safety inspection (Ming- Cheng Tsou 2018), using data for the period of 2000-2016 within the region of Tokyo MOU. As it can be observed below our study extends to all regions and analyzes the data through the period of 2006-2019 as per MoU, as per Flag, as per ship type and as per deficiencies.

1.3.2 Port Authorities Rights

Coastal states have specific rights on vessels inland in their 200 nautical mile exclusive economic zone, particularly for fishing and the prevention of major pollution. The coastal States have rights within this area for the purposes of exploration and exploitation, as well as the conservation and management of living resources and non-marine life on the seabed

When a vessel is under the jurisdiction of another State, the jurisdiction of a flag state coexists with the jurisdiction of coastal or port authorities. In accordance with

⁵ <https://www.imo.org/>

ordinary international maritime law, as well as United Nations Convention on the Law of the Sea, 1982 (UNCLOS). The state has the right to exercise some control over foreign-flagged ships that fall under its jurisdiction. Coastal States, on the other hand, are only permitted to operate a vessel if it has, or is likely to have, an impact on the protection and conservation of the marine environment. Any such intervention will be directed at him with due regard for the rights and obligations of other countries.

The IMO and ILO give states the authority to expand PSC inspections of foreign vessels in ports. The flag State, where the vessel is registered, bears primary responsibility for law and order, on-board discipline, appropriate navigation and marine art, the safety of boats and persons at sea, and the prevention of marine pollution. The flag State is also responsible for ensuring that a vessel is equipped, operated, maintained, and manned in accordance with international maritime contracts.

It is acknowledged that foreign merchant vessels are subject to the competence of the coastal state when they are in its inland waters. The countries have used two arguments to justify the use of Port State Control. The first is the right of its citizens to self-protection, as well as the environmental hazards posed by vessels below medium speed. The second is international contract enforcement relating to maritime safety, which prevents unseaworthy vessels from sailing at sea.

Even though the justification existed, UNCLOS have tried to limit its extend of PSC to foreign vessels and determine precise procedures. The responsibilities allocated to the port authorities under UNCLOS limited to the protection of the marine environment and in general safety regulations contained in the IMO Individual Conventions and ILO. Initially, the PSC mainly limited itself to ensure compliance with the technical aspects of IMO contracts. However, with recent changes to SOLAS 1974 PSC executives can control the operating systems requirements when there are clear reasons that the captain or the crew are unfamiliar with the deck procedures for boat safety.

Port State Control Inspections were established to eliminate the risk of pollution from foreign vessels, to ensure the presence of a healthy and safe working environment, and to ensure compliance with the International Convention.

Most conventions include warnings about unreasonable inspection delays, and the selection of the inspected vessel should be done objectively and uniformly.

The port authorities shall apply the conventions that have entered into force and have been applied, not only to vessels of their own country, but also to vessels flying the flag of states that have not ratified a convention, as preferential treatment will no longer exist. International vessels entering the waters of a state may be subject to additional national rules and regulations enacted by the state. In the United States, for example, the Oil Pollution Act of 1990 was enacted (OPA 90).

1.3.3 Necessity of Port State Control Inspection

The world of shipping is anything but ideal and some flag states are either unable or unwilling to carry out their international responsibilities. There would be no need for PSC if all flag states conducted their duties satisfactorily. Unfortunately, as many marine incidents around the world demonstrate, this is not the case.

Thousands of facts involving loss of life, property loss, and environmental damage have emerged in the last 40 years, some of which are well known and others that have gone largely unnoticed by the press and public. PSC inspections of foreign flag vessels ensure that the flag State is adhering to its obligations under various IMO and ILO conventions. With the collaboration of other countries to finalize PSC regional agreements, the effectiveness of these inspection programs has increased, while costs to port authorities and shipowners have both decreased. Many vessels do not regularly contact port inspectors from the flag State, which may limit the flag State's ability to efficiently police and enforce contract requirements on boats. This encourages some vessels to sail in subzero temperatures, endangering the safety of other vessels, seafarers' lives, and environmental safety.

1.3.4 Flag State Role

The presence of valid certificates on board generally provides evidence that the vessel meets the standards of international conventions and the rules of the Registrations. To ensure that their vessels meet and then maintain the International Convention Standards, each state must have the necessary procedures in place to ensure that vessels are inspected on a regular basis and receive new certificates. This liability applies whether the Flag State conducts its own

investigations or allows a recognized organization (RO) to conduct investigations and issue international certificates on his behalf. Members of the International Union of Cognacs (IACS) respond to a RO at the bare minimum. As a result, in many cases, registration inspectors perform all certification work on the vessel.

1.3.5 Flag State responsibility for state port control

UNCLOS requires from each State to exercise its competence and its control effectively over the administrative, technical, and social aspects of the vessels flying its flag. This includes their construction, equipment, and safe manning, working conditions and payroll training, use of signals, maintenance of communications and their prevention of collision. Flag States must ensure that vessels flying their flags comply with applicable international rules and standards, as well as their own internal laws and regulations, for the prevention, control, and management of pollution in the marine environment. The flag States will provide effective enforcement of the rules, regardless of where the violation occurs.

Maritime law recognizes the concepts of jurisdiction of coastal state authorities and port authorities, which are based on one form or another of the territoriality principle. The former demonstrates the state's competence for its territorial waters and exclusive economic zone, whereas the latter demonstrates the state's competence beyond the vessels in its ports, which are usually, but not always, inland waters. Concerning pollution from ships, the UN Convention on the Law of the Sea (UNCLOS) imposes obligations on flag states as well as coastal states. Coastal states may exercise their sovereign rights in their territorial waters by extraditing laws and regulations for the prevention, control, and management of maritime pollution caused by foreign vessels.

States that sign contracts with one another accept certain obligations, but they also acquire certain rights and provisions against other Contracting Parties. The flag state agrees to take certain measures against vessels registered in, but also acknowledges that coastal and port authorities have the authority to take certain measures against the flag state's vessels when they are incompetent. However, both parties to the agreement acknowledge that the measures that can be implemented are limited to those specified in the Treaty.

1.3.6 Flag State in General

Some flag states have worse safety measures regarding vessels that are entered in their list by others. This is a result of several factors, including an insufficient number of trained inspectors, poor maritime administration, and a lack of political will to improve security and legislation, proper administration, and enforcement. While the "black list" of high-risk countries varies from year to year, some flag states manage to get on this MoUs list for a number of years. These states activate the "open registries" that enable the management of their merchant fleets and individuals trying to operate without the minimum number of staff or inspectors without the necessary ability, experience, knowledge, or lack of motivation.

1.3.7 Conventions

The MARPOL Convention covers all aspects of vessel pollution, including the prevention of oil pollution, harmful liquids, harmful packaged substances, from sewage contamination, wastes, and more recently, from the emissions of Machinery deck. It applies to all types of boats except of warships and public vessels in the non-commercial service and allows the Contracting Parties to check that a vessel in a port or coastal terminal has been valid certificates. Also, inspections can be carried out to check whether a vessel has released any harmful substances into the sea. So while the standards that are applied are usually those that are included in international conventions that provide for PSC, there is a need for consistency in the application.

There are various international maritime conventions with PSC benefits. The right to inspect vessels is set out in the following Treaties:

- MARPOL Convention 73/78
- SOLAS Convention 74/78
- Load line Convention 1966
- Collision Prevention Regulations 1972, (COLREG 72)
- STCW Convention 1995

- International Convention on Tonnage Measurement of Ships 1969 (TONNAGE 1969)
- Merchant Shipping (Minimum Standards) Convention, 1976 (ILO Convention)

In addition, there are over 200 assembly resolutions considering technical specifications, more detailed recommendations that address these situations performance standards, codes, and instructions. Then there are some resolutions, adopted by the Committee on Maritime Safety. An activity also included in some regional PSC agreements is the control of the ILO Merchant Shipping Treaty (thresholds), 1976.

Flag states must develop and retain effective control over vessels flying their flag. This requirement laid down in Article 94 UNCLOS and specifically included in the Treaties listed above. A Flag State inspector should have a good education, as well as necessary credentials and experience. However, it is acknowledged that some countries may not have satisfactory number of such capable individuals. In such cases, States may delegate their responsibilities in this regard to the "recognized organizations which acting on behalf of the administration". IMO has published" the instructions where the organizations are allowed to act on behalf of an administration "in vote A.739 (18). Most of these authorized organizations are classification societies.

1.3.7 Harmonization of rules

There are some states with additional legal provisions regarding shipping, such as the United States, but there are also current Members of the International Union of Registers (IACS) competing for economic gain. Under the IMO's sovereignty, however, there is a significant degree of harmonization between each state's rules and regulations and those of the IMO. As a result, most issues concerning vessel safety are covered by IMO contracts, and most nations have adopted these provisions in national law with minor, if any, modifications. However, there are differences in interpretation, and the IMO has issued several resolutions and Circulars concerning PSC proceedings.

1.3.8 ISM Code

According to accident research, deficiencies in shipping company management in terms of vessel operation are a contributing factor to many maritime accidents. As a result, rules have been enacted to codify certain administrative procedures and to ensure that security management standards are established and maintained, so that they can later be controlled by operative audits.

The International Safety Management code (ISM) applies to all other vessels from July 2002. It is considered that this code will have a profound effect on the safety of vessels at sea and the protection of the marine environment, as it requires shipping companies to make particular changes to implement safe administrative procedures and maintain appropriate files. ISM should be implemented by shipowners and controlled by the Flag States but is also an inspection subject by port authorities. Vessels that do not have the necessary certification will be able to prevent them from entering foreign ports.

1.4 Development of Regional Port State Control

1.4.1 Appearance of regional agreements

If PSC inspections are conducted in an uncoordinated manner within a given region, the phenomenon of ships sailing in the seas that do not meet the minimum standards will reoccur. If PSC inspectors have no prior knowledge of previous inspections, they will be unable to correct deficiencies or identify common target offenders. Ships that fail to meet the minimum standards will also visit ports with less stringent PSC inspections. This can have a negative impact on the economic situation of ports that conduct appropriate inspections. To prevent the aforementioned, various regional arrangements have been developed.

The most important functions under these regional agreements are the creation of central databases so that the national PSC can submit information and all components can access and display the database history of a ship's PSC. This enables members to share information about the vessels, their records, and the results of inspections. This

information is critical because it allows the next port of call to focus on vessels that have not been inspected in a while. In general, vessels that have been inspected within the previous six months are not re-inspected unless there are compelling reasons to do so. Another reason is to ensure that the vessels identified as being below-average are effectively controlled, particularly those that have been allowed to sail with minor defects as long as they are repaired at the next port.

1.4.2 Rules that govern the activities of PSC

In 1995 IMO adopted resolution A787(19), which modified in 1999 by the resolution A882(21) and will be modified in the future. The procedures are intended to provide basic instructions on how to conduct port state inspections and identify defects in a vessel, its equipment, or its crew in order to ensure that contract management benefits are implemented consistently from port to port around the world. Although these procedures have been developed and agreed upon internationally, they are not mandatory and only provide guidance to authorities. While the port authorities of the local contracts are supposed to use these procedures when exercising port state control, there are several variations in how they are interpreted in practice. For example, if the control procedures were strictly followed, a general or routine inspection would be limited to checking the vessel's certificates, apart from a few cases where the vessel's condition was deemed uncertain. However, it is frequently argued that the mere presence of certificates is not proof that the boat is in good condition, and as a result, some Port State Control Officers (PSCOs) are tightening their grip on inspections. Three port state control (PSC) regimes provide data on inspections and bookings to Equasis. Its protocol of agreement in Paris (for Europe and the North Atlantic region), their coastguard MoU in the United States, and their MoU in Tokyo (for Asia Pacific). The frequency with which the PSC report details are updated by different areas varies, and thus the accuracy of the information presented varies accordingly. Weekly updates are made to the information received from the Paris Convention Protocol on Inspections, Reservations, and Possible Corrections to Previous Reports. The data received from the USCG is updated once a month. Equasis receives updates to the Tokyo Convention Protocol at irregular and longer intervals.

1.4.3 The Uniformity of Port State Control

While the most important benefit of regional cooperation is the uniformity of PSC inspections between countries and regions, standards and inspection procedures vary greatly around the world and among regional MoU members at the moment. Uniformity can be achieved through standardized inspection procedures and manuals, the training and exchange of inspectors in other countries, and the use of seminars to harmonize procedures among members of regional agreements.

However, the ultimate goal will be the completion of all regional MoU. In order this to happen, there must be uniformity in the systems information, databases, and other technical issues. Although data storage and exchange systems in each region have generally evolved, the long-term benefits of a standard coding system are now recognized. The majority of database systems that have been developed have made use of the band coding sets of Paris Convention Protocol computers. It will also need to change the mindset of shipowners and maritime commanders, who have historically been constipated. This system will allow charterers to choose suitable boats that have been well maintained and thoroughly regulated by quality operators.

1.4.4 Regional Port State Control agreements around the World



Figure 1 Regional Scope of Paris MoU

Source: Paris Memorandum of Understanding on Port State Control (Paris MoU) adopted in Paris (France) on 1 July 1982.

Belgium, Bulgaria, Canada, Croatia, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Latvia, Lithuania, Malta, Netherlands, Norway, Poland, Portugal, Russian Federation, Slovenia, Spain, Sweden, United Kingdom.⁶



⁶ <https://www.parisMoU.org/about-us/organisation>

Figure 2 Regional Scope of Vina del Mar

Source: *Acuerdo de Vina del Mar (Vina del Mar or Latin-America Agreement)*, signed in Vina del Mar (Chile) on 5 November 1992.

Argentina, Bolivia, Brazil, Chile, Columbia, Cuba, Dominican Republic, Ecuador, Guatemala, Honduras, Mexico, Panama, Peru, Uruguay, Venezuela.⁷



Figure 3 Regional Scope of Tokyo MoU

Source: *Memorandum of Understanding on Port State Control in the Asia-Pacific Region (Tokyo MoU)*, signed in Tokyo (Japan) on 2 December 1993.

Australia, Canada, China, Chile, Fiji, Indonesia, Japan, Republic of Korea, Malaysia, Marshall Islands, New Zealand, Panama, Papua New Guinea, Peru, Philippines, Russian

⁷ <http://197.230.62.214/VMoU.aspx>

Federation, Singapore, Solomon Islands, Thailand, Vanuatu, Vietnam, Hong Kong (China), with Mexico being under cooperating member.⁸



Figure 4 Regional Scope of Caribbean MoU

Source: Memorandum of Understanding on Port State Control in the Caribbean Region (Caribbean MoU), signed in Christchurch (Barbados) on 9 February 1996.

Anguilla, Antigua & Barbuda, Aruba, Bahamas, Barbados, Bermuda, British Virgin Islands, Cayman Islands, Cuba, Dominica, Dominican Republic, Grenada, Guyana Haiti, Jamaica, Montserrat, Netherlands Antilles, Saint Kitts & Nevis, Saint Lucia, Saint Vincent & the Grenadines, Suriname, Trinidad & Tobago, Turks, and Caicos Islands.⁹

⁸ <http://www.bsMoU.org/about/>

⁹ <http://www.caribbeanMoU.org/content/about>



Figure 5 Regional scope of Mediterranean MoU

Source: Memorandum of Understanding on Port State Control in the Mediterranean Region (Mediterranean MoU), signed in Valetta (Malta) on 11 July 1997.

Algeria, Cyprus, Egypt, Israel, Jordan, Malta, Lebanon, Morocco, Tunisia, Turkey, and the Palestinian Authority.



Figure 6 Regional Scope of Indian Ocean MoU

Source: Indian Ocean Memorandum of Understanding on Port State Control (Indian Ocean MoU), signed in Pretoria (South Africa) on 05 June 1998

Australia, Bangladesh, Comoros, Eritrea, France (La Reunion), India, Iran, Kenya, Madagascar, Maldives, Mauritius, Mozambique, Myanmar, Oman, Seychelles, Sri Lanka, South Africa, Sudan, Tanzania, and Yemen.¹⁰

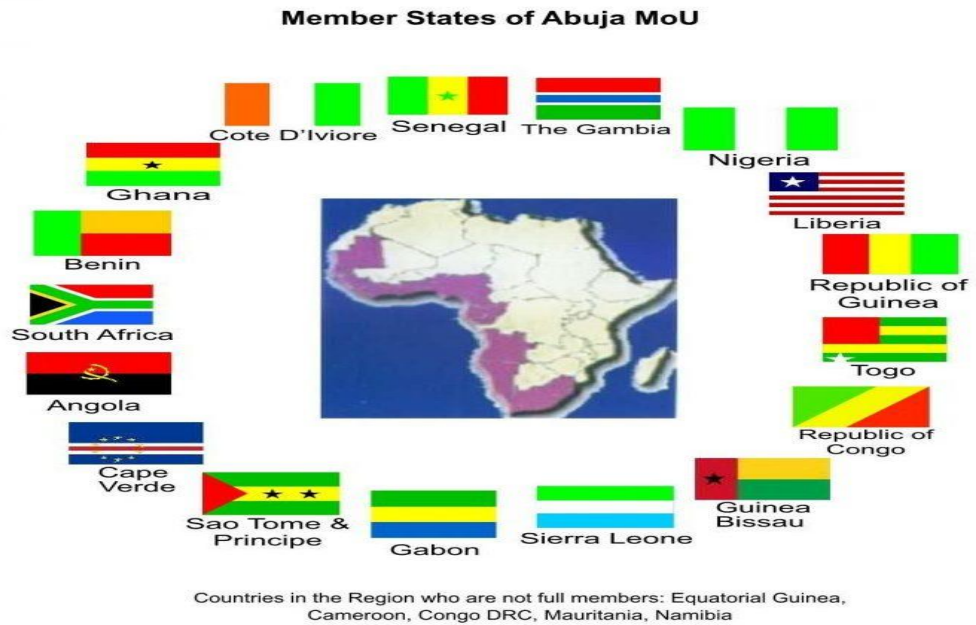


Figure 7 Regional Scope of Abuja MoU

Source: Memorandum of Understanding on Port State Control for the West and Central African Region (Abuja MoU), signed in Abuja (Nigeria) on 22 October 1999.

Angola, Benin, Cameroon, Cape Verde, Congo, Cote d' Ivoire, Gabon, Ghana, Guinea, Equatorial Guinea, Liberia, Mauritania, Namibia, Nigeria, Senegal, Sierra Leone, South Africa, Sao Tome and Principe, Democratic Republic of Congo, Guinea Bissau, The Gambia, and Togo¹¹.

¹⁰ https://safety4sea.com/wp-content/uploads/2020/05/Indian-Ocean-MoU-Annual-Report-2019-2020_05.pdf

¹¹ <http://www.abujaMoU.org/index.php?pid=63d7s92j239sds7dh>



Figure 8 Regional Scope of Black Sea MoU

Source: Memorandum of Understanding of Black Sea Bulgaria, Georgia, Romania, Russian Federation, Turkey, Ukraine¹².

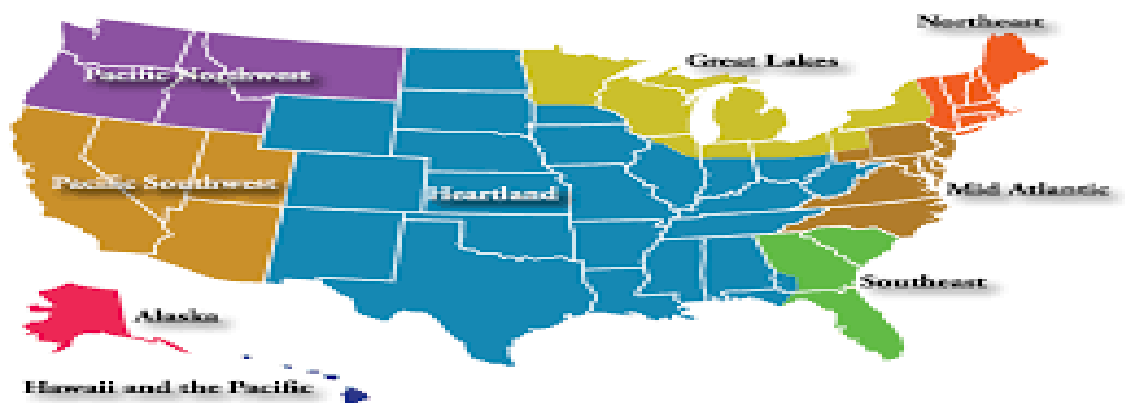


Figure 9 Regional Scope of USCG

Source: USCG (USA Coast Guard).

Table 1 Operation of MoU

MoU	ADOPTED	OPERATION	MEMBERS

¹² <http://www.bsMoU.org/about/>

Paris MoU	January 1982	July 1982	27
AMSA	1929	1990	Australia
USCG		1970	USA
Black Sea	September 1999	December 2002	6
Tokyo MoU	December 1993	April 1994	20
Mediterranean MoU	July 1997	1997	11
Indian Ocean MoU	August 1997	April 1999	20
Caribbean MoU	February 1996	1996	23
Abuja MoU	October 1999	1999	22
Vina Del Mar MoU	November 1992	1992	15
Riyadh MoU	June 2004	2004	6

1.4.5 Recognized Classification Societies

An up-to-date list of ROs that meet the RO requirements for a low-risk ship (High performance + Recognized by one or more Paris MoU Member States) is published on this page in compliance with Annex 7, paragraph 14 of the (amended) MoU.

The Paris MoU RO performance list excludes ROs whose cumulative number of inspections over a three-year rolling span does not exceed the minimum of 60. As a result, despite being recognized by one or more Paris MoU Member States, some ROs are unable to meet the requirements for their ships to qualify as Low Risk Ships under the Paris MoU.

The list of ROs that have met the RO requirements for a Low-Risk Ship is only for the purposes of the Paris MoU inspection and should not be used in any other way.¹³

Effective from 1st July 2020

- Lloyd's Register of Shipping (LR)
- Bureau Veritas (BV)

¹³ <https://www.parisMoU.org/inspections-risk/ship-risk-profile/ros-meeting-low-risk-criteria>

- Nippon Kaiji Kyokai (NK)
- China Classification Society (CCS)
- Det Norske Veritas (DNV)
- Turkish Lloyd (TL)
- Korean Register of Shipping (KR)
- American Bureau of Shipping (ABS)
- Registro Italiano Navale (RINA)
- Russian Maritime Register of Shipping (RS)
- Polski Rejestr Statkow (Polish Register of Shipping) (PRS)

1.5 General Information

1.5.1 Elements of Inspection

All port state control visits to a vessel must begin PSCO to conduct an initial inspection, unless there are serious indications which will force him to proceed immediately to a more detailed inspection. If during the initial inspection the PSCO finds significant evidence deficiencies / remarks on the vessel, its crew, or its operation, then will has clear reasons to carry out a more detailed inspection of the vessel in order to ascertain his factual situation.

The existence of a concentrated inspection campaign or an extensive inspection program will definitely force the PSCO inspector to conduct a more detailed investigation than is required in an initial inspection. Deficiencies can be identified at any stage of the process inspection and depending on how serious it is whether or not a booking will follow of the boat.

1.5.2 Duration Between Inspection

If a vessel is inspected by the port authorities and during the inspection no significant deficiencies are reported, then a new inspection should not be expected within the next six months. It should be exempt from further inspections outside if there are special reasons to justify them. In practice, the data show that the vessels are frequently inspected, for no particular reason, at less than six months, especially when moving between areas of authorities. Therefore, both shipowners and captains should not rest for the next years after an inspection since they do not know when the next one will follow.

1.5.3 Procedure Types of Inspection

PSCO initially announces its visit to the captain. On the rise to the bridge gets an initial general impression of the condition of the ship. Checks the ship's certificates and gets an impression of the conditions above on the ship. It is up to him to get that impression: looking at deck, in the Engine Room, on the bridge. There are three types of inspections based on the purpose of the inspection:

General Inspection

PSCO board on ship without notice. On the rise to find the captain gets a first impression of the condition of the ship. He presents himself to the captain and in each case checks the certificates and take a tour of the ship to get an impression of the situation ship maintenance.

More Detailed Inspection

If the PSCO suspects, through its investigation, that the ship is not subject to international rules, it must decide to conduct a more thorough ship inspection. Based on the purpose of the inspection, some PSC authorities have issued control panel "checklists" to PSCOs. A more thorough inspection, on the other hand, is not mandated by any international treaty.

A more detailed inspection will include a full round of the vessel, a detailed inspection of the equipment and safety arrangements, as well as environmental protection, housing, and crew operational knowledge.

The decision for a more detailed inspection can be found at PSCO professional judgment and will generally be taken if:

- Deficiencies are observed in the certification (certificates invalid or absent).
- the general impression of the term ship gives rise to the suspicion that international regulations are observed.
- Deficiencies reports from third parties are known to require such inspection.

The agreements contain exactly the examples for the clear reasons why more detailed inspection should be carried on. There is no detailed definition for such. A more detailed inspection does not claim to be complete. The PSCO decides for the scope of such an inspection at its discretion.

ISM Inspections

According to IMO RES. A.882 (21) PSC inspectors can check the ISM system at sea. Given that there is generally no auditor, they can just check the documentation and ask questions in order to find out if the ISM is working. The presence of various technical deficiencies will give rise to the assumption that the ISM is not functioning satisfactorily.

PSC inspectors can list a deficiency by stating that the SMS does not work properly and that owners should consider checking it system in order to find possible non-conformities.

The action codes used to set the timeline framework for correction are names such as “nonconformity that can be fixed” although the PSCO does not have the right to determine the non-conformities

ISPS Inspection

PSCOs also have the authority to inspect on-board compliance with the ISPS code. IMO RES. MSC.159 (78) specifies how a Senior Officer who has been duly authorized should consider system audits security. The US Coast Guard is conducting a thorough examination, whereas other countries have decided that the PSC's inspection should be limited to access control and certificate verification. The PSC will generally check board access control, and ISSC validity. The inspectors have no right to revise the

safety manual. If they find them clear reasons that the safety system is not maintained at sea in accordance with their regulations, will call for port security.

If the boat does not comply with the regulations, the port Authority (PSC) may detain or even expel the vessel from the port if it is considered an existing threat to the security of the country.

According to the MOU agreements some types of ships will be inspected once the time with “expanded inspection”.

- Cruise ships
- Bulk Carriers over 12 years
- Oil tanker over 20000GT, Oil Product Carriers over 30000GT and 20 years
- Gas- and Chemical tankers over 10 years

1.6 Port State control officer

The PSCO is provided with an identity card as proof of its authority to carry out inspections. All PSCOs must also have one a copy of the general procedural instructions for PSCOs [IMO resolution A.787 (19)] for reference in case of need during the implementation of inspections.

1.6.1 Characteristics Technical Knowledge

The PSCO must be able to communicate with the captain and the basic parts of the crew in English. It does not need to have previous service as captain or first Engineer or have any travel experience. PSCO should not have no commercial interest in the port, the vessel or be used by or on behalf of a Registrar. If there is lack the of necessary experience in a field of the inspection an expert could accompany him. Supposedly so that the PSCO is qualified and well trained and familiar with the boats.

1.7 Selection of vessels to be inspected

1.7.1 General

The port authorities recognize that the inspection of all foreign vessels that entering their ports would be economically unprofitable but also unnecessary since not all boats are in a state below the average. The general method adopted by the local port authorities is to set general inspection rates to ensure that a minimum number of vessels are inspected and used an evaluation system to inspect the vessels most likely to be below average. In addition, vessels of a certain age and type selected specifically for the purpose of conducting extensive inspections, and of special inspection campaigns focusing on specialist control theories and sections of vessels. In general, each boat is inspected for once every six years.

The percentages of vessels inspected differ for each local agreement and are intended to ensure that a reasonable number of different foreign vessels are inspected each year. Because some ports or states have more PSCO than others, the inspection rate frequently varies from port to port, even within the same MOU. However, an annual rate inspection for the entire area is mandated. Its protocol of agreement Paris, for example, has a 25% annual inspection rate.

1.7.2 Data Base Aid

To enable port authorities to identify suitable vessels for inspection, they must collaborate and use databases such as SIRENAC and APCIS, which are managed by MoUs in Paris and Tokyo, respectively. They give them information such as port arrival lists, shipping schedules, boat position reports, and previous inspector reports. There are also international databases that provide data not only for inspections performed in a specific area, but also from around the world. EQUASIS was introduced in 2000 by the European Commission and several other maritime services (France, Japan, Singapore, Spain, England, and the United States).

The vessels to be inspected were chosen solely based on their numbers. Of course, it is impossible to distinguish between vessels in good condition and those that are not. The port authorities have begun to seriously consider the possibility of developing a rating scale for vessels that have passed inspections based on their inspection history. As a result, boats with a high score are more likely to be inspected than those with a low score. Inspections will be more effective and the agreed-upon inspection rate for each area will be easier to achieve.

SIRENAC

This definition takes into account selection criteria such as the vessel's flag, age, and type, which have a direct impact on the ship's condition during the inspection. A score will be generated for each boat based on the number of points earned in each criterion. Inspection is required for vessels with a target factor greater than 50. A risk factor of 50 or higher is considered high.

Whether there are flaws or not, each report's details are entered into an advanced host database. This database is accessible from all ports in the Paris Convention Protocol area to consult inspection files, insert new inspection reports, or take advantage of the e-mail opportunity.

EQUASIS

While there is a wealth of relevant information available, it is dispersed and frequently difficult to access¹⁴. One of the main conclusions of the Lisbon Conference on June 1998 was the MoUs demand on all marine industry stakeholders (shipowners, cargo owners, insurers, brokers, registration companies, agents, ports) to make this information more accessible, since one of the most significant obstacles to a genuine quality culture in shipping is the lack of transparency of information on the quality of vessels and their pilots¹⁵. In response to this demand, the European Commission and the French government agreed to collaborate on the development of an information system that compares existing security issues on vessels from both public and private sources and makes them available online.

¹⁴ www.equasis.org

¹⁵ www.equasis.org

Equasis aims to collect and disseminate quality and related security Information for global merchant vessels provided by holders of such information.

Equasis is not intended to be a for-profit enterprise. For this reason, is funded by public funds and will continue to be supported by public authorities in future. France and the European Commission shared the costs for Equasis until 31 December 2001 when maritime authorities of The United Kingdom, Spain, Singapore, and Japan also agreed to support Equasis financially.

APCIS

The Asia Pacific Computerized Information System (APCIS) is established in implementation of the Commission decision of the agreement under the State port control in Asia (Tokyo Convention Protocol). The Tokyo Convention Protocol information system fulfills the following functions such as collecting and retaining vessel information and inspections, obtaining the full history of the vessel, prepare reports, statistics and more.

The main purposes of the information system in state port control are:

- Harmonize inspection procedures
- To assist in locating below average vessels.
- Assist authorities in selecting vessels for inspections
- Exclude repeated or unjustified inspections.
- Analyze the activities of state port control.
- Exchange inspection information between Member States
- Record all relevant details of PSC inspections.

1.7.3 New Inspection Regime ¹⁶

The NIR will apply to all ships subject to the provisions of SOLAS, MARPOL, STCW and all other applicable international maritime conventions when visiting a port or anchorage within harbor limits of a Member State.

The NIR is a risk-based mechanism that will be used to replace the current Target Factor system. It is intended to reward quality shipping by reducing the inspection burden, whereas ships deemed high risk will be subjected to more frequent in-depth inspections.

Under NIR a vessel will be assigned a Ship Risk Profile which will classify it as being either a Low Risk Ship (LRS), a Standard Risk Ship (SRS) or a High Risk Ship (HRS). The Ship Risk Profile determines the inspection priority of the vessel, the time interval between inspections and their scope. A vessel's Ship Risk Profile will be calculated using the following criteria based on its port state control inspection history in the MOU region. Once three years have elapsed, the vessel's track record over the previous 36 months will be used

- Type of ship
- Age of ship
- Performance of the ship's flag state, including whether it is party to the Voluntary IMO Member State Audit Scheme (VIMSAS)
- Performance of the Recognized Organisation(s) and whether it is recognised by the EU
- Performance of the company responsible for the management of the vessel's ISM Code system
- The number of inspections, deficiencies and detentions

¹⁶ <https://www.westpandi.com/>

The performance of the company responsible for the management of the vessel's ISM Code system will be ranked as being High, Medium, Low or Very Low. This will be calculated using a formula based on the total number of Regions' detentions and deficiencies in the company's fleet, compared with the region average for all vessels during the same period. The names of companies with Low or Very Low performance will be placed in the public domain.

Members may estimate their own level of performance and the risk profiles of their vessels by using the Preliminary Company Performance Calculator and Ship Risk Profile Calculator respectively. Ship Risk Profiles will be recalculated daily, taking the latest inspection information into account.

Under the NIR there are two categories of inspection: Periodic and Additional. For the former, a time window will open after the vessel's last inspection in the region, the frequency of which will vary according to the vessel's Ship Risk Profile:

- High Risk Ships – time window between 5-6 months after the last inspection
- Standard Risk Ships – time window between 10-12 months after the last inspection
- Low Risk Ships – time window between 24-36 months after the last inspection

If a ship calls at region's port within the time window, it will be classified as Priority II and may be selected for a Periodic inspection. However, if it arrives after the time window it will be classified as Priority I and must undergo a Periodic inspection before it leaves port.

Priority I inspections may, in certain circumstances, be deferred to another port in the same Member State, or a port in another Member State if the latter agrees. Inspections will not be conducted if a port call takes place only at night or if in the judgement of the Port State the inspection would create a risk to the safety of the inspectors, the ship, its crew, the port or the marine environment. However, in the

event of repeated port calls at night, special arrangements will be made to carry out an inspection.

Additionally, bulk carriers, chemical carriers, gas carriers, oil tankers and passenger ships older than 12 years will undergo an expanded inspection.

Additional inspections are triggered by overriding or unexpected factors, depending on the severity of the occurrence, regardless of the time window.

Overriding is Priority I and will be inspected. Examples: collision, stranding or grounding, class withdrawn, operated in unsafe manner.

Unexpected is Priority II and may be inspected. Examples: reported by pilot, agent etc. certificates issued by recognized organization from whom recognition has been Withdrawn, failure to comply with reporting requirements.

The master of a high-risk ship (or bulk carrier, chemical tanker, gas carrier, passenger ship or oil tanker more than 12 years old) must notify the PSC authority of its arrival at the port or anchorage 72 hours in advance, or before departure if the intended voyage is less than 72 hours. All ships must provide an arrival notification at least 24 hours in advance, or on departure if the intended voyage is less than 24 hours. The responsibility for complying with mandatory reporting requirements rests with the master.

The MOU has widened banning for multiple detentions from certain ship types to all ship types and extended the flag from the black to the grey listed ones. The banning criteria for the first and second ban will be amended as follows:

- Black listed flag – banned after more than 2 detentions in previous 36 months
- Grey listed flag – banned after more than 2 detentions in previous 24 months
- Jumping detention
- Failure to call at indicated repair yard

Any subsequent detention after a second ban will lead to a ban, irrespective of flag. A ban can be lifted: 3 months after the first ban, 12 months after the second ban, and, 24 months after the third ban.

Following a third refusal of access, a vessel is permanently banned if, after 24 months, the vessel is not registered with a white flag, EU recognized class and managed by a high performing company.

A refusal of access order remains on record for the life of the ship, irrespective of any change of owner, flag and/or class

1.8 Deficiencies and Detention on Vessels

1.8.1 Deficiencies-Observation

1.8.1.1 General Information

The number and nature of observations found by the PSCO determine the corrective measures to be taken on the vessel and whether the vessel will or will not be detained.

It is critical that the captain fully comprehends the remarks and what corrective actions should be taken. When the observations are sufficient to warrant an order booking board, this is critical. He must also understand when he has the right to appeal the order.

Any misunderstandings could cause the vessel to be delayed in port unnecessarily. The captain must check to see if the details of the comments were correctly entered in the booking documents and, if necessary, request clarification from PSCO. When the remarks concern a legal subject, the captain must summon one of his classification society inspectors authorized to examine such data on behalf of the flag state.

Port State Control Officers should list the remarks they find, with the details of the respective certificate in each case, including the name of the issuer, and the date of the last survey. These lists should include:

- All observations regarding hardware and management system are recorded in the port authority's inspection report including the code number or detention number, for any deficiency.

- Details of actions taken.
- Details of any important remarks. A date should be states in order any such observations to be checked.

The following codes are used to determine their severity comments from PSC inspectors (action codes)¹⁷.

Code	Description
00	Non-Action Taken
10	Deficiency rectified
12	All Deficiencies Rectified
15	Rectify deficiency at next port
16	Rectify deficiency within 14 days
17	Master instructed to rectify deficiency before departure
18	Rectify non-conformity within 3 months
19	Rectify major non-conformity before departure
20	Ship delayed for rectification of deficiencies
25	Ship allowed to sail after delay
26	Competent Security Authority (CSA) informed
30	Ship Detained
35	Detention Raised
36	Ship allowed to sail after follow-up detention
40	Next port of call informed
47	Agreed Class condition

¹⁷

<https://www.parisMoU.org/sites/default/files/Information%20on%20detention%20and%20action%20taken.pdf>

50	Flag State/ Consul informed
55	Flag State Consul informed
60	Region State informed
65	Prohibition to continue an operation
70	Classification Society informed
80	Temporary substitution of equipment
81	Temporary repair effected - permanent repair to do
82	Alternative equipment or method used
85	Investigation of contravention of discharge provision (MARPOL)
90	Letter of warning issued
95	Re-inspection connection with Code 90
96	Letter of warning withdrawn
99	Other (specify)

Only some of the codes are in the reports, others are mainly used for import into the PSC computer database. Some areas use some different codes of action, however master codes are used worldwide.

1.8.1.2 Corrective actions in certain time period

Once the PSCO has identified deficiencies in the vessel, has three main options available in terms of how to deal with them:

- Require the correction of observations before the vessel departs from port. He may decide to return to the boat to check if the remarks have been correctly restored.
- Allow the vessel to sail, provided the deficiencies will be restored to the next port. Must inform the next port for his decision.

- Require that deficiencies be remedied within fourteen days, or in the case of non-compliance with ISM, within three months. PSCO is likely to report deficiencies as significant and the vessel should then expect to be a target for inspection at subsequent ports.

1.8.1.3 Correction Repairs

If there are "clear reasons" for a more detailed inspection and the deficiencies reveal deficiencies that place the vessel below average in terms of hull, machinery, equipment, operational safety, or crew are attached to the secure manning document, the vessel can be detained. However, because port authorities are subject to the jurisdiction of a flag State, it is critical to notify the representative for the flag State and request its cooperation, or the representative for the Classification society in the research to begin the processes to correct the imperfections noted. If the vessel is deemed to be below the average and endangers the safety of the vessel, passengers, crew or poses a risk to the marine environment, the port authorities have a duty to immediately ensure that corrective action is taken before authorizing the vessel to sail, provided that the defects cannot be treated in that port, the vessel may be allowed to sail in the next suitable port with the competent facilities for the necessary repairs, as the flag State and port authorities will be notified at the next port.

1.8.1.4 Sail Permission to a vessel

When Observation needs to be restored but appropriate facilities or repair docks are not available at its port inspection, the vessel may be allowed to sail to the nearest appropriate place repair port. In assessing whether it is safe or not to make this trip PSCO will consider:

- The Length and nature of the intended trip.
- The size and type of boat and equipment
- The nature of the transported cargo.
- If the crew is rested.

- Whether or not the failure poses a risk to the vessel, persons on board or to the environment.

It is important that the boat reaches the designated repair port. Otherwise, it can lead to exile from the ports of the area.

1.8.1.5 Suspension of proceedings on a vessel

If the deficiencies found make the loading and unloading procedures unsafe or threatening the marine environment, PSCO must suspend them. The following deficiencies may lead to Suspension of proceedings:

- Incomplete oil transportation procedures during oiling.
- Incomplete SOPEP settings. (Ship Oil Pollution Emergency Plan).
- Incomplete cargo information.
- A loading plan incompatible with standard procedures.

1.8.1.6 Detention Procedures

When the PSCO determines that it is unsafe for a vessel to leave the port, or when the shortages are so severe that they must be restored immediately, the vessel is detained. Detention is a measure taken by port authorities when the condition of the vessel or its crew does not substantially correspond to applicable contracts and poses a risk to its pay and maritime environment. When deficiencies do not pose a reasonable threat to the environment and do not jeopardize the safety of the vessel or its crew, the boat should not be detained.

Even if deficiencies could be corrected prior to the vessel's intended departure, a detention order can still be issued. It may also include instructions to deliver the vessel in a specific position or to move to an anchorage or another port. The order should specify the circumstances under which the boat should be released from detention. The absence of valid ISM certificates may also result in detention. However, vessels flying the flag of non-Contracting Parties in a Treaty or in a relevant body have no right

to bear the certificates provided for therein. Hence the absence of the required documents and certificates will not itself be a reason to keep these vessels but obeying the directive to terminate the favorable treat they will be required to comply substantially before they are allowed to departures.

To make a decision regarding the detention of a boat, especially when it comes to structural rather than functional deficiencies, the PSCO must consider the vessel's seaworthiness rather than its age, as well as the expected wear due to use. If the PSCO has any questions about the allowed thickness reduction rates in main structural components, it should contact the Flag State or the Classification Society. Damage that can be effectively repaired for the trip to the next port where permanent repairs can be made should not be grounds for detention. Problems related to his living conditions will be taken much more seriously.

1.8.2.1 Vessels Detention Criteria

The Paris Convention Protocol in paragraph 9 of Annex 1 sets out the procedures for detaining vessels, which will be done when observations-deficiencies are found during the inspection:

- Vessels that are unsafe to sail at sea will be detained at the first inspection regardless of the time the vessel will be at port.
- The boat will be detained if the deficiencies (defects) are sufficient serious to be worth checking again by a PSCO, after the work is done in order to confirm that they have been restored before the vessel has set sail.

The need for the PSCO to return to the vessel classifies their severity remarks. However, it does not impose such an obligation in every case. This implies that the authority will check preferably at a further visit if the comments have been restored before departure. The decision on whether Deficiencies found on a boat are serious enough to be worth of detention depends on:

- If the vessel has the relevant, valid documentation
- If the vessel has the minimum crew required in the manning document.

During the inspection, the PSCO will further assess whether the vessel or/and the crew is able to:

- navigate safely throughout the next voyage
- check the cargo throughout the next trip
- have control of the Engine Room safely throughout the next trip
- maintain proper promotion and driving throughout the upcoming trip
- extinguish the fire effectively on any part of the boat, if necessary, during the next trip
- abandon the vessel quickly and safely, if necessary, during the next trip
- prevent environmental pollution throughout the upcoming trip
- maintain sufficient stability throughout the upcoming trip
- maintain sufficient watertight integrity throughout the forthcoming voyage
- communicate in emergency situations, if necessary, during of the next trip
- provide safe and healthy conditions at sea throughout the forthcoming voyage.
- Procure the maximum MoU information in the event of an accident (such as Reported by the travel recorder).

If the result of any of these evaluations is negative, considering all the observations found, the boat will have more detailed examination for detention. A combination of deficiencies less serious may also allow the vessel to be detained.

1.8.2.2 Port Authorities Responsibilities

Any detention must be reported to the Flag State by port authorities. The flag State, or the Classification Society acting on his behalf, can go to the vessel to assist and solve the problem. In this case, the PSCO should agree to the inspector's proposed remedies and allow him to supervise the repairs. Whatever arrangement is made, the captain or shipowner is responsible for the repair approval and costs.

When a vessel is detained, all costs incurred by the port authorities to re-inspect the vessel will be burden on the vessel, and detention orders will not be lifted until port authorities fully repaid. Detain a vessel is notified by the port authorities' areas. Multiple detention could reduce the chances of one to trade without restrictions.

1.8.2.3 The right to appeal against a detention order or any unjustified delays

If the captain deems that the detention order was unfair, he should seek clarification from PSCO before he leaves the vessel. Unless if he can give the appropriate explanations, then the captain can do an informal appeal to senior officials within the state port audit administration. If this also fails, then the boat has the formal right of appeal. An appeal should be made to the detention authority of the port authorities as soon as possible and immediately inform the flag State of its progress. The PSCO must inform the captain of his right to exercise appeal. The procedures that will follow will be based on the national legislation of the port authority, and usually require service of the appeal as soon as possible. An appeal will not normally lead to its immediate dismissal of the detention order.

1.8.2.4 Detention effects

If a vessel is detained until it is safe to sail on sea or go to the next port for repairs, some work may must be performed on board by its Engineers and technicians or by shipyard workers. Detain time will depend on availability of equipment, spare parts and accessibility persons capable of carrying out the repairs. If a vessel is detained due to expired certificates, the port authorities should be contacted the administration of the flag State, which may then have to come to contact with the Classification Society. This could take time, depending on the state and the extent to which the port authorities are pursuing its verification validity of certificates. If the detention arises from his incapacity to perform the substantive objectives, if their certificates persons do not comply with STCW-95, or if the issuing State certificates are not included in the IMO "white list", port authorities may insist on replacing non-crew members meet international standards. Again, this may take some time, depending on the availability

of surveillance seafarers with the appropriate qualifications serve on the ship of the flag State.

1.9 Black List

In an effort to assist the PSC in selecting ships for inspection, MOUs evaluating the results of recent inspections, publish the annual “Black, Gray, White Lists”, which present the performance of each flag State with regard to the reservations imposed on their ships from foreign PSC. The lists cover the entire spectrum of low-quality marks and flags that are deemed high or very high risk.

These lists are taken into account for whether a ship is considered a candidate for inspection. It is obvious that if a ship carries flags that are in the dark area, is subject to more inspections and therefore delays by someone other. That is why countries on the white list are more attractive in terms of in the delays of their ships.

1.9.1 List Configuration Method¹⁸

The performance of each flag State is calculated using a standard formula for statistical calculations in which certain values have been determined in accordance with the agreed policy of the Paris Protocol. Two limits have been included in the new system, the black to gray and the gray to white limit, each with its own type:

- Black-to-grey $u = N \times p + 0.5 + z \times N \times p \times (1 - p)$
- White-to-grey $u = N \times p - 0.5 - z \times N \times p \times (1 - p)$

Where:

N= Number of Inspection

P= the allowed detention limit (criterion).

¹⁸ file:///C:/Users/MARIA/Downloads/Explanatory%20Notes%20Annual%20(1).pdf

The Port State Audit Commission of the Paris Convention Protocol has set it at 7%.

Z = the required value of unilateral control (z = 1.645 for a statistically acceptable 95% confidence level)

U = the number of bookings for either the black or whitelist. The formula applies to sample sizes of 30 or more inspections over a three-year period

To sort the results for the black or white list, simply change the target and repeat the calculation. Flags that are still important above this second goal are worse than flags that are not. This process can be repeated with a maximum booking rate of 100%. To make the performance of the flags comparable, the Excess Factor (EF) is introduced. Each increment or decrement step corresponds to an entire EF degree of difference. Excess EF is therefore an indication of the number of times the criterion needs to be changed and recalculated.

Once the excess factor has been determined for all flags, the flags can be ordered by the EF.

2.1 Port State Control Database

A source of information is necessary to find out the importance of Port State control in Maritime industry.

Safe results can be held containing a variety of information from Annual reports available from the year of 2006 until 2019 from all MoU and USCG. Unfortunately, the availability of annual report varies from MOU to MoU and from year to year.

A variety of information has been used for the reliability of the study. The sections that have been analyzed and will be presented are:

- Inspection per Flag per MoU
- Detention Per Flag per MoU
- Inspections per Ship Type per MoU
- Detention Per Ship Type per MoU

- Number of Deficiency per Category of Deficiency per MoU

2.2 Data

For the ultimate definition and control of the reliability of this database. The Ports State Control Data consists of the following elements

Table 2 MOU information Table

MOU	Inspections	Years
Paris MOU	280179	2006-2019
BlackSea MOU	69904	2006-2019
Caribbean MOU	7798	2010-2019
Indian Ocean MOU	78018	2006-2019
Mediterranean MOU	79329	2006-2019
Abuja MOU	23096	2010-2019
Riyadh MOU	27789	2012-2019
Tokyo MOU	393095	2006-2019
USCG	129682	2006-2019
Vina Del Mar	106738	2006-2019

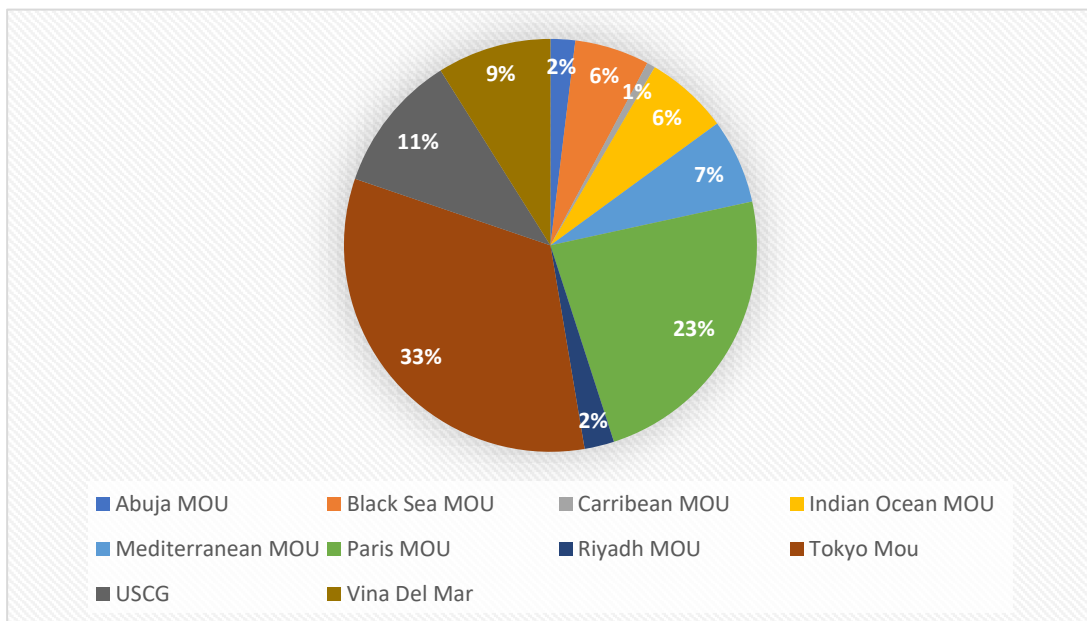


Figure 10 Port State Control Inspection per MOU 2006-2019

Most inspected vessels were Bulk Carriers with percentage of 30% followed by General Cargo ships with percentage of 26%. Figure 11 shows the percentage per ship type.

Since the inspection per ship age and per Gross tonnage were not available from the majority of the annual reports they are not going to be shown on this paper.

Table 3 Total No of Inspections per Ship Type 2006-2019

Ship Type	Sum of Number Of Inspection
Bulk Carrier	335215
Chemical Tanker	74303
Combination Carriers	11473
Commercial yacht	2124
Container	169064
Dredger/Cutter/Hopper	210
Fish factory	459
Gas Carrier	23198
General cargo/multipurpose	286758
Heavy Lift Ship	2446
Not Specified	8160
Oil Tanker	75764
Other	47112
Passenger Ship	19407
Ro-Ro ship	39504
Tug	6901
Grand Total	1102098

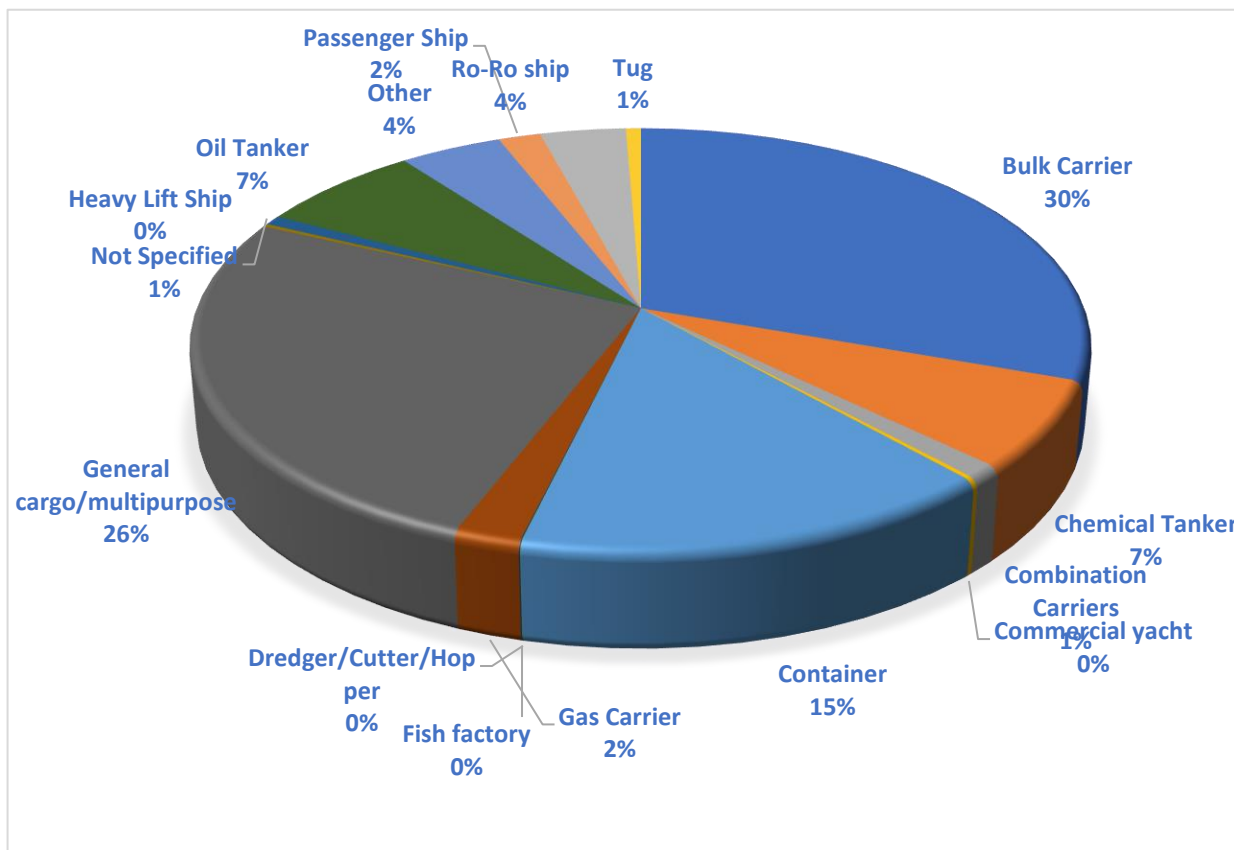


Figure 11 No Of inspection Per Ship Type 2006-2019

2.3 Categorization of Deficiency

Since every annual report from different MOU has different categorization as far as it concerns the type of the deficiency, it is necessary to state some major types in order to present an efficient data analysis.

The categorization is as follows:

Certificates and documents:

1. Crew Certificates
2. Documents
3. Ship Certificates

SOLAS

1. Structural Conditions
2. Emergency systems
3. Alarm signals

4. Radio communications
5. Cargo operations including equipment
6. Fire Safety
7. Alarms
8. Safety of navigation
9. Dangerous goods
10. Live-savings appliances
11. Propulsion and auxiliary machinery

Pollution Prevention

1. Annex I
2. Annex II
3. Annex III
4. Annex IV
5. Annex V
6. Annex VI
7. Anti-fouling

ILO/MLC

1. Living conditions
2. Working conditions
3. Minimum Requirements
4. Condition of Employment
5. Accommodation, Recreational
6. Health Protection, Medical Care, Social Security

ISM

Other

3. Results and Statistical Analysis of Inspected Vessels

3.1 General Statistics- Detention

By extracting the results from the database, it was done statistical analysis at all possible levels with the help of Figures and elements that facilitate further research and evaluation by a technician level.

The main task of every PSCO inspector is to find out through PSC inspection if the ship is safe and meets all requirements of international conventions on the safety of human life at sea and prevention of marine pollution. If deficiencies are detected on the ship that are potentially dangerous, he can keep the ship in port, put it in detain, until they are restored. It is a great importance weather a ship will be kept in port because it means loss time for ship, delay in cargo deliveries and economic losses to the shipowner.

From 1195628 inspections that took place during the period 2006-2019, 47396 vessels were detained. The below charts show the percentage of detained vessel.

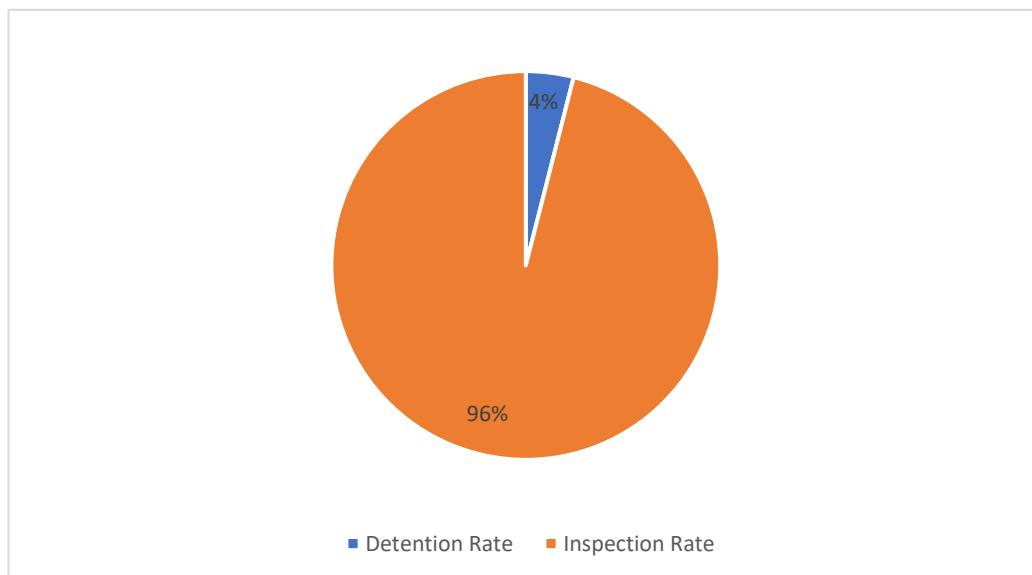


Figure 12. % Detention

In the below Figure It is shown that the inspection numbers increase through the years and the same time the number of detention decreases. It is necessary to note at this point that some data of the MOUs within the years 2006-2010 were not available. (Figure 13).

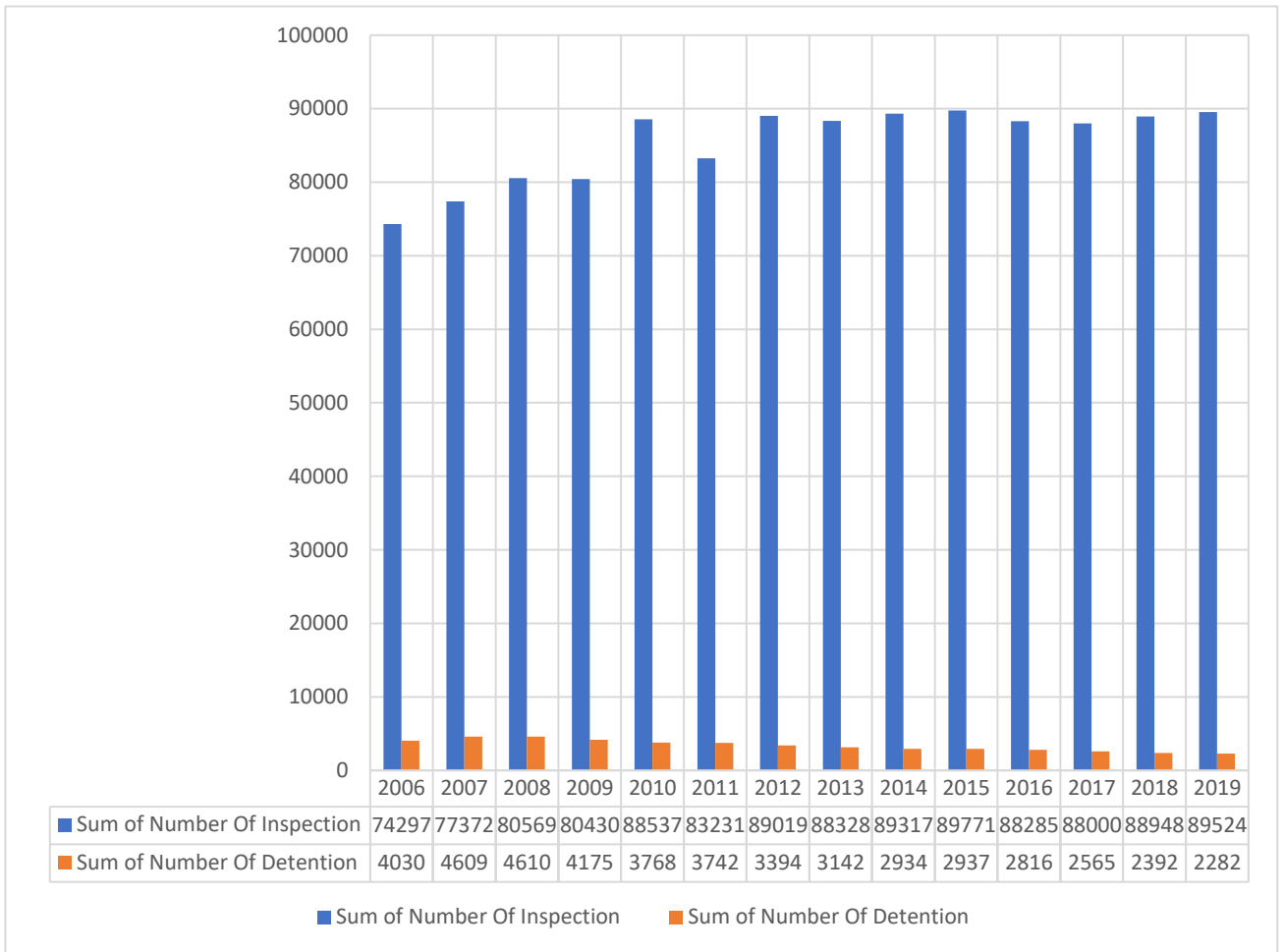


Figure 13 No of Inspection Detention 2006-2019

In the below Figure it is clear that from 2011 the detention rate decreases during the years with a of reduction of 43%

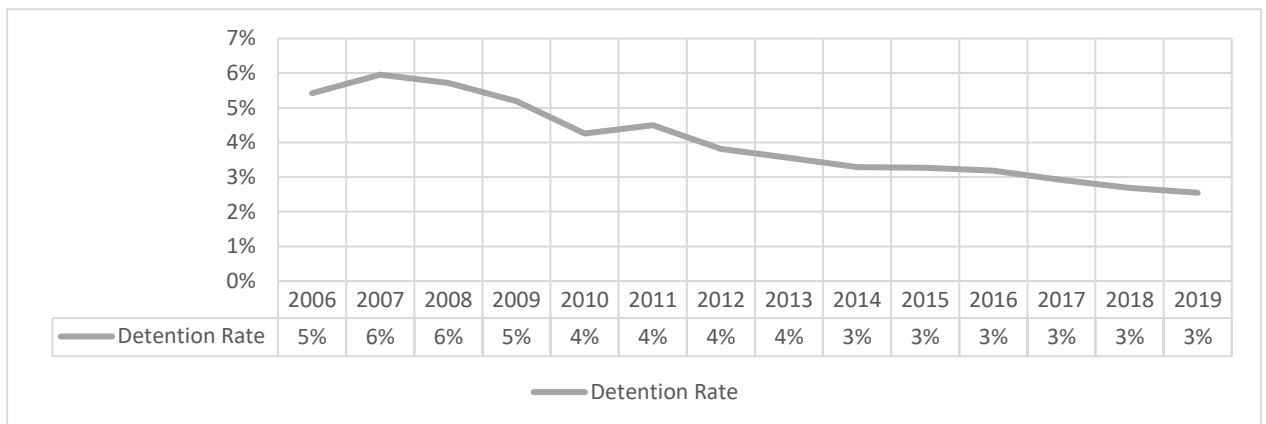


Figure 14 Detention Rate 2006-2019

With the help of the below Figure, it can be shown the comparison between the different MOU based on the number of the inspections and consequently the number detention of its ships sample.

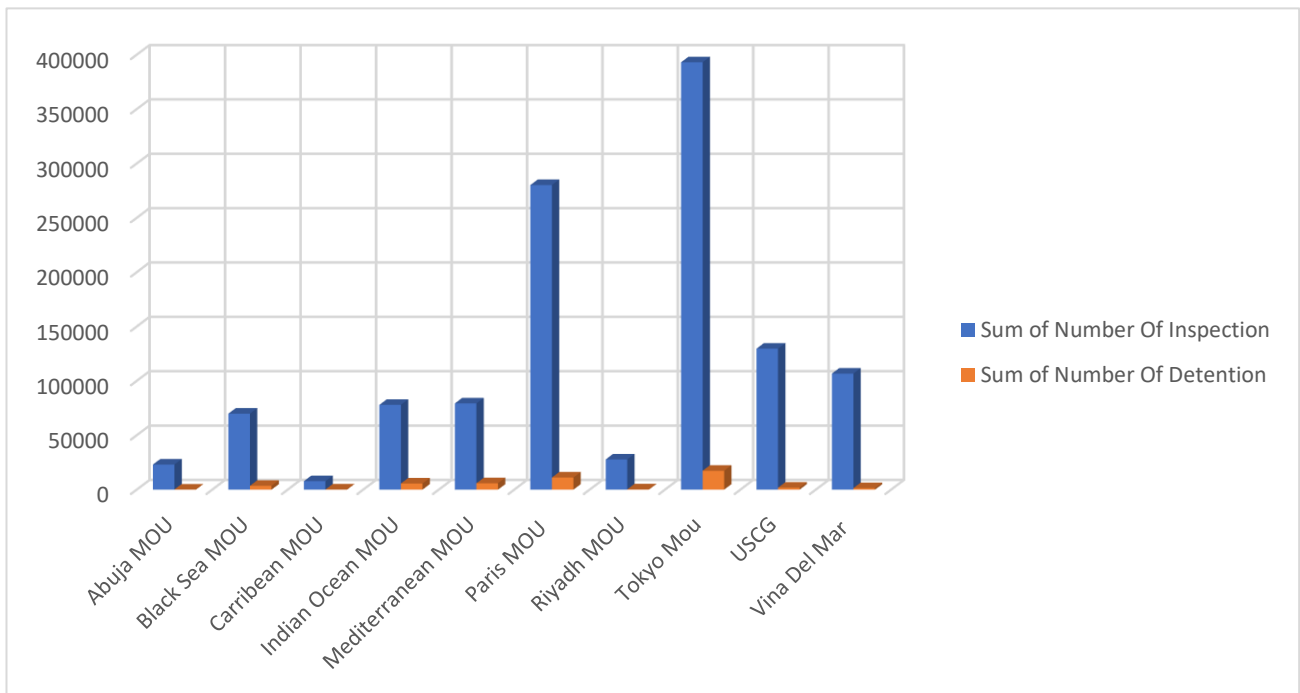


Figure 15 Detentions Per MOU

MOU	Sum of Number Of Inspection	Sum of Number Of Detention
Abuja MOU	23096	130
Black Sea MOU	69904	3538
Carribbean MOU	7798	148
Indian Ocean MOU	78018	5673
Mediterranean MOU	79329	5906
Paris MOU	280179	11164

Riyadh MOU	27789	265
Tokyo MoU	393095	17367
USCG	129682	1810
Vina Del Mar	106738	1395
Grand Total	1195628	47396

Table 4 Detention Per MOU

It is observed in Table 4 that Tokyo MOU has the majority of inspection with 393095. Also, as it is shown in the Table 4 Tokyo MOU has the majority of detention as well with percentage of 37% of the overall detention. Next on the list follow Paris MOU with 24%, Mediterranean MOU and Indian Ocean with 12% and Black Sea with 7%.

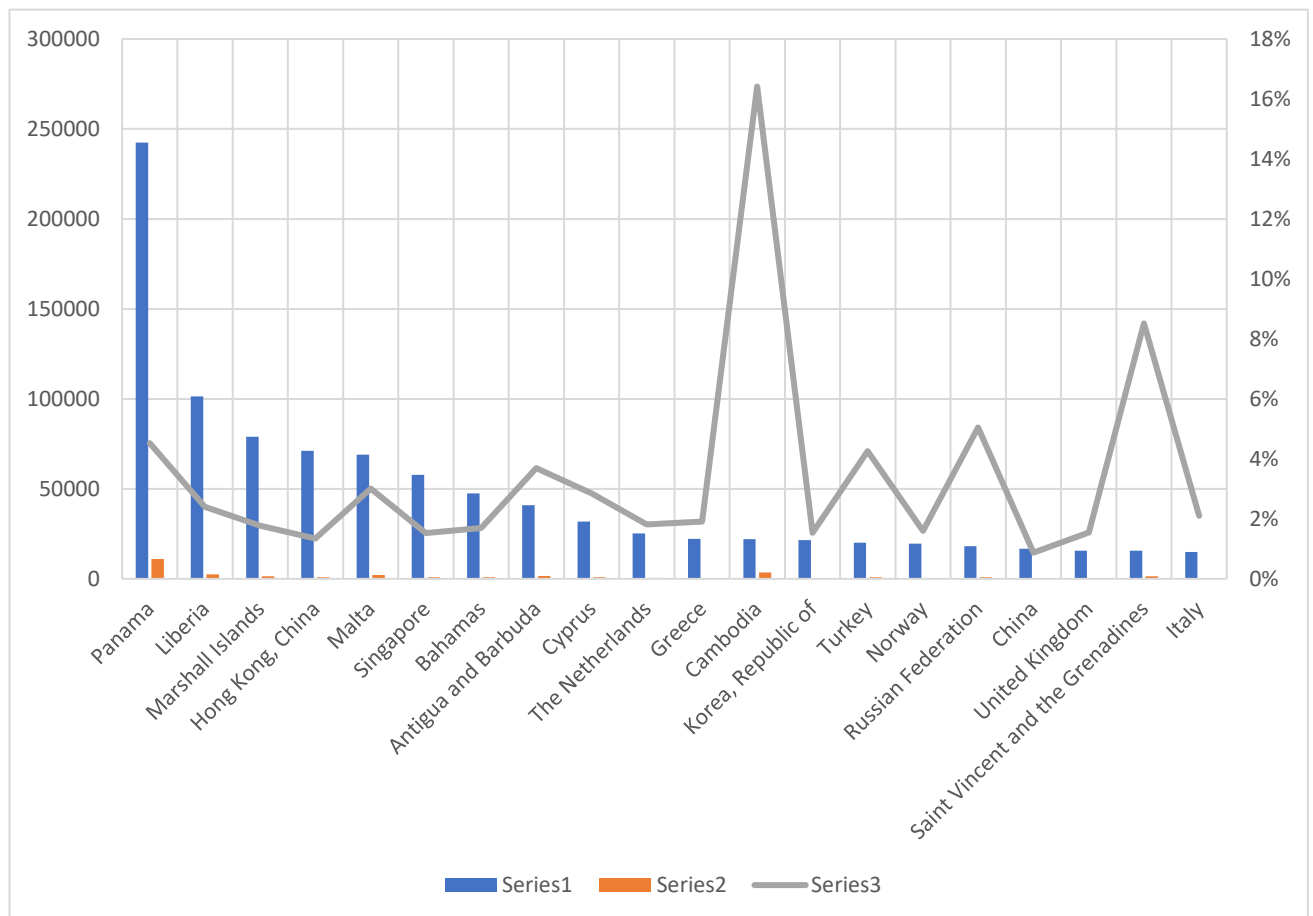


Figure 16 Top 20 Inspections per Flag 2006-2019

In order to present safe results regarding the detention percentage, it has been used the analysis of the most inspection conducted on ships per Flag State (Figure 16).

Table 5 shows the Top 20 Inspections along with the detention rate. As it is presented the most Inspection have been made on Panama with 242366 Inspections following by Liberia 101431, Marshall Islands 79049, Hong Kong 71107 etc. The biggest detention Rate, as it can be observed, is in Flag State Cambodia with 22118 and Detention 3631.

Table 5 Top 20 Inspection per Flag State

<i>Flag State</i>	Grand Total of Inspections	Grand Total Detention	Detention Rate
<i>Panama</i>	242366	10966	5%
<i>Liberia</i>	101431	2431	2%
<i>Marshall Islands</i>	79049	1401	2%
<i>Hong Kong, China</i>	71107	953	1%
<i>Malta</i>	68934	2077	3%
<i>Singapore</i>	57771	882	2%
<i>Bahamas</i>	47459	806	2%
<i>Antigua and Barbuda</i>	40980	1515	4%
<i>Cyprus</i>	31780	907	3%
<i>The Netherlands</i>	25193	458	2%
<i>Greece</i>	22158	424	2%
<i>Cambodia</i>	22118	3631	16%
<i>Korea, Republic of</i>	21586	332	2%
<i>Turkey</i>	20105	857	4%
<i>Norway</i>	19617	315	2%
<i>Russian Federation</i>	18126	915	5%
<i>China</i>	16717	146	1%
<i>United Kingdom</i>	15673	242	2%
<i>Saint Vincent and the Grenadines</i>	15629	1331	9%
<i>Italy</i>	14965	314	2%

As it has already mentioned the majority of inspections have reported on Bulk Carriers, but as it shown in the next Figure the number of Detention of General cargo vessels is relatively greater than the one on the bulk carriers. More specific the detention Rate of General cargo vessel is 48% of the overall detention, following by bulk carriers with 24% and container ships with 10%.

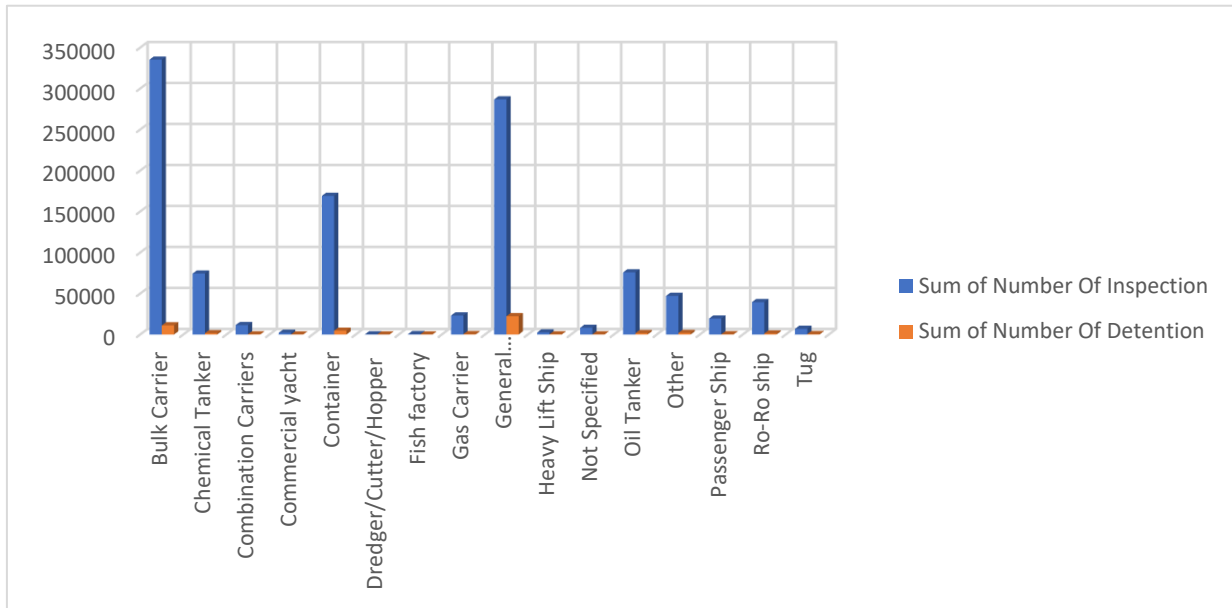


Figure 17 Inspection and Detention per Ship Type

3.2 General Statistics- Deficiencies

The majority of the reported deficiencies concern SOLAS with 66% of the haul number of deficiencies. Next in the row Certificates and Documents 10%, ILO/MLC with 9% etc.

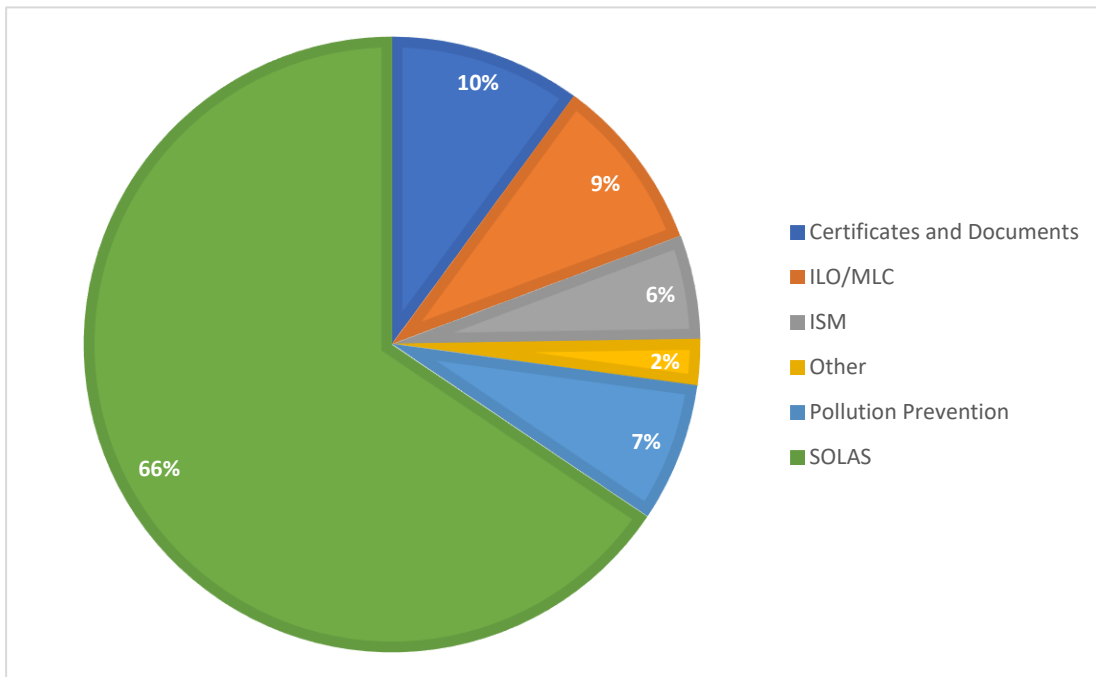
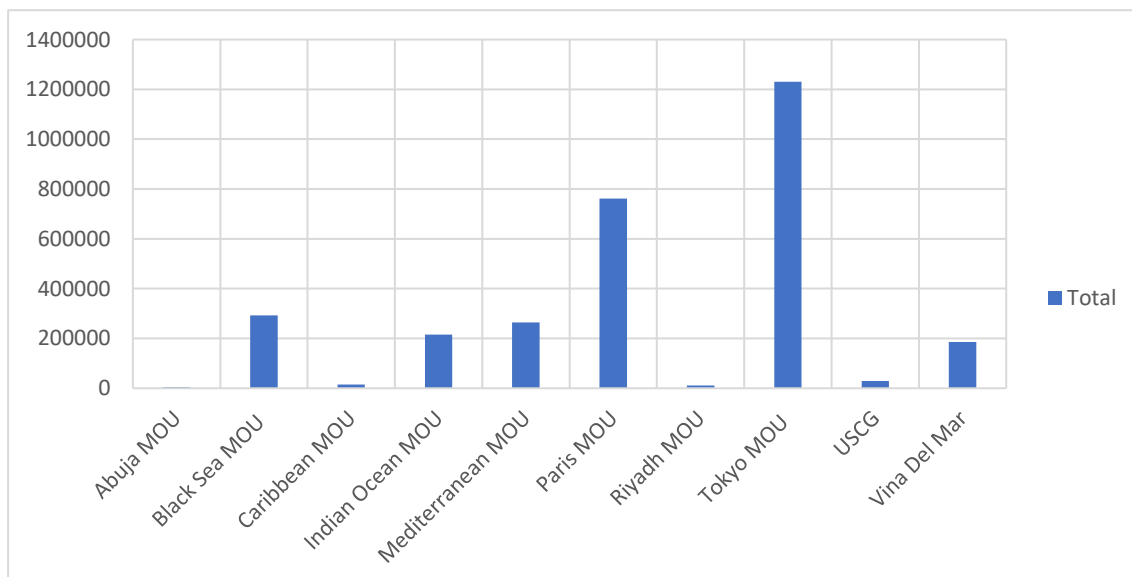


Figure 18 % Deficiency per Category

As it is presented in the below figure Tokyo MOU has the most deficiencies than the other MOUs. According to the data already presented in the above figures, the large number of deficiencies can be justified since Tokyo MOU has the largest number of



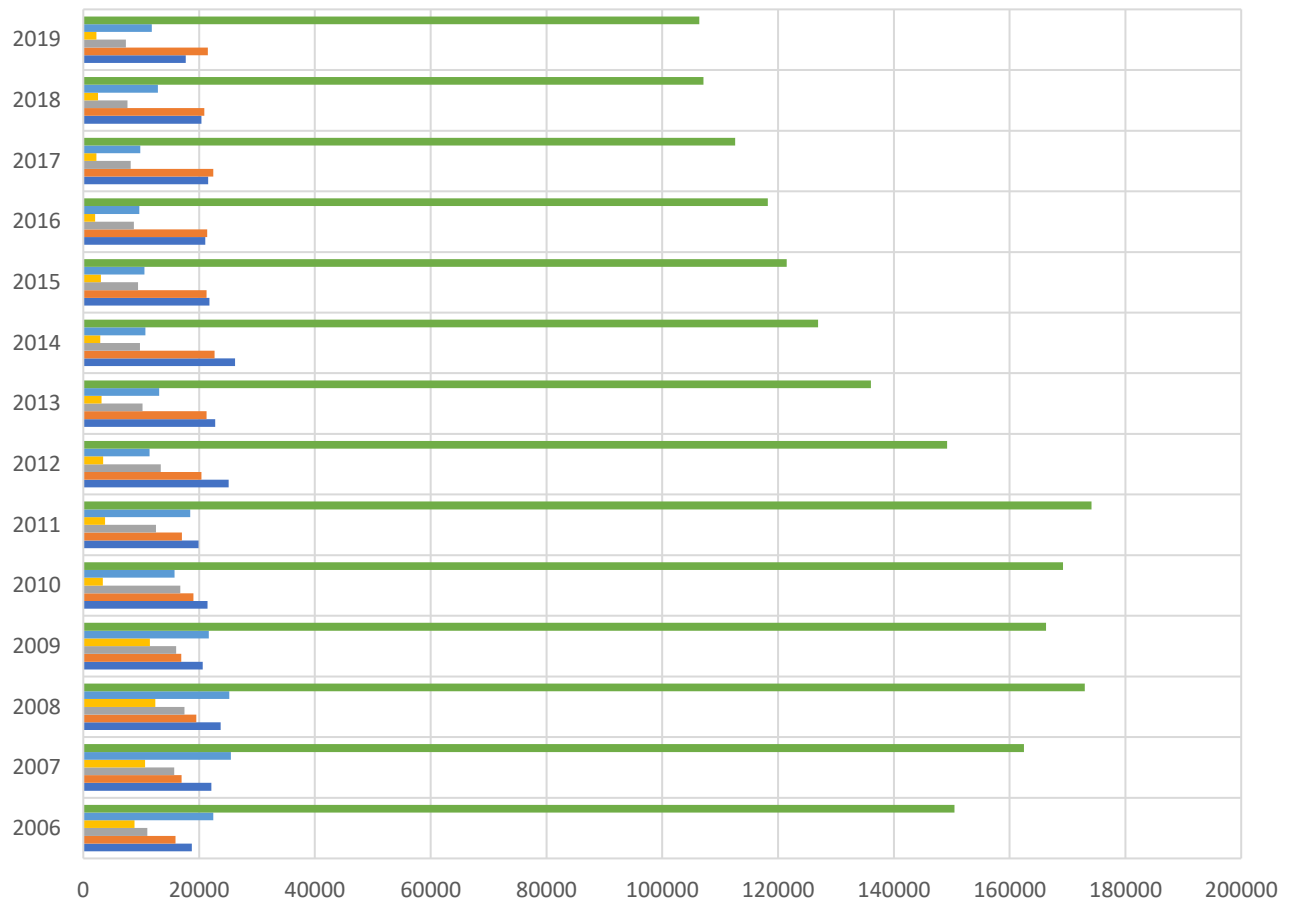
Inspections.

Figure 19 Deficiencies per MOU

The below chart shows the progress per deficiency category through the years. It can be observed that from 2013 the number of deficiencies decreases. This can only lead to a conclusion that the frequent inspections have positively affected the number of the deficiencies of the inspected vessel.

More specifically:

- Deficiencies regarding SOLAS presents a decrease of 29%
- Deficiencies regarding Pollution Prevention presents a decrease of 47%
- Deficiencies regarding ISM present a decrease of 34%
- Deficiencies regarding ILO/MLC presents an increase of 34%
- Deficiencies regarding Certificates and Documents presents a decrease of 5%
- Deficiencies regarding other reasons presents a reduction of 74%



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
■ SOLAS	150482	162467	172987	166290	169221	174142	149184	136035	126931	121471	118235	112622	107106	106419
■ Pollution Prevention	22445	25491	25212	21672	15757	18476	11424	13106	10749	10577	9672	9837	12876	11860
■ Other	8823	10654	12451	11491	3401	3764	3404	3175	2915	3046	2075	2279	2529	2266
■ ISM	11072	15731	17494	16034	16755	12550	13407	10240	9767	9437	8742	8176	7612	7337
■ ILO/MLC	15955	17004	19533	16910	19008	17056	20423	21309	22690	21314	21408	22428	20916	21537
■ Certificates and Documents	18767	22144	23728	20654	21454	19884	25083	22765	26233	21765	21070	21571	20387	17688

Figure 20 No of Deficiencies per Category

3.3 Detention rate per MOU

As it has already been presented the inspection through the years has been increased by 20,5%, at the same time it is shown that even though the number of inspections has been increased the detentions decreased by 43%.

More specifically:

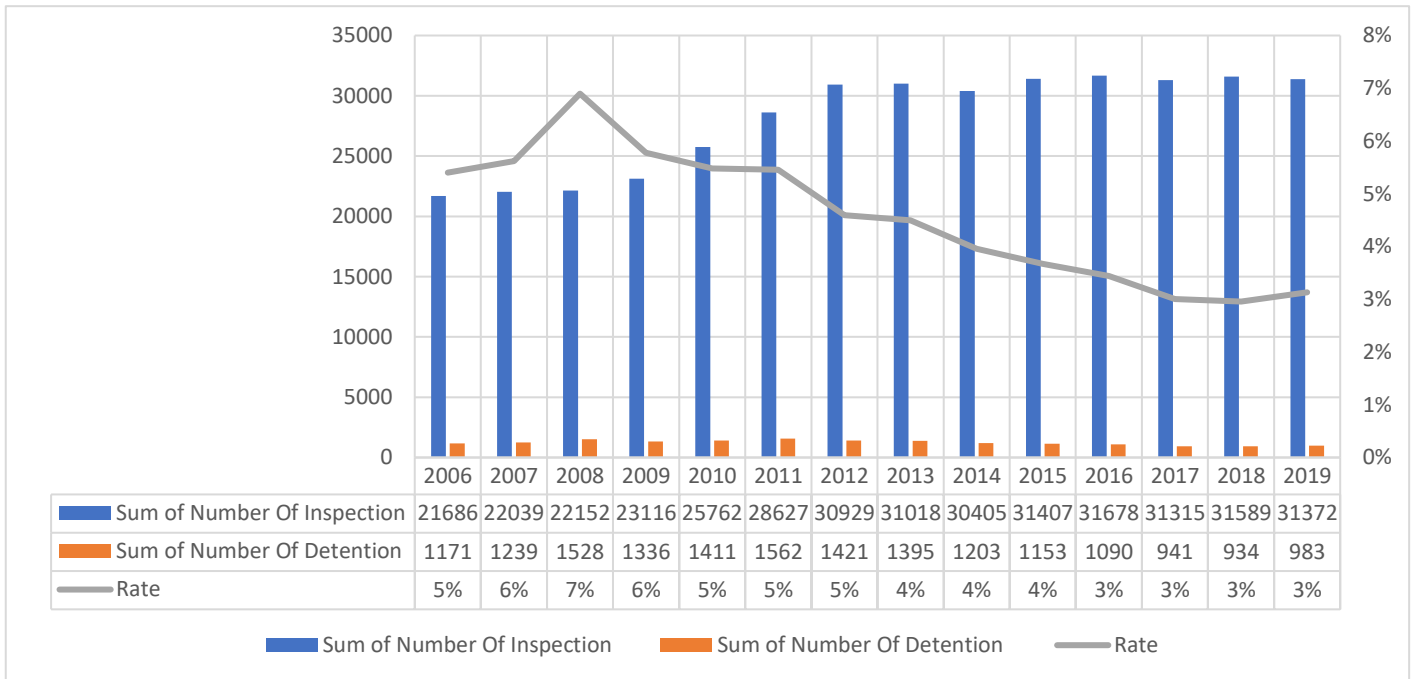


Figure 21 Tokyo MOU Detention Rate

Tokyo MOU with 21 participants has an increase of inspections by 45% and decrease of detention by 16% and a stable detention rate at 3% (Figure 21)

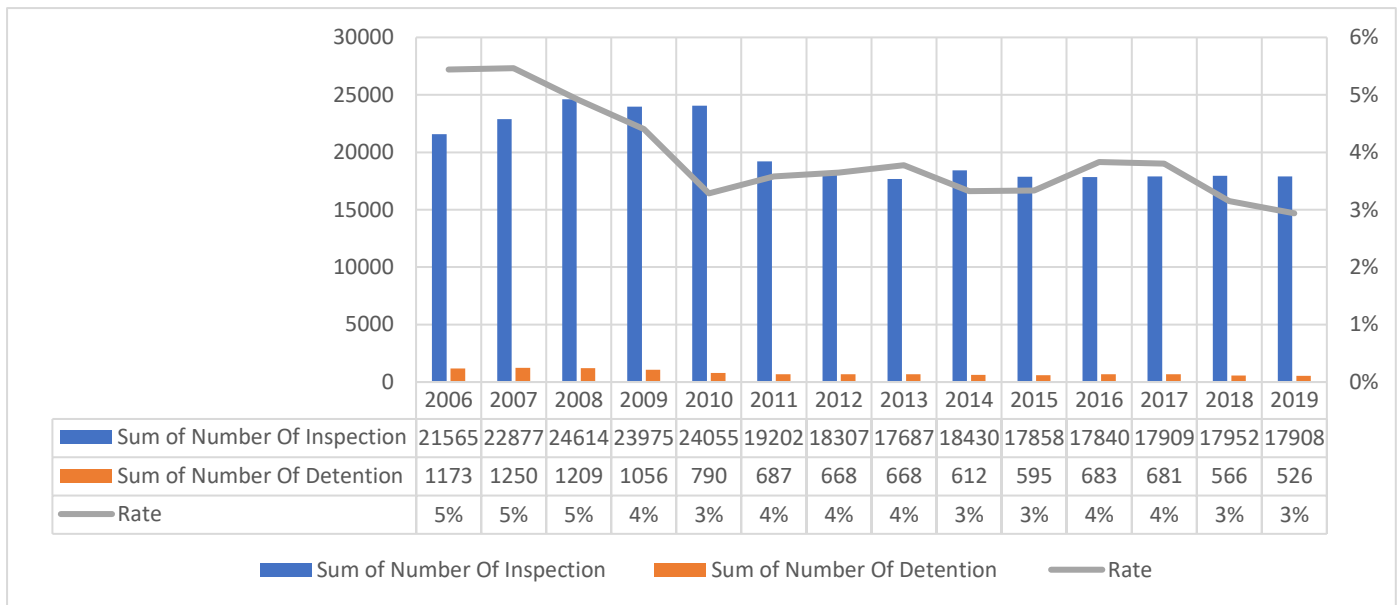


Figure 22 Detention rate Paris MOU

Paris MOU with 27 participants, presents a decrease of inspection by 17% and the same time a decrease of detention by 55%. As it is shown at the Figure 22 it seems that the inspection number seems to have a stable trend from 2011 and a continuously decreasing trend on detentions and a stable detention rate at 3%

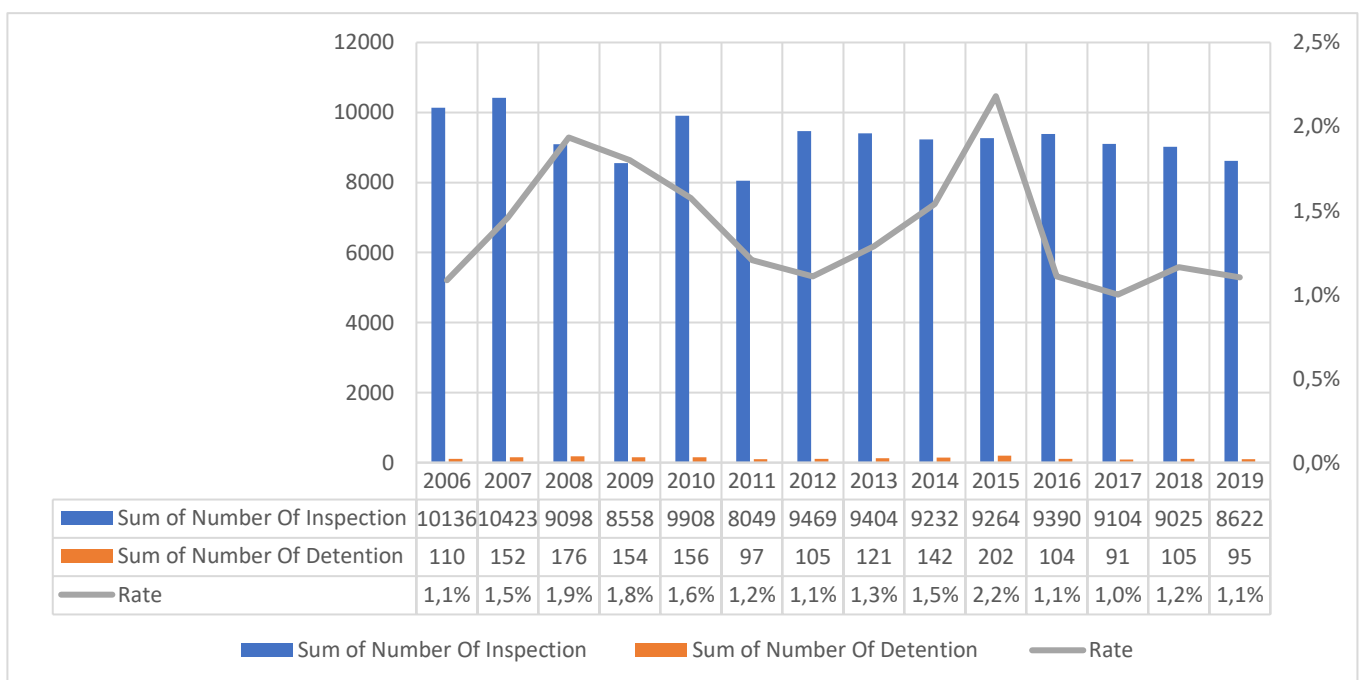


Figure 23 USCG Detention rate

USCG (Figure 23) shows a 15% reduction on the inspections and a respectively 13% reduction on detentions, it can also be observed a downward trend on detention rate.

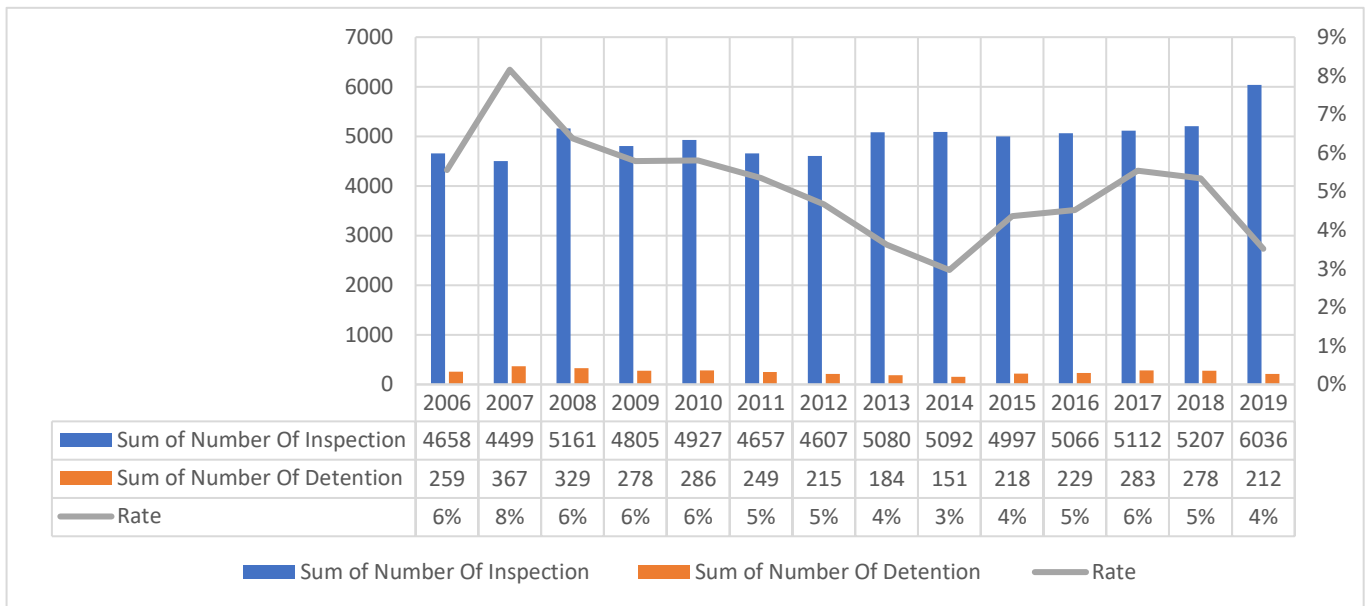


Figure 24 Black Sea MOU

In Figure 24 it is observed an increase of 30% of the inspections and at the same time 19% reduction on detention. Also, a small reduction on detention rate as per figure 24.



Figure 25 Indian Ocean MOU Detention Rate

In Figure 25 and Indian Ocean there is an upwards trend with 15% increase on inspections and 43% reduction on detention. Also, a great reduction on the detention rate during the years.

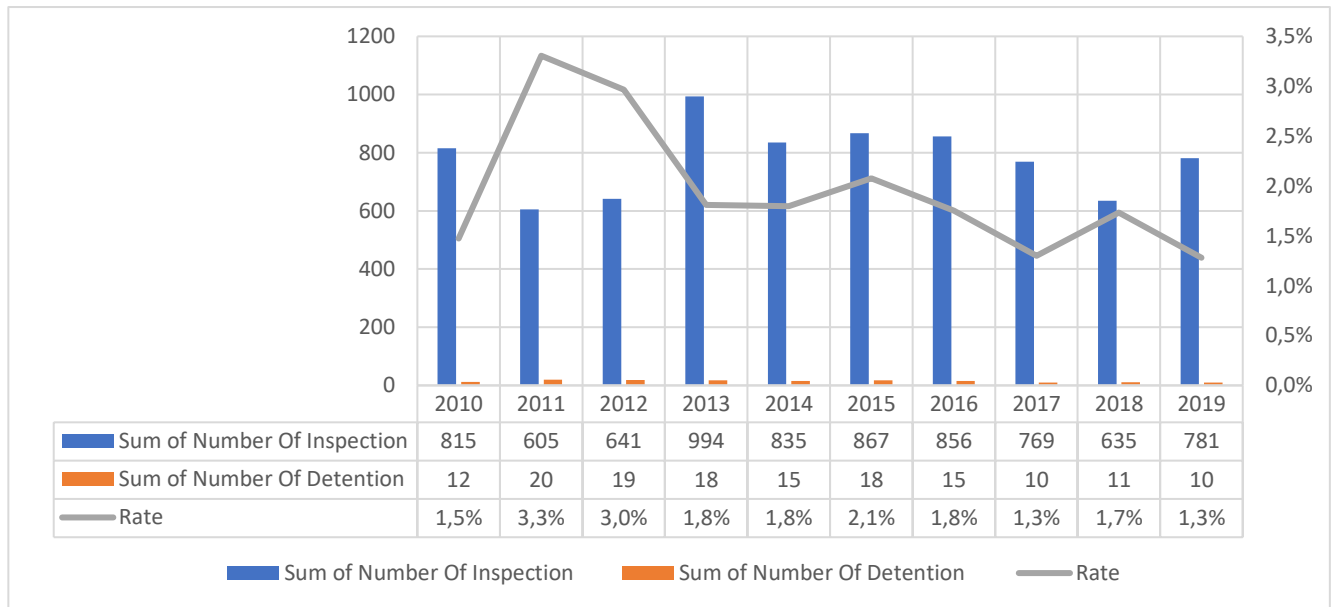


Figure 26 Caribbean MOU Detention rate

As it can be seen in Figure 26 there is a minus reduction on inspection of 4% and 17% reduction on detention. Also, there a small reduction as far as it concerns detention rate

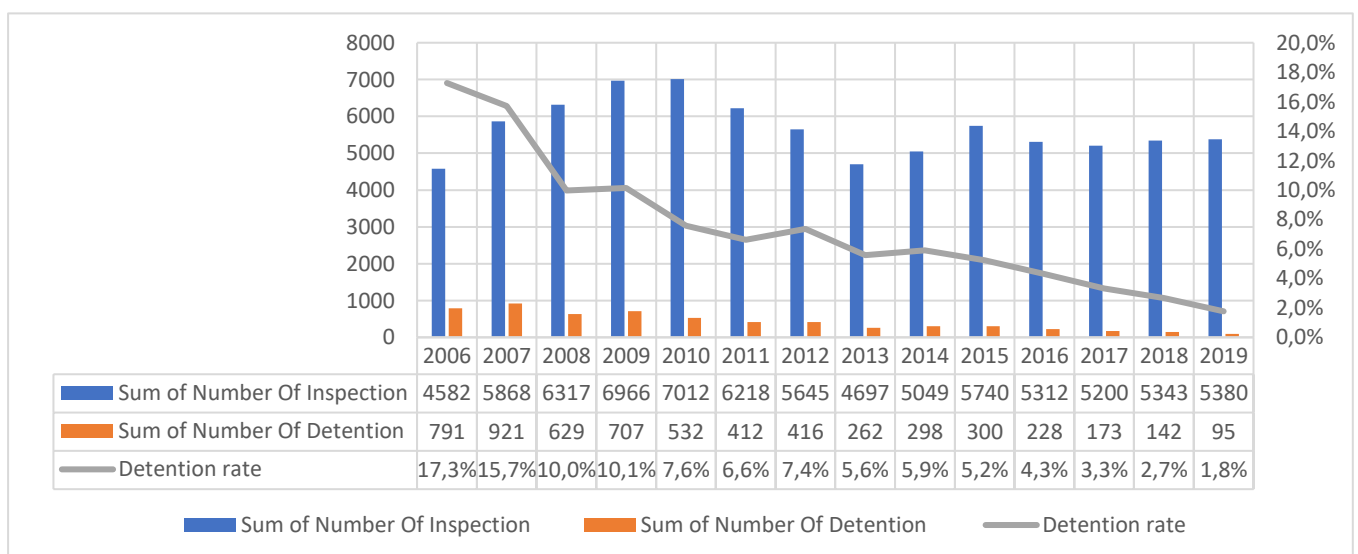


Figure 27Mediterranean MOU Detention Rate

In Figure 27 it is observed an increase of 17% concerning the inspections and a great reduction of detention of 88%. It is important to mention that the detention rate dropped by 90%

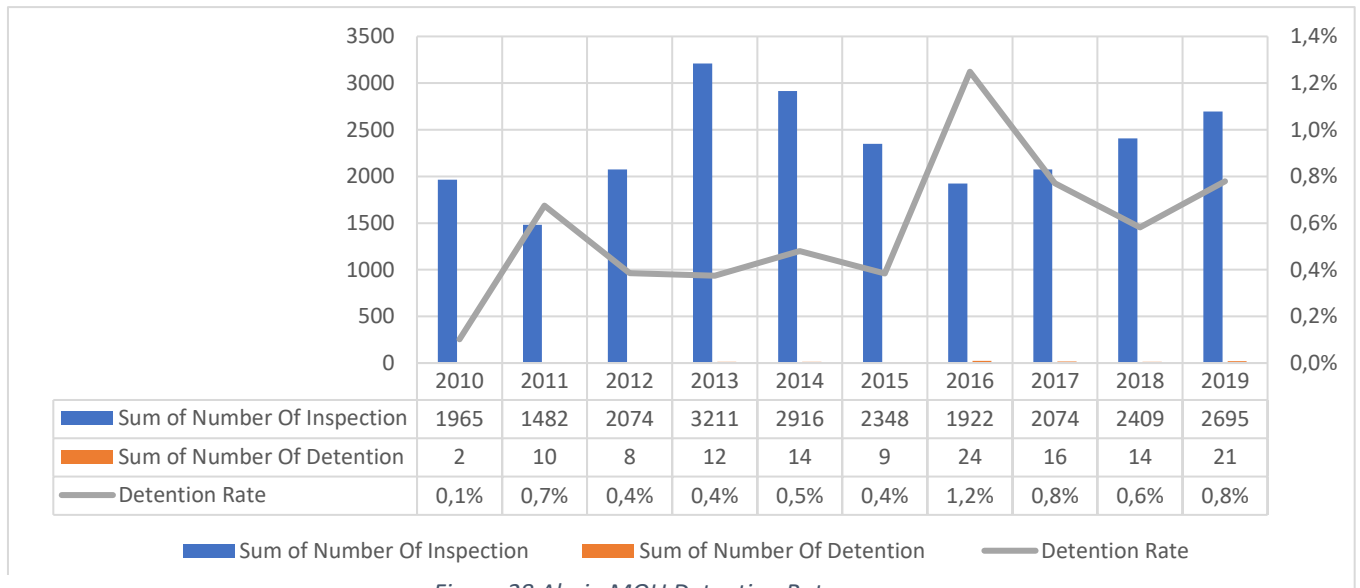


Figure 28 Abuja MOU Detention Rate

As it is presented in figure 28 Abuja MOU has detention rate below 2% with an average detention rate of 0,6%. It can be observed that there is an upward trend as far as it concerns both inspections and detentions, since Abuja MOU can be considered as a newly formed Regional Port State Control Agreement.

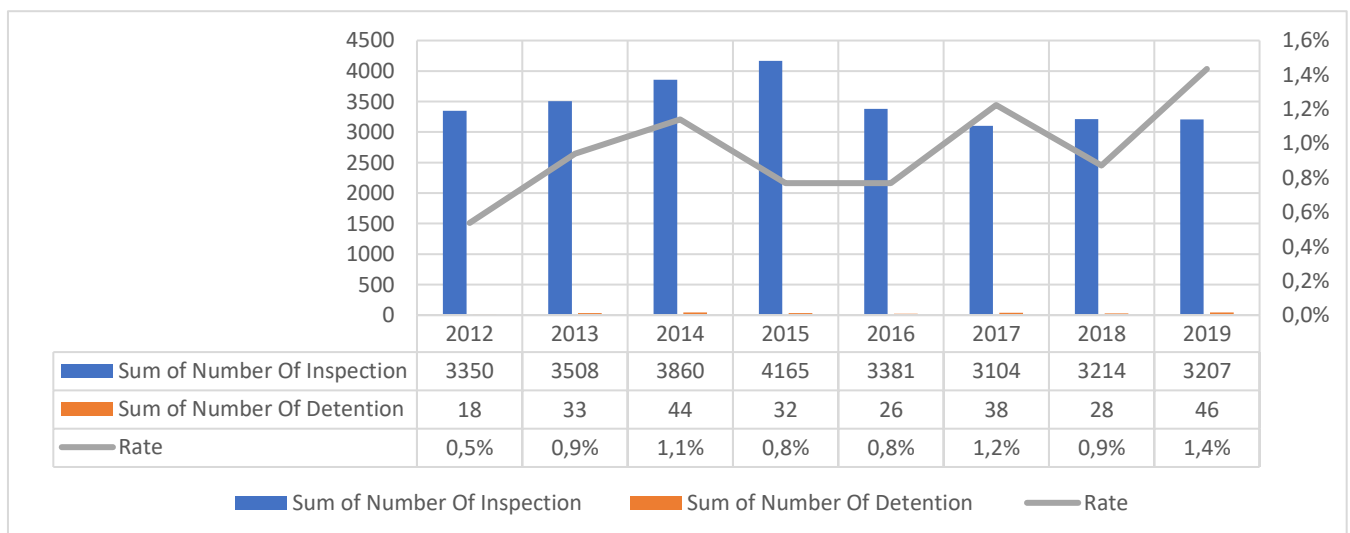


Figure 29 Riyadh MOU Detention Rate

In Figure 29 there is a slight reduction of 4% inspection and 155% increase on detention and 180% on detention rate. Again, Riyadh is a newly formed Regional MOU.

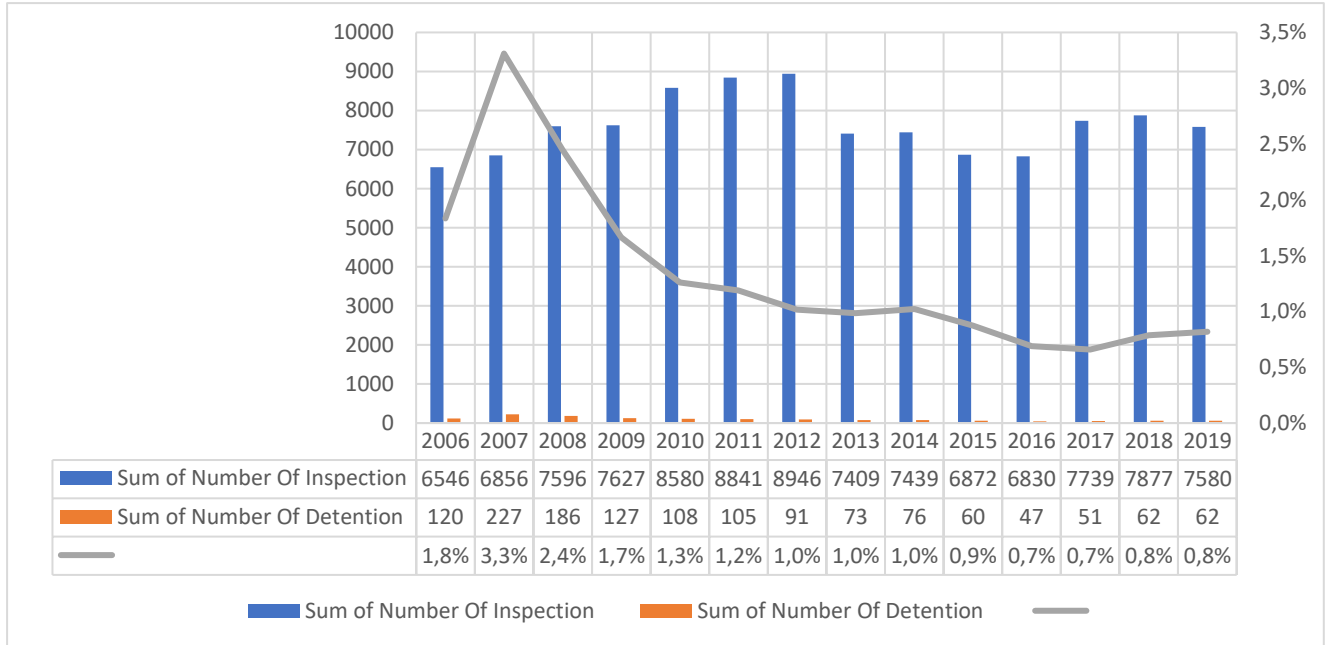


Figure 30 Vina Del Mar Detention rate

Last but not least in the above figure (Figure 30) it is presented an increase of 16% on inspection while with a great reduction of 48% on detention. Detention rate has a reduction of 55%. Without any doubt Vina Del Mar has a low detention rate

3.4 Detention rate per Ship Type

It is important to present data analysis per ship type in order to show the improvement through the years.

Taking into account the below Statistical analysis of Numbers of ships in the world merchant fleet as of January 1st 2020 by type

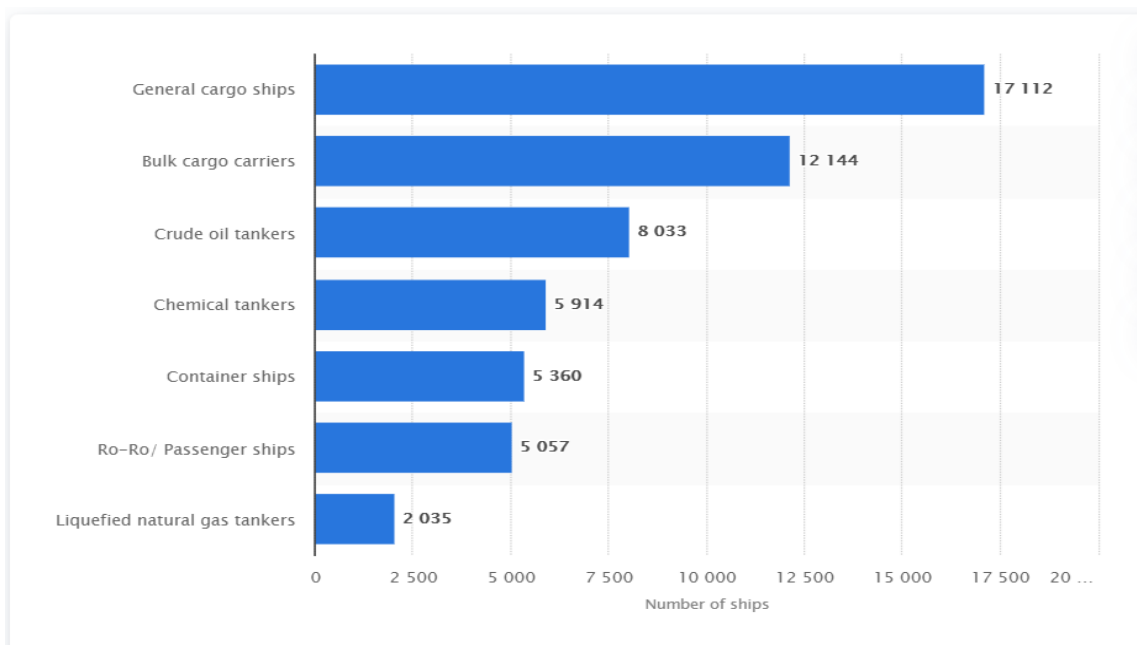


Figure 31 Statistical analysis of number of ships in the world merchant fleet as of January 1st 2020

More specifically: Bulk carriers have most of the inspection with 335215 inspections.

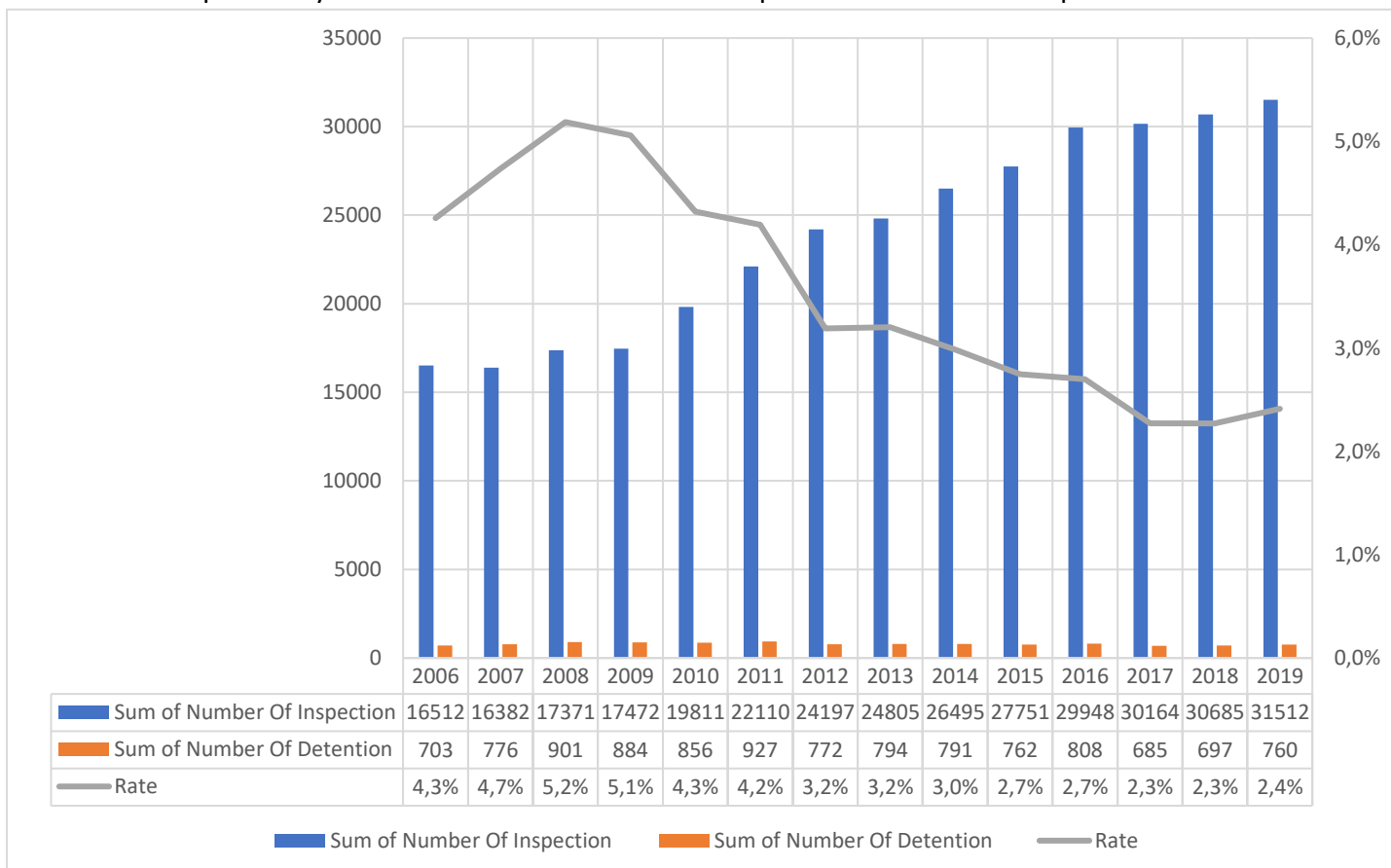


Figure 32 Detention rate Bulk Carrier

As it is shown in the above Figure, there is an increase of 91% on inspection number and 44% reduction on detention rate.

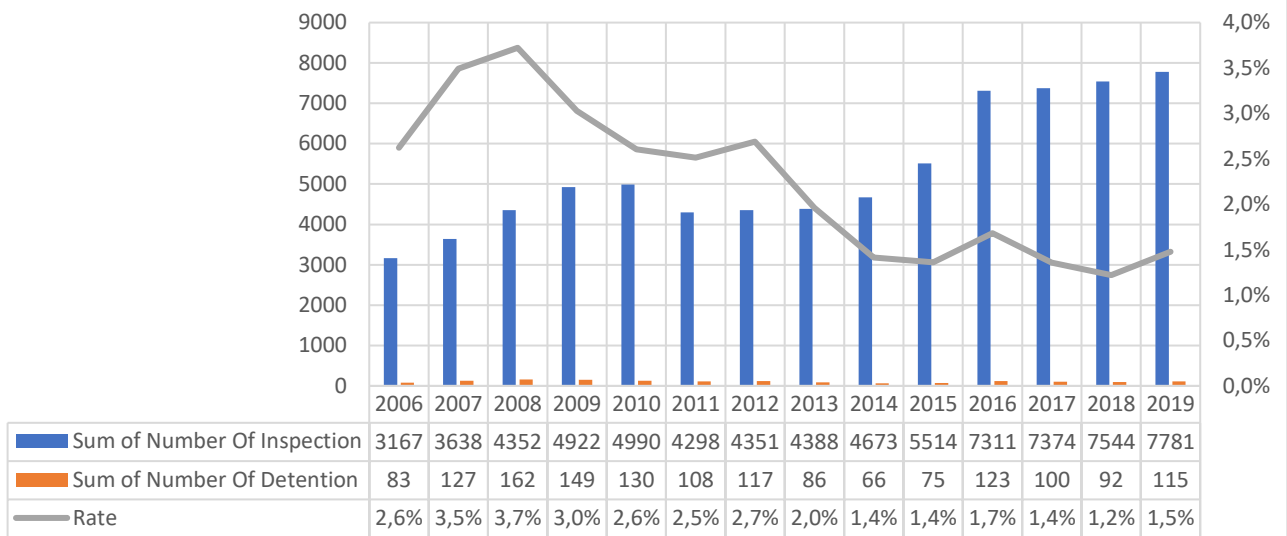


Figure 33 Detention Rate Chemical Tanker

In figure 32 it is shown an increase of 145% on inspection and 42% reduction on detention rate.

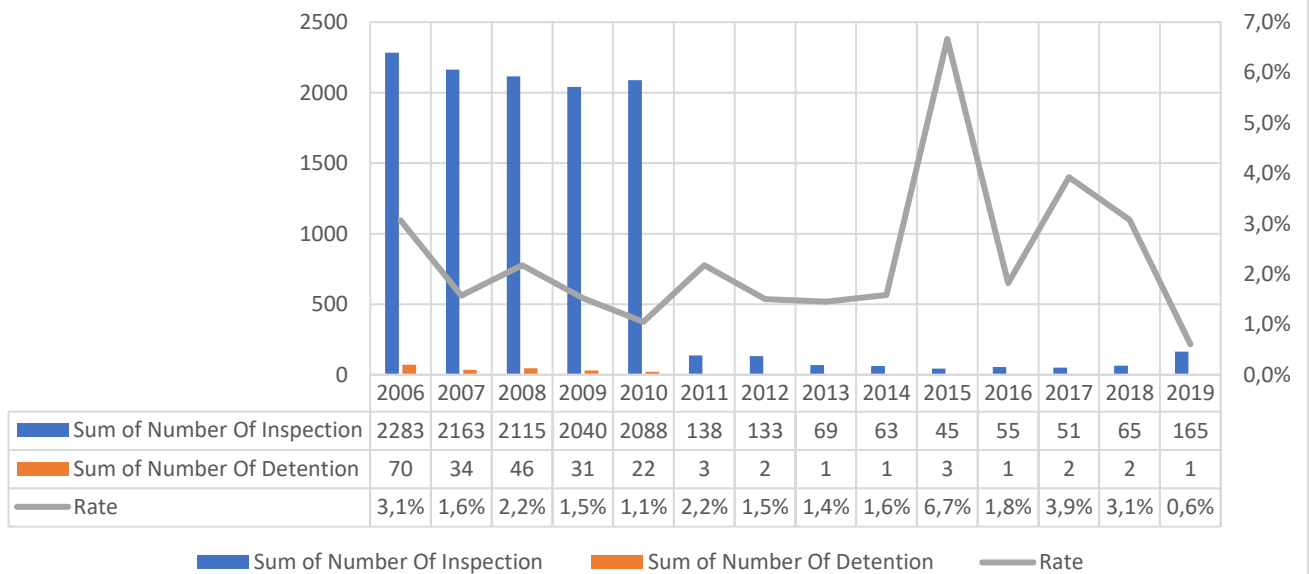


Figure 34 Detention rate Combination Carrier

In Figure 33 and Combination carrier there is a reduction of inspection by 93% and at the same time a reduction of detention rate by 80%

In the below Figure (Figure 34) and containers it is presented an increase of inspection by 18% and 52% reduction on detention rate.

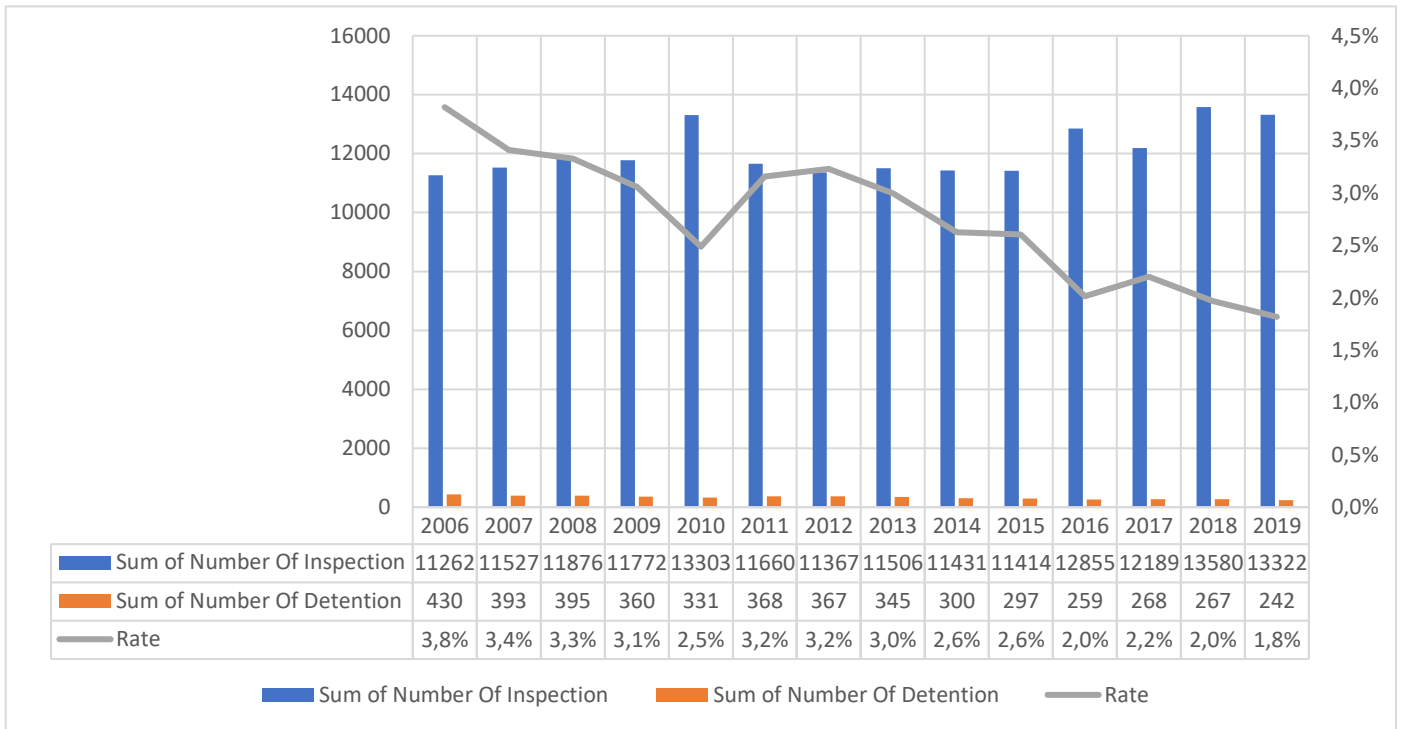


Figure 35 Container Detention Rate

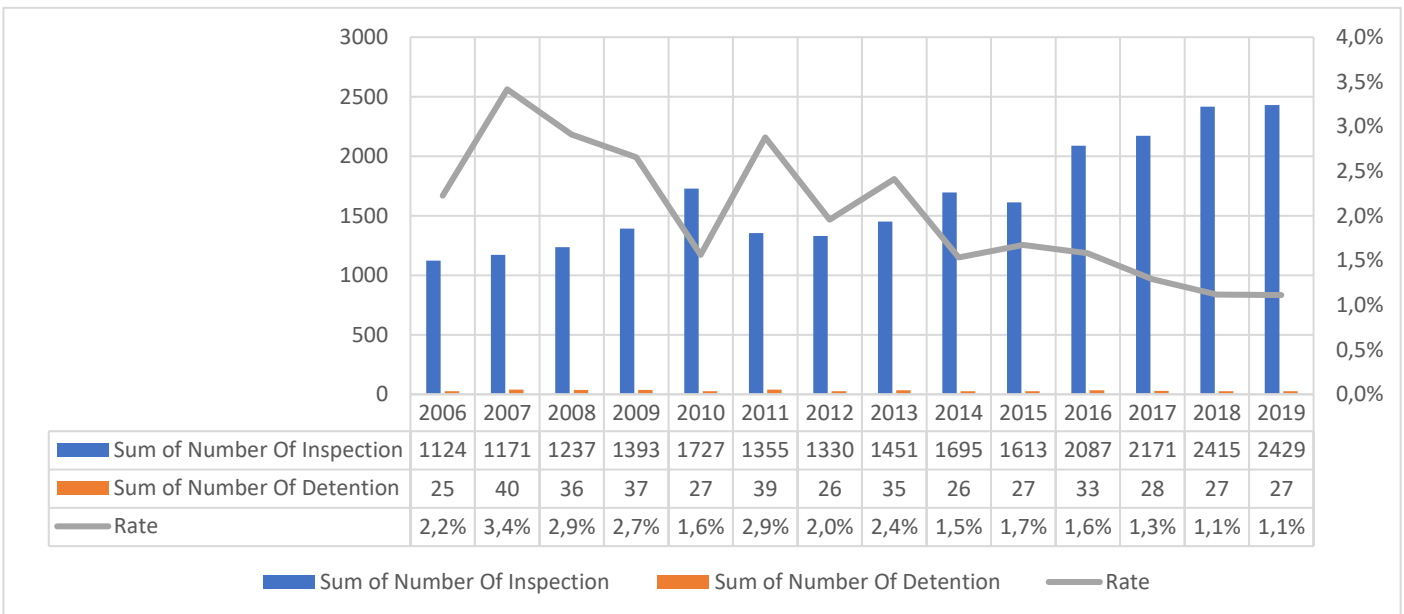


Figure 36 Gas Carrier Detention Rate

Regarding Gas Carriers it is show an increase of 116% on inspections and 50% reduction on the detention rate.

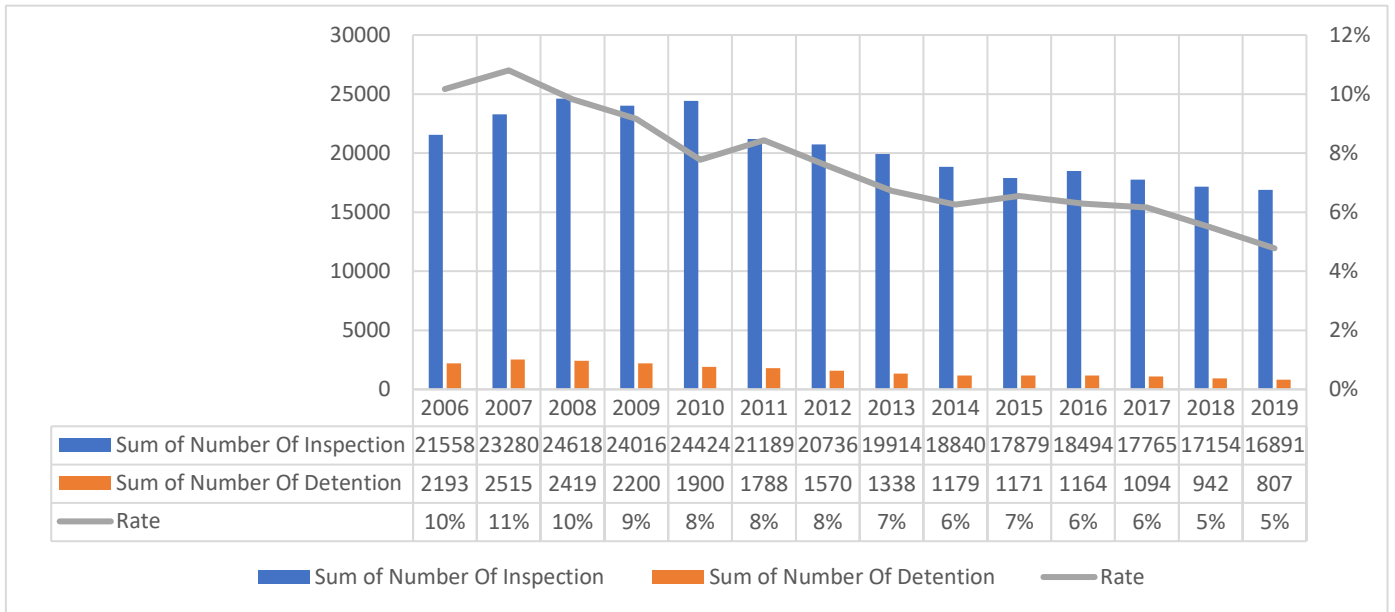


Figure 37 General Cargo Detention rate

In figure 36 it is shown 21% reduction on inspections and 50% reduction on detention rate.

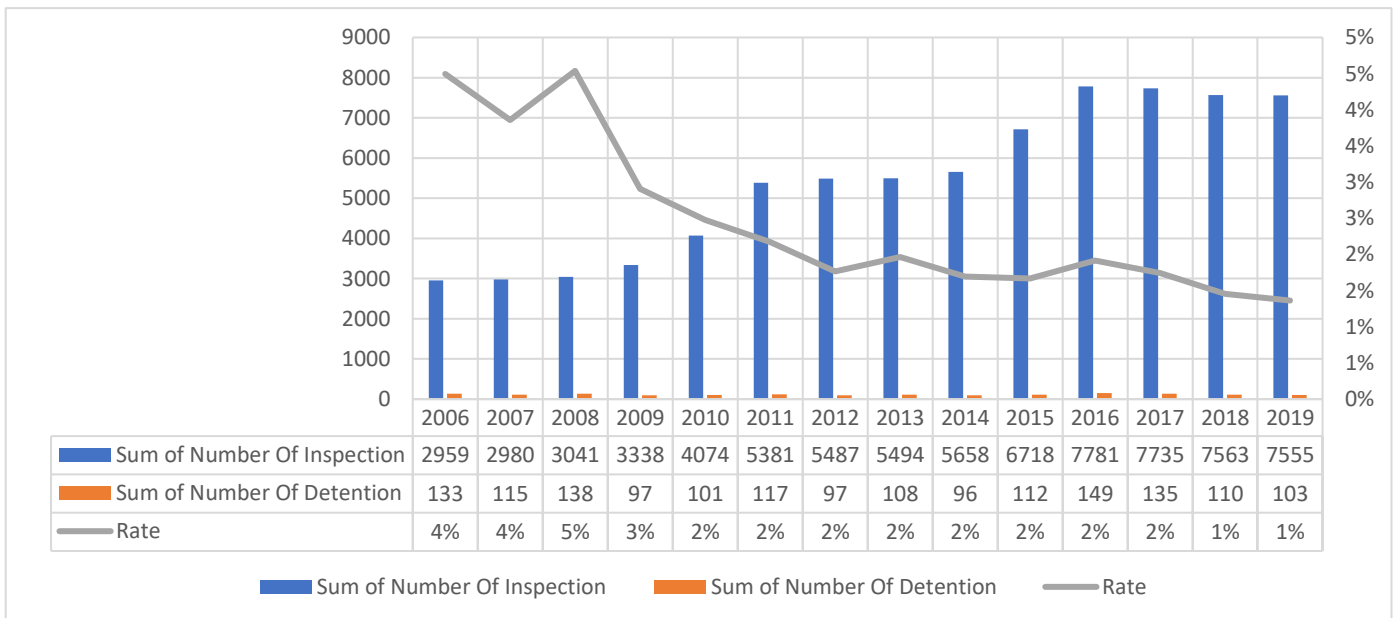


Figure 38 Oil Tanker Detention rate

In Figure 37 and oil tanker it can be shown an increase of 155% and 75% reduction on detention rate.

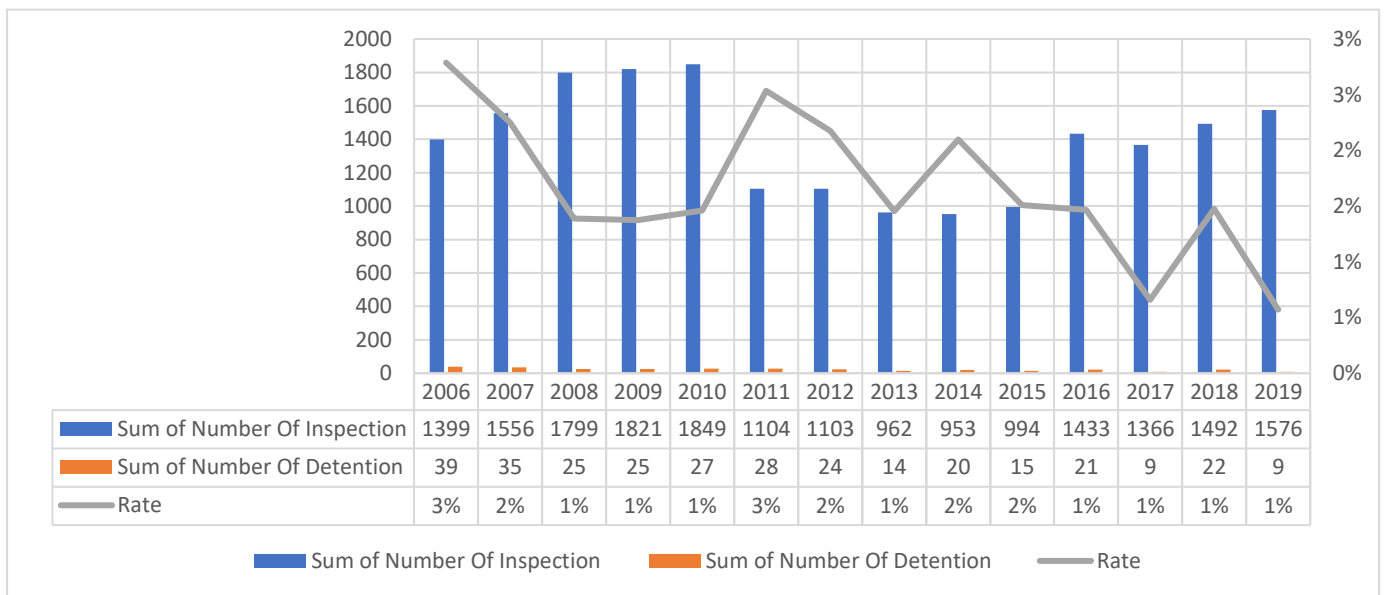


Figure 39 Passenger Ship Detention Rate

In Figure 38 there is an increase of 13% on inspections and 66% reduction on detention rate.

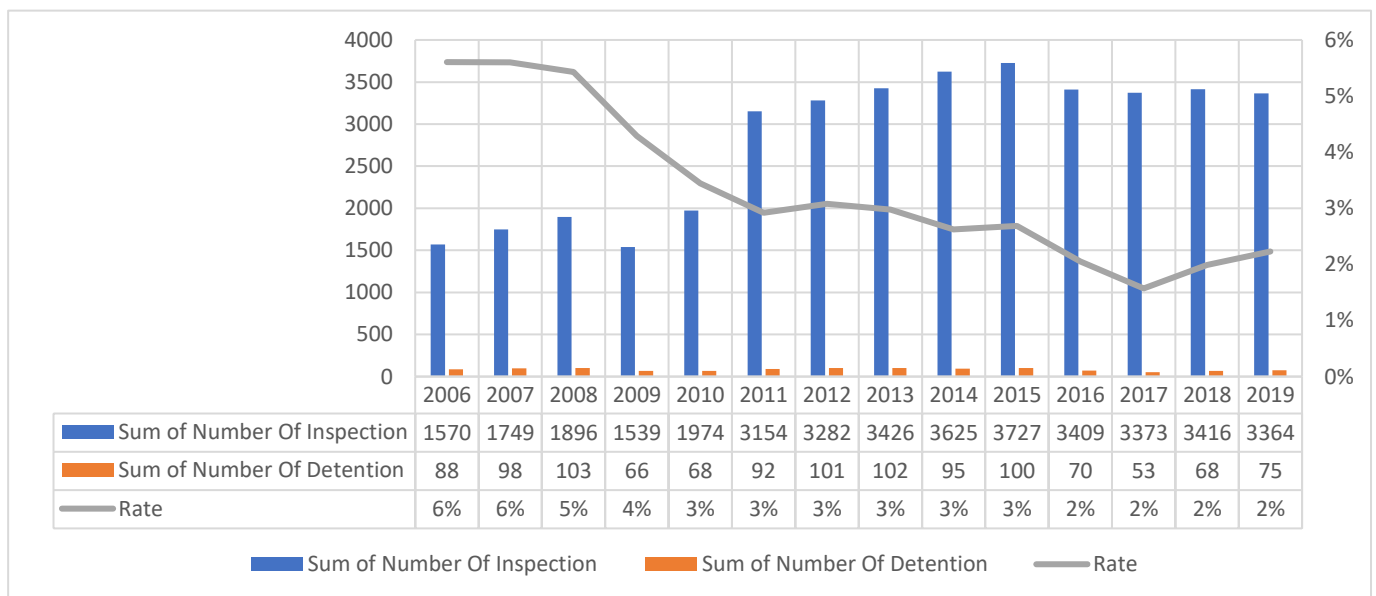


Figure 40 Ro-Ro ship Detention rate

In figure 39 and Ro-Ro ship there is an increase of 114% and 66% reduction on detention rate.

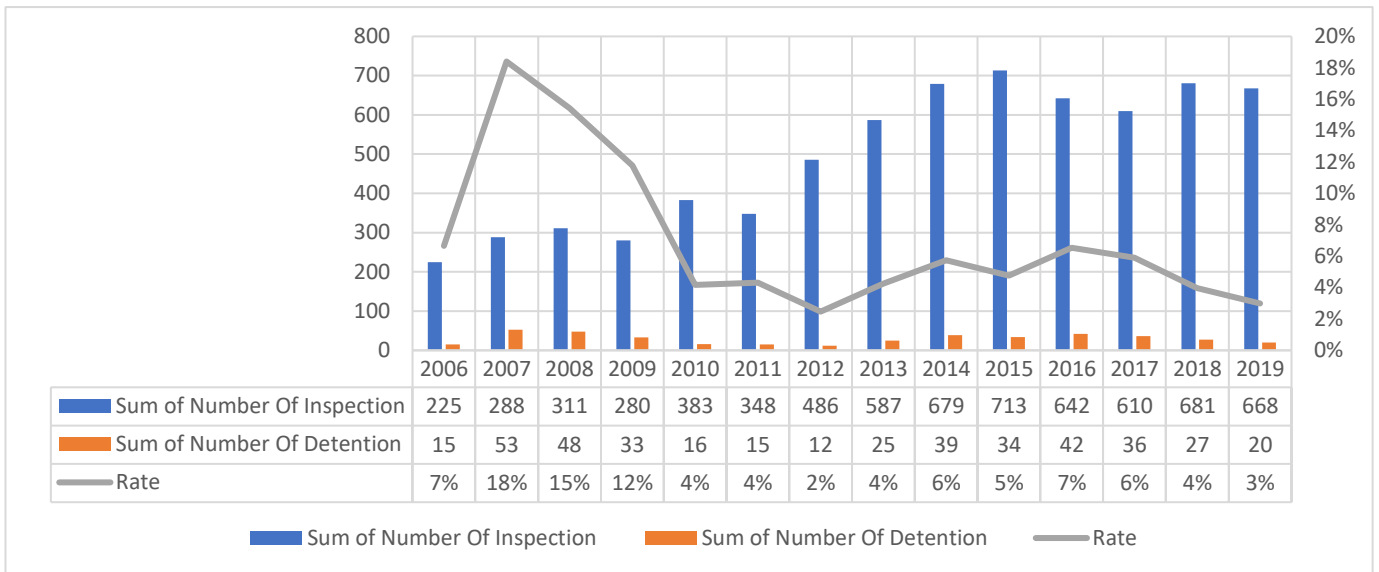


Figure 41 Tug Detention rate

Regarding tug there is an increase of 196% on inspection and 57% reduction on detention rate.

3.5 Detention Per Ship Flag

As already has being mentioned in order to present efficient and safe results it is wise to use data regarding detention rate as per ships' Flag. On the following Figures it will be analyzed the detention rate on the top 10 flags according to Lloyds List Intelligence (November 1, 2019).

Panama with 9367 vessels flying its flag and 225m gross tons registered has being placed on the top of the list.

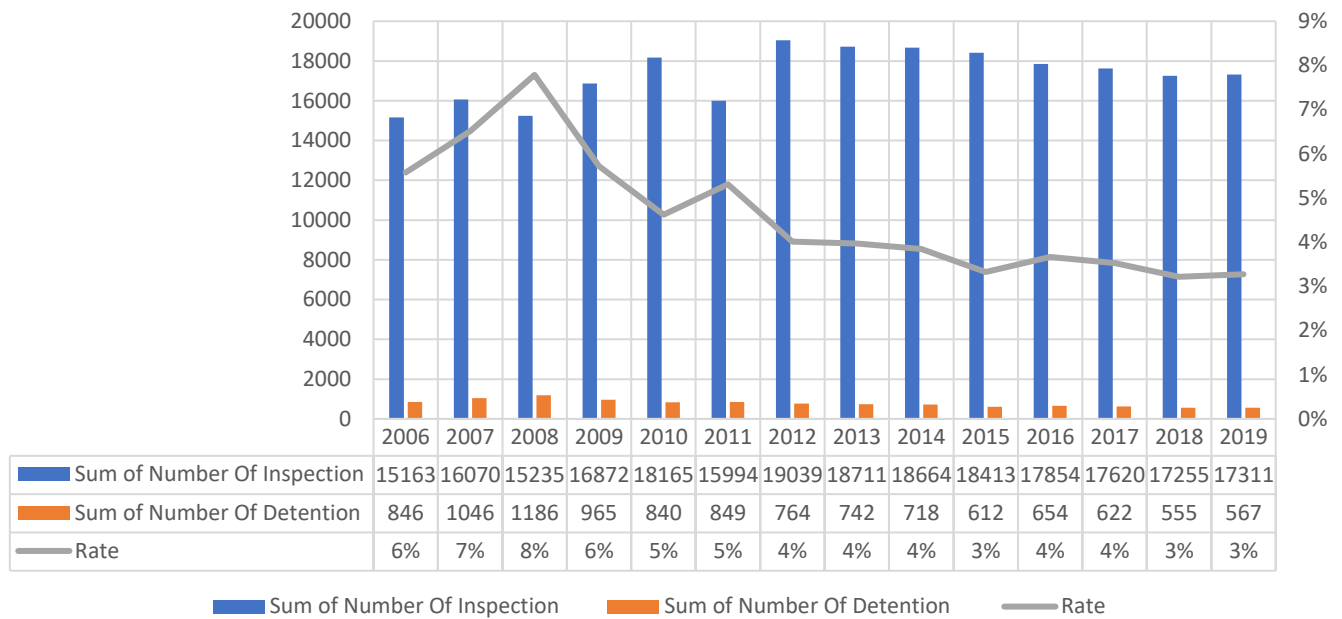


Figure 42 Panama Detention Rate

In Figure 41 it is presented an increase on inspection by 14% and 50% reduction on detention rate

Liberia with over 3200 ships flying its flags presents an increase of 99% on inspection number and 5% reduction on detention rate. (Figure 42)

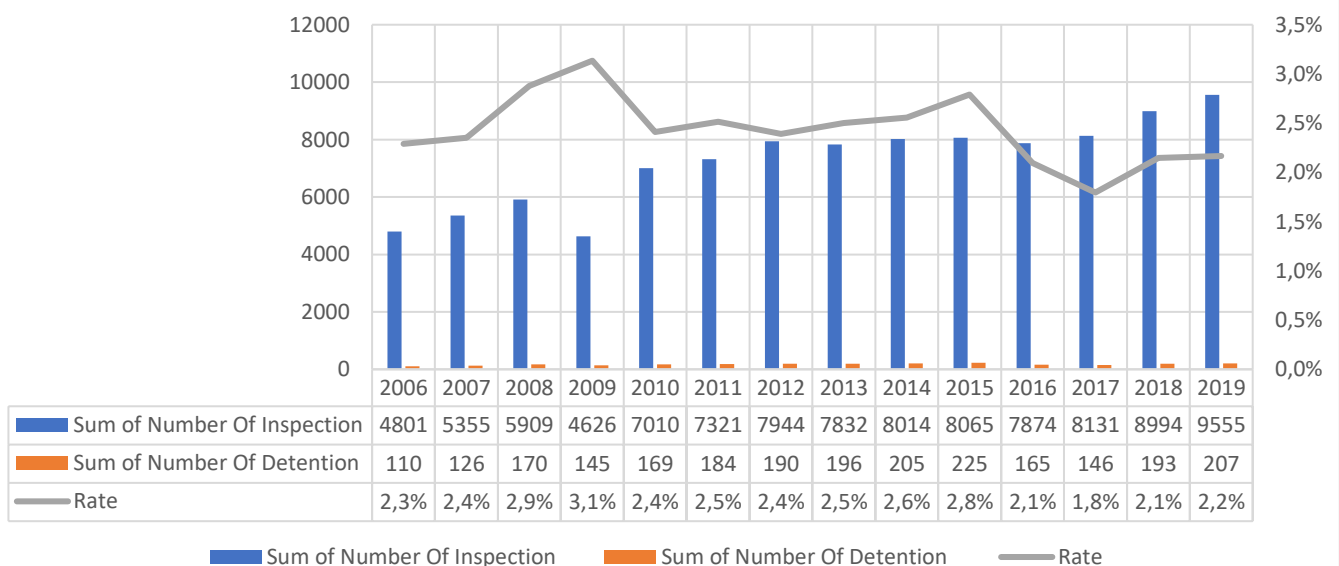


Figure 43 Liberia Detention Rate

Marshall Islands with about 3500 vessels, presents an increase of 331% on inspections and 33% reduction on detention rate.

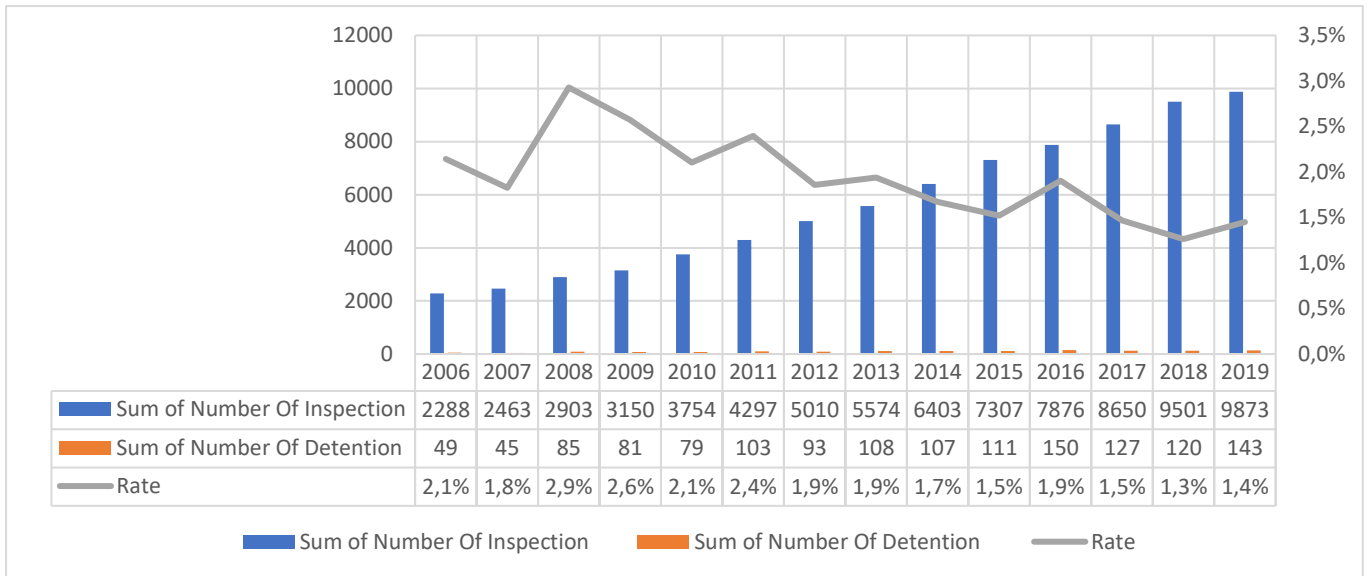


Figure 44 Marshall Islands Detention Rate

Hong Kong with 2707 vessels shows an increase of 134% on inspection number and 35% decrease on detention rate

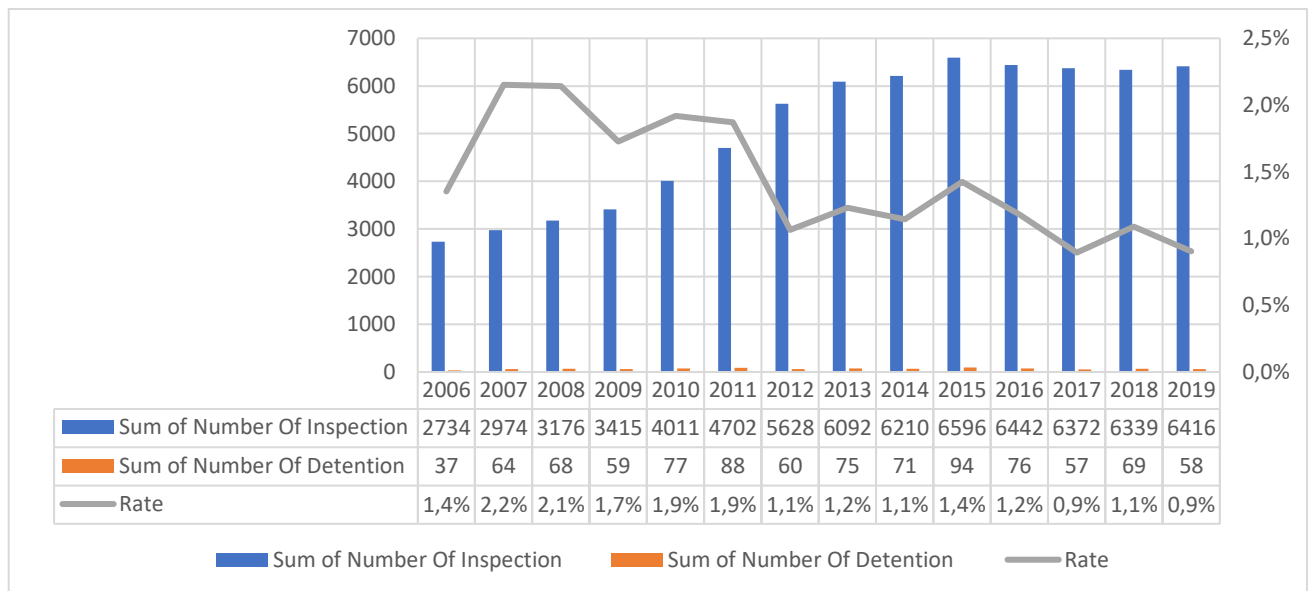


Figure 45 Hong Kong Detention Rate

Malta with 2637 vessels flying its flag present as follows 41% increase on inspection number and 62% reduction on detention rate

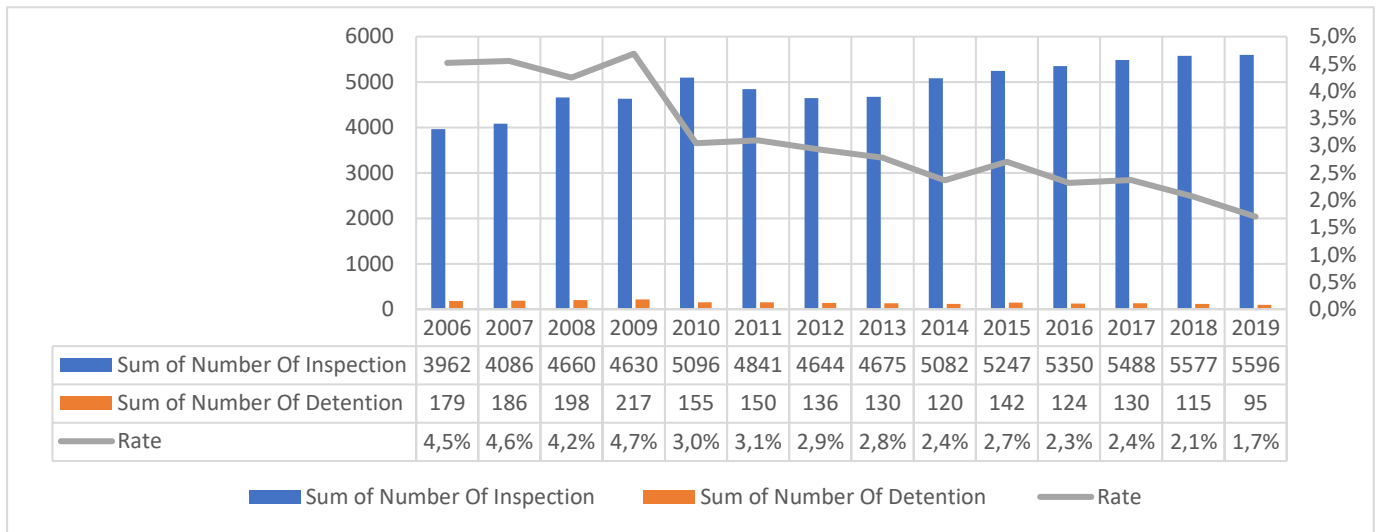


Figure 46 Malta Detention Rate

Singapore with 4962 vessels flying its flag notes an increase of 163% and at the same time notes a decrease of 38%

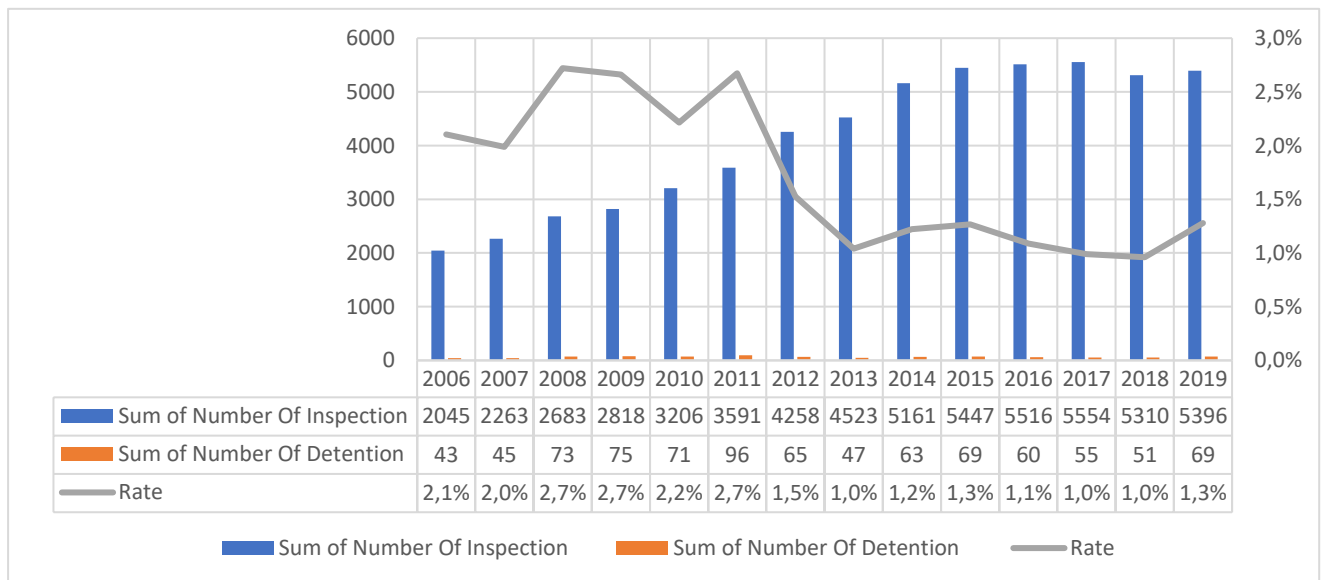


Figure 47 Singapore Detention Rate

Bahamas with 1512 notes a reduction of inspection of 18% and at the same time 66% decrease on detention rate.

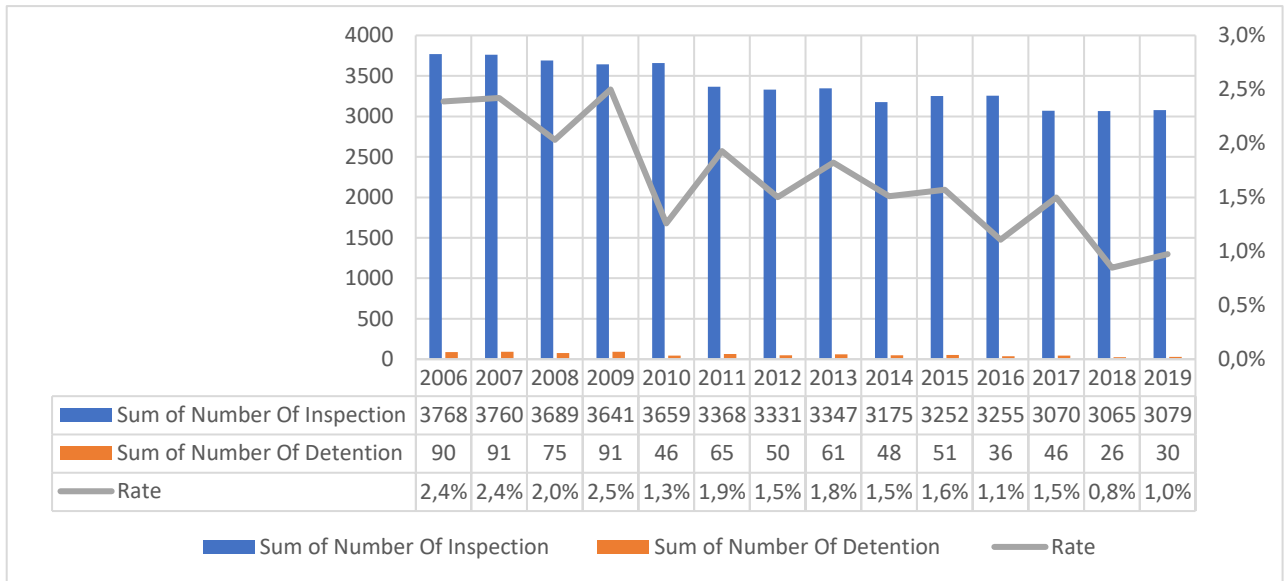


Figure 48 Bahamas Detention Rate

Greece with 1545 vessels flying its flag notes 31% decrease on inspections and 28% decrease on detention rate

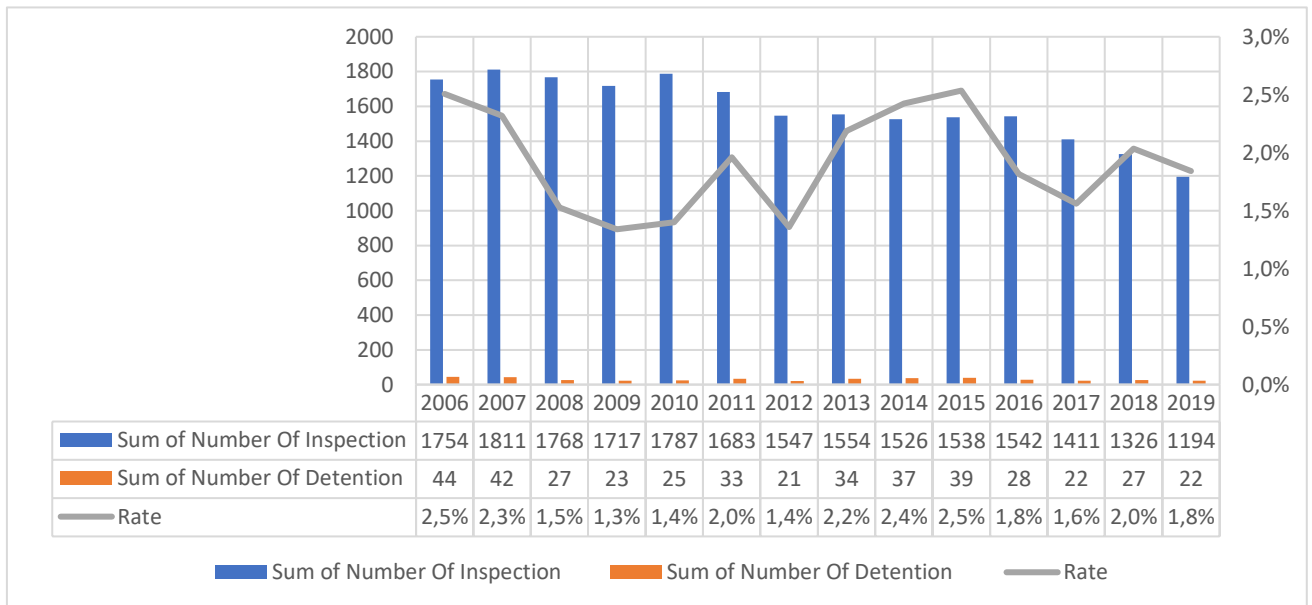


Figure 49 Greece Detention Rate

Japan 3846 vessels flying its flag and notes an increase of 119% on inspection number and 15% increase on detention rate

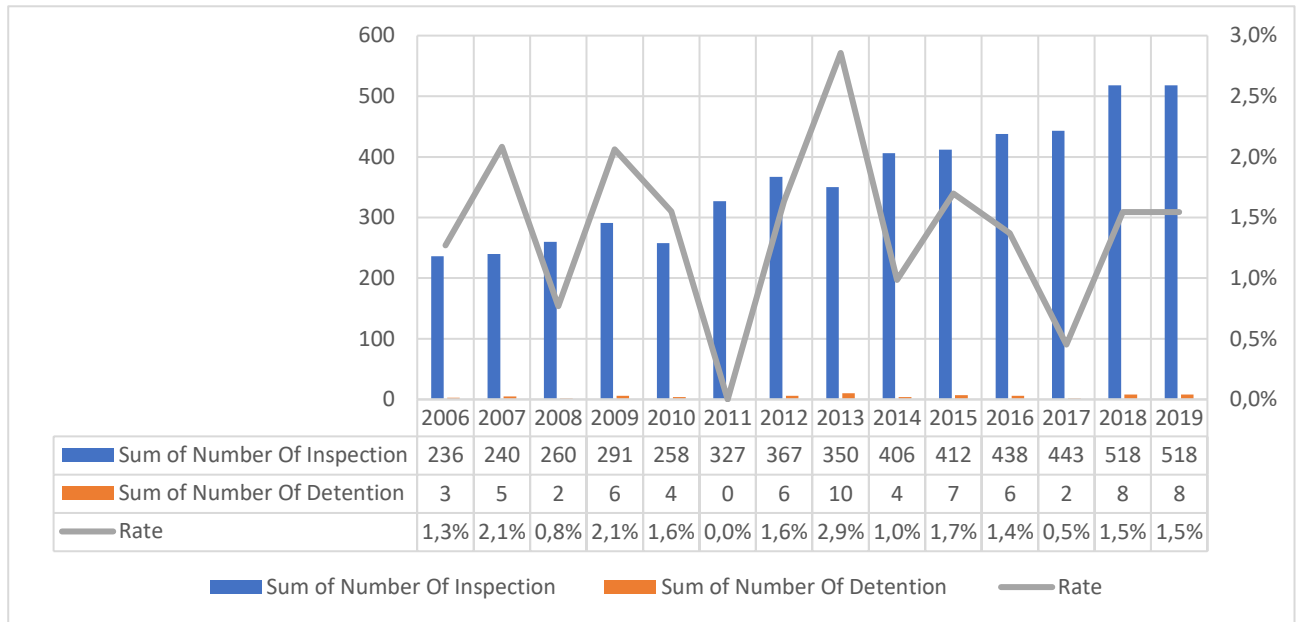


Figure 50 Japan Detention Rate

4 Conclusion

Quality shipping - with prudent shipowners and managers, with strict regulations and precautionary measures are in everyone's interest, no matter what some shipowners may still consider authority inspections port (PSC) as a necessary evil, which has a negative effect on profitability ships. This study based on the collection and analysis of information from PSC inspections shows the improvement in shipping using detention rate per MOU, Ship type, per flag and the number of the deficiencies. As it is presented on Chapter 3 there is a clear increase on the most items on the inspection number and a reduction on detention rate. As it is already presented over the period 2006-2019, there is a reduction of almost 50% on detention rate. It is safe to say that the frequency of inspections decreases the number of detained ships, reduce the cost, protects the environment, and prevent the life at sea.

At this point it is important to mention that bulk carriers have the majority of inspections shows an increase on the inspection number but at the same time a decrease on detention rate.

Also, the most deficiencies are noted under SOLAS and concerns categories as:

1. Structural Conditions
2. Emergency systems
3. Alarm signals
4. Radio communications
5. Cargo operations including equipment
6. Fire Safety
7. Alarms
8. Safety of navigation
9. Dangerous goods
10. Live-savings appliances
11. Propulsion and auxiliary machinery

In order to reduce the number of deficiencies ships must always be appropriately maintained to comply with all the requirements of international conventions.

There are clear indications that the shipping industry responded to international laws. Regular and frequent maintenance reduces the risk of deficiencies during PSC inspections on ships

Acknowledgement

Special thanks to my professor Mr. Tzannatos Ernestos for the guidance and encouragement in finishing this assignment.

Finally, I would like to thank my family and friends for their constant support.

ANNEX I

Certificates Must be carried on board

- Ship's Certificate of Registry

- International Tonnage Certificate (1969)

An International Tonnage Certificate (1969) shall be issued to every ship, the gross and net tonnage of which have been determined in accordance with the Convention. (Tonnage 1969, article 7)

- International Load Line Certificate

An International Load Line Certificate shall be issued under the provisions of the International Convention on Load Lines, 1966, to every ship which has been surveyed and marked in accordance with the Convention or the Convention as modified by the 1988 LL Protocol, as appropriate. (LL 1966,article 16;LL PROT 1988,article 16)

- International Load Line Exemption Certificate

An International Load Line Exemption Certificate shall be issued to any ship to which an exemption has been granted under and in accordance with article 6 of the Load Line Convention or the Convention as modified by the 1988 LL Protocol, as appropriate. – (LL 1966, article 16; LL PROT 1988, article 16)

- Exemption Certificate

When an exemption is granted to a ship under and in accordance with the provisions of SOLAS 1974, a certificate called an Exemption Certificate shall be issued in addition to the certificates listed above. (SOLAS 1974, regulation I/12; SOLAS PROT 1988, regulation I/12)

- Coating Technical File

A Coating Technical File, containing specifications of the coating system applied, where applicable, to dedicated seawater ballast tanks in all types of ships and double-side skin spaces of bulk carriers of 150 m in length and upwards and cargo oil tanks of crude oil tankers, record of the shipyard's and shipowner's coating work, detailed criteria for coating sections, job specifications, inspection, maintenance and repair, shall be kept on board and maintained throughout the life of the ship. – (SOLAS 1974, regulation II-1/3-2 and II-1/3-11; resolution MSC.215(82), as amended by resolution MSC.341(91) and MSC.1/Circ.1381; resolution MSC.288(87) as modified by circular MSC.1/Circ.1381 and amended by resolution MSC.342(91)

- Emergency Towing Procedure

All ships shall be provided with a ship-specific emergency towing procedure. Such a procedure shall be carried on board the ship for use in emergency

situations and shall be developed based on the guidelines developed by the Organization. – (SOLAS, regulation II-1/3-4; MSC.1/Circ.1255)

- Construction drawings

A set of as-built construction drawings and other plans showing any subsequent structural alterations shall be kept on board a ship constructed on or after 1 January 2007. – (SOLAS 1974, regulation II-1/3-7; MSC/Circ.1135)

- Ship Construction File

A Ship Construction File with specific information should be kept on board oil tankers of 150 m in length and above and bulk carriers of 150 m in length and above, constructed with single deck, top-side tanks and hopper side tanks in cargo spaces, excluding ore carriers and combination carriers:

.1 for which the building contract is placed on or after 1 July 2016; .2 in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 July 2017; or .3 the delivery of which is on or after 1 July 2020 shall carry a Ship Construction File containing information in accordance with regulations and guidelines, and updated as appropriate throughout the ship's life in order to facilitate safe operation, maintenance, survey, repair and emergency measures. – (SOLAS 1974, regulation II-1/3-10; MSC.1/Circ.1343)

- Noise Survey Report

Applicable to new ships of 1,600 gross tonnage and above, excluding dynamically supported crafts, high-speed crafts, fishing vessels, pipe-laying barges, crane barges, mobile offshore drilling units, pleasure yachts not engaged in trade, ships of war and troopships, ships not propelled by mechanical means, pile driving vessels and dredgers.

A noise survey report shall always be carried on board and be accessible for the crew.

For existing ships, refer to section "Other certificates and documents which are not mandatory – Noise Survey Report" (resolution A.468(XII)). – (SOLAS 1974, regulation II-1/3-12; Noise Code, section 4.3)

- Stability information

Every passenger ship regardless of size and every cargo ship of 24 m and over shall be inclined on completion and the elements of their stability determined. The master shall be supplied with stability information containing such information as is necessary to enable him, by rapid and simple procedures, to obtain accurate guidance as to the stability of the ship under varying conditions of service to maintain the required intact stability and stability after damage. For bulk carriers, the information required in a bulk carrier booklet may be contained in the stability information. – (SOLAS 1974, regulations II-1/5 and II-1/5-1; LL 1966, regulation 10; LL Protocol 1988, regulation 10)

- Damage control plans and booklets

On passenger and cargo ships, there shall be permanently exhibited plans showing clearly for each deck and hold the boundaries of the watertight compartments, the openings therein with the means of closure and position of any controls thereof, and the arrangements for the correction of any list due to flooding. Booklets containing the aforementioned information shall be made available to the officers of the ship. – (SOLAS 1974, regulation II-1/19; MSC.1/Circ.1245)

- Maneuvering booklet

The stopping times, ship headings and distances recorded on trials, together with the results of trials to determine the ability of ships having multiple propellers to navigate and manoeuvre with one or more propellers inoperative, shall be available on board for the use of the master or designated personnel. – (SOLAS 1974, regulation II)-1/28

- Evaluation of the alternative design and arrangements

Where applicable, a copy of the documentation, as approved by the Administration, indicating that the alternative design and arrangements comply with this regulation shall be carried onboard the ship. – (SOLAS 1974, regulations II-1/55.4.2, II-2/17.4.2, and III/38.4.2)

- Maintenance plans

The maintenance plan shall include the necessary information about fire protection systems and fire-fighting systems and appliances as required by regulation II-2/14.2.2. For tankers, additional requirements are referred to in regulation II-2/14.4.

For passenger ships carrying more than 36 Passengers, the maintenance plan should include low-location lighting and public address system as required by SOLAS regulation II-2/14.3. – (SOLAS 1974, regulations II-2/14.2.2, II-2/14.3 and II-2/14.4

- Onboard training and drills record

Fire drills shall be conducted and recorded in accordance with the provisions of regulations III/19.3 and III/19.5. – (SOLAS 1974, regulation II-2/15.2.2.5

- Fire safety training manual

A training manual shall be written in the working language of the ship and shall be provided in each crew mess room and recreation room or in each crew cabin. The manual shall contain the instructions and information required in regulation

II-2/15.2.3.4. Part of such information may be provided in the form of audio-visual aids in lieu of the manual. – (SOLAS 1974, regulation II-2/15.2.3)

- Fire control plan/booklet

General arrangement plans shall be permanently exhibited for the guidance of the ship's officers, showing clearly for each deck the control stations, the various fire sections together with particulars of the fire detection and fire alarm systems and the fire-extinguishing appliances, etc. Alternatively, at the discretion of the Administration, the aforementioned details may be set out in a booklet, a copy of which shall be supplied to each officer, and one copy shall at all times be available on board in an accessible position. Plans and booklets shall be kept up to date; any alterations shall be recorded as soon as practicable. A duplicate set of fire control plans or a booklet containing such plans shall be permanently stored in a prominently marked weathertight enclosure outside the deckhouse for the assistance of shoreside fire-fighting personnel. – (SOLAS 1974, regulations II-2/15.2.4 and II-2/15.3.2)

- Fire safety operational booklet

The fire safety operational booklet shall contain the necessary information and instructions for the safe operation of the ship and cargo handling operations in relation to fire safety. The booklet shall be written in the working language of the ship and be provided in each crew mess room and recreation room or in each crew cabin. The booklet may be combined with the fire safety training manuals required in regulation II-2/15.2.3. – (SOLAS 1974, regulation II-2/16.2)

- Operations manual for helicopter facility

Each helicopter facility, if fitted, shall have an operations manual, including a description and a checklist of safety precautions, procedures and equipment requirements. This manual may be part of the ship's emergency response procedures – (SOLAS 1974, regulation II-2/18.8.1)

Statement of acceptance of the installation of replacement release and retrieval system to an existing lifeboat

For all ships, no later than the first scheduled dry-docking after 1 July 2014, but no later than 1 July 2019, lifeboat on-load release mechanisms not complying with paragraphs 4.4.7.6.4 to 4.4.7.6.6 of the LSA Code shall be replaced with equipment that complies with the Code. – (SOLAS 1974, regulation III/1.5; LSA Code, para. 4.4.7.6; MSC.1/Circ.1392/Corr.1)

- Muster list and emergency instructions

All ships shall be provided with muster list and emergency instructions, which shall comply with the requirements of regulation 37 and be exhibited in conspicuous places throughout the ship including the navigation bridge, engine-room and crew accommodation spaces. In the case of passenger ships, these instructions shall be drawn up in the language(s) required by its flag State and in the English language. – (SOLAS 1974, regulations III/8 and III/37)

- Ship-specific Plans and Procedures for Recovery of Persons from the Water

All ships shall have ship-specific plans and procedures for recovery of persons from the water. Ships constructed before 1 July 2014 shall comply with this requirement by the first periodical or renewal safety equipment survey of the ship to be carried out after 1 July 2014, whichever comes first.

Ro-ro passenger ships which comply with regulation III/26.4 shall be deemed to comply with this regulation.

The Plans and Procedures should be considered as a part of the emergency preparedness plan required by paragraph 8 of the ISM Code. – (SOLAS 1974 regulation, III/17-1; resolution MSC.346(91); MSC.1/Circ.1447)

- Training manual

The training manual, which may comprise several volumes, shall contain instructions and information, in easily understood terms illustrated wherever possible, on the life-saving appliances provided in the ship and on the best methods of survival. Any part of such information may be provided in the form of audio-visual aids in lieu of the manual. – (SOLAS 1974, regulation III/35)

- Radio record

A record shall be kept, to the satisfaction of the Administration and as required by the Radio Regulations, of all incidents connected with the radiocommunication service which appear to be of importance to safety of life at sea. – (SOLAS 1974, regulation IV/17)

- Minimum safe manning document

Every ship to which chapter I of the Convention applies shall be provided with an appropriate safe manning document or equivalent issued by the Administration as evidence of the minimum safe manning. – (SOLAS 1974, regulation V/14.2)

- Voyage data recorder system – certificate of compliance

The voyage data recorder system, including all sensors, shall be subjected to an annual performance test. The test shall be conducted by an approved testing or servicing facility to verify the accuracy, duration and recoverability of the

recorded data. In addition, tests and inspections shall be conducted to determine the serviceability of all protective enclosures and devices fitted to aid location. A copy of the certificate of compliance issued by the testing facility, stating the date of compliance and the applicable performance standards, shall be retained on board the ship. – (SOLAS 1974, regulation V/18.8)

- AIS test report

The Automatic Identification System (AIS) shall be subjected to an annual test by an approved surveyor or an approved testing or servicing facility. A copy of the test report shall be retained on board and should be in accordance with a model form set out in the annex to MSC.1/Circ.1252. – (SOLAS 1974, regulation V/18.9; MSC.1/Circ.1252)

- Nautical charts and nautical publications

Nautical charts and nautical publications for the intended voyage shall be adequate and up to date. An electronic chart display and information system (ECDIS) is also accepted as meeting the chart carriage requirements of this subparagraph. – (SOLAS 1974, regulations V/19.2.1.4 and V/2)

- LRIT conformance test report

A Conformance test report should be issued, on satisfactory completion of a conformance test, by the Administration or the ASP who conducted the test acting on behalf of the Administration and should be in accordance with the model set out in appendix 2 of MSC.1/Circ.1307. – (SOLAS 1974, regulation V/19-1; MSC.1/Circ.1307)

- International Code of Signals and a copy of Volume III of IAMSAR Manual

All ships required to carry a radio installation shall carry the International Code of Signal; all ships shall carry an up-to-date copy of Volume III of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual. – (SOLAS 1974, regulation V/21)

- Records for pilot ladders used for pilot transfer

All pilot ladders used for pilot transfer shall be clearly identified with tags or other permanent marking so as to enable identification of each appliance for the purposes of survey, inspection and record keeping. A record shall be kept on the ship as to the date the identified ladder is placed into service and any repairs effected. – (SOLAS 1974 regulation V/23.2.4)

- Records of navigational activities

All ships engaged on international voyages shall keep on board a record of navigational activities and incidents including drills and pre-departure tests. When such information is not maintained in the ship's logbook, it shall be

maintained in another form approved by the Administration. – (SOLAS 1974, regulations V/26 and V/28.1)

- Cargo Securing Manual

All cargoes other than solid and liquid bulk cargoes, cargo units and cargo transport units, shall be loaded, stowed and secured throughout the voyage in accordance with the Cargo Securing Manual approved by the Administration. In ships with ro-ro spaces, as defined in regulation II-2/3.41, all securing of such cargoes, cargo units and cargo transport units, in accordance with the Cargo Securing Manual, shall be completed before the ship leaves the berth. The Cargo Securing Manual is required on all types of ships engaged in the carriage of all cargoes other than solid and liquid bulk cargoes, which shall be drawn up to a standard at least equivalent to the guidelines developed by the Organization. – (SOLAS 1974, regulations VI/5.6 and VII/5; MSC.1/Circ.1353/Rev.1)

- Material Safety Data Sheets (MSDS)

Ships carrying oil or oil fuel, as defined in regulation 1 of annex 1 of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, shall be provided with material safety data sheets, based on the recommendations developed by the Organization, prior to the loading of such oil as cargo in bulk or bunkering of oil fuel. – (SOLAS 1974, regulation VI/5-1; resolution MSC.286(86))

- Safety Management Certificate

A Safety Management Certificate shall be issued to every ship by the Administration or an organization recognized by the Administration. The Administration or an organization recognized by it shall, before issuing the Safety Management Certificate, verify that the company and its shipboard management operate in accordance with the approved safety management system. – (SOLAS 1974, regulation IX/4; ISM Code, paragraph 13)

- Document of Compliance

A document of compliance shall be issued to every company which complies with the requirements of the ISM Code. A copy of the document shall be kept on board. – (SOLAS 1974, regulation IX/4; ISM Code, paragraph 13)

- Continuous Synopsis Record (CSR)

Every ship to which chapter I of the Convention applies shall be issued with a Continuous Synopsis Record. The Continuous Synopsis Record provides an

onboard record of the history of the ship with respect to the information recorded therein. – (SOLAS 1974, regulation XI-1/5)

- Ship Security Plan and associated records

Each ship shall carry on board a ship security plan approved by the Administration. The plan shall make provisions for the three security levels as defined in part A of the ISPS Code. Records of the following activities addressed in the ship security plan shall be kept on board for at least the minimum period specified by the Administration:

- .1 training, drills and exercises
- .2 security threats and security incidents
- .3 breaches of security
- .4 changes in security level
- .5 communications relating to the direct security of the ship such as specific threats to the ship or to port facilities the ship is, or has been, in
- .6 internal audits and reviews of security activities
- .7 periodic review of the ship security assessment
- .8 periodic review of the ship security plan
- .9 implementation of any amendments to the plan and
- .10 maintenance, calibration and testing of any security equipment provided on board, including testing of the ship security alert system. – (SOLAS 1974, regulation XI-2/9; ISPS Code. part A, sections 9 and 10)

- International Ship Security Certificate (ISSC) or Interim International Ship Security Certificate

An International Ship Security Certificate (ISSC) shall be issued to every ship by the Administration or an organization recognized by it to verify that the ship complies with the maritime security provisions of SOLAS chapter XI-2 and part A of the ISPS Code. An interim ISSC may be issued under the ISPS Code, part A, section 19.4. –(SOLAS 1974, regulation XI-2/9.1.1; ISPS Code, part A, section 19 and appendices.

- International Oil Pollution Prevention Certificate

An international Oil Pollution Prevention Certificate shall be issued, after survey in accordance with regulation 6 of Annex I of MARPOL, to any oil tanker of 150 gross tonnage and above and any other ship of 400 gross tonnage and above which is engaged in voyages to ports or offshore terminals under the jurisdiction of other Parties to MARPOL. The certificate is supplemented with a Record of

Construction and Equipment for Ships other than Oil Tankers (Form A) or a Record of Construction and Equipment for Oil Tankers (Form B), as appropriate. -(MARPOL Annex I,)regulation 7)

- Oil Record Book

Every oil tanker of 150 gross tonnage and above and every ship of 400 gross tonnage and above other than an oil tanker shall be provided with an Oil Record Book, Part I (Machinery space operations). Every oil tanker of 150 gross tonnage and above shall also be provided with an Oil Record Book, Part II (Cargo/ballast operations). -(MARPOL Annex I, regulations 17 and 36)

- Shipboard Oil Pollution Emergency Plan

Every oil tanker of 150 gross tonnage and above and every ship other than an oil tanker of 400 gross tonnage and above shall carry on board a Shipboard Oil Pollution Emergency Plan approved by the Administration. – (MARPOL Annex I, regulation 37; resolution MEPC.54(32), as amended by resolution MEPC.86(44)

- International Sewage Pollution Prevention Certificate

An International Sewage Pollution Prevention Certificate shall be issued, after an initial or renewal survey in accordance with the provisions of regulation 4 of Annex IV of MARPOL, to any ship which is required to comply with the provisions of that Annex and is engaged in voyages to ports or offshore terminals under the jurisdiction of other Parties to the Convention. – MARPOL Annex IV, regulation 5; MEPC/Circ.408)

- Document of approval for the rate of sewage discharge

Untreated sewage from ships other than passenger ships in all areas and from passenger ships outside special areas that has been stored in holding tanks shall be discharged at a moderate rate approved by the Administration based upon the standards developed by the Organization. – (MARPOL Annex IV, regulation 11.1.1; resolution MEPC.157(55)

- Garbage Management Plan

Every ship of 100 gross tonnage and above and every ship which is certified to carry 15 persons or more shall carry a garbage management plan which the crew shall follow. – (MARPOL Annex V, regulation 10;resolution MEPC.220(63)

- Garbage Record Book

Every ship of 400 gross tonnage and above and every ship which is certified to carry 15 persons or more engaged in voyages to ports or offshore terminals under the jurisdiction of other Parties to the Convention and every fixed and floating platform engaged in exploration and exploitation of the seabed shall be provided with a Garbage Record Book. – (MARPOL Annex V, regulation 10)

- International Air Pollution Prevention Certificate

Ships constructed before the date of entry into force of the Protocol of 1997 shall be issued with an International Air Pollution Prevention Certificate. Any ship of 400 gross tonnage and above engaged in voyages to ports or offshore terminals under the jurisdiction of other Parties and platforms and drilling rigs engaged in voyages to waters under the sovereignty or jurisdiction of other Parties to the Protocol of 1997 shall be issued with an International Air Pollution Prevention Certificate. -(MARPOL Annex VI, regulation 6)

- International Energy Efficiency Certificate

An International Energy Efficiency Certificate for the ship shall be issued after a survey in accordance with the provisions of regulation 5.4 to any ships of 400 gross tonnage and above before that ship may engage in voyages to ports or offshore terminals under the jurisdiction of other Parties. – (MARPOL Annex VI, regulation 6)

- Ozone-depleting Substances Record Book

Each ship subject to MARPOL Annex VI, regulation 6.1 that has rechargeable systems that contain ozone-depleting substances shall maintain an ozone-depleting substances record book. -(MARPOL Annex VI, regulation 12.6)

- Fuel Oil Changeover Procedure and Logbook (record of fuel changeover)

Those ships using separate fuel oils to comply with MARPOL Annex VI, regulation 14.3 and entering or leaving an emission control area shall carry a written procedure showing how the fuel oil changeover is to be done. The volume of low-sulphur fuel oils in each tank as well as the date, time and position of the ship when any fuel oil changeover operation is completed prior to the entry into an emission control area or commenced after exit from such an area shall be recorded in such logbook as prescribed by the Administration. – (MARPOL Annex VI, regulation 14.6)

- Manufacturer's Operating Manual for Incinerators

Incinerators installed in accordance with the requirements of MARPOL Annex VI, regulation 16.6.1 shall be provided with a Manufacturer's Operating Manual, which is to be retained with the unit. -(MARPOL Annex VI, regulation 16.7)

- Bunker Delivery Note and Representative Sample

Bunker Delivery Note and representative sample of the fuel oil delivered shall be kept on board in accordance with requirements of MARPOL Annex VI, regulations 18.6 and 18.8.1. – (MARPOL Annex VI, regulations 18.6 and 18.8.1)

- EEDI Technical File

Applicable to ships falling into one or more of the categories in MARPOL Annex VI, regulations 2.25 to 2 – (MARPOL Annex VI, regulation 20)

- Ship Energy Efficiency Management Plan (SEEMP)

All ships of 400 gross tonnage and above, excluding platforms (including FPSOs and FSUs) and drilling rigs, regardless of their propulsion, shall keep on board a

ship specific Ship Energy Efficiency Management Plan (SEEMP). This may form part of the ship's Safety Management System (SMS). – (MARPOL Annex VI, regulation 22; MEPC.1/Circ.795)

- Technical File

Every marine diesel engine installed on board a ship shall be provided with a Technical File. The Technical File shall be prepared by the applicant for engine certification and approved by the Administration, and is required to accompany an engine throughout its life on board ships. The Technical File shall contain the information as specified in paragraph 2.4.1 of the NOX Technical Code, 2008. – (NOX Technical Code 2008, paragraph 2.3.4)

- Record Book of Engine Parameters

Where the Engine Parameter Check method in accordance with paragraph 6.2 of the NOX Technical Code, 2008 is used to verify compliance, if any adjustments or modifications are made to an engine after its pre-certification, a full record of such adjustments or modifications shall be recorded in the engine's Record Book of Engine Parameters. –(NOX Technical Code 2008, paragraph 2.3.7)

- Certificates for masters, officers or ratings

Certificates for masters, officers or ratings shall be issued to those candidates who, to the satisfaction of the Administration, meet the requirements for service, age, medical fitness, training, qualifications and examinations in accordance with the appropriate provisions of the 1978 STCW Convention and STCW Code. Formats of certificates are given in section A-I/2 of the STCW Code. Certificates must be kept available in their original form on board the ships on which the holder is serving.

Fishing vessel personnel serving on board seagoing fishing vessels shall be certificated in accordance with the provisions of STCW-F Convention 1995. Formats of certificates are given in the appendix 1, 2 and 3 of the Convention. – (STCW 1978, article VI, regulation I/2; STCW Code, section A-I/2 STCW-F 1995 article 6, regulation 3)

- Records of daily hours of rest

Records of daily hours of rest of seafarers shall be maintained on board. –(STCW Code, section A-VIII/1; IMO/ILO Guidelines for the development of tables of seafarers' shipboard working arrangements and formats of records of seafarers' hours of work or hours of rest)

- International Anti-fouling System Certificate

Ships of 400 GT and above engaged in international voyages, excluding fixed or floating platforms, FSUs and FPSOs, shall be issued after inspection and survey an international Anti-fouling System Certificate together with a Record of Anti-fouling Systems. –(AFS 2001, regulation 2(1) of annex 4)

- Declaration on Anti-fouling System

Ships of 24 m or more in length, but less than 400 GT engaged in international voyages, excluding fixed or floating platforms, FSUs, and FPSOs, shall carry a declaration signed by the owner or owner's authorized agents. Such a declaration shall be accompanied by appropriate documentation (such as a paint receipt or a contractor invoice) or contain appropriate endorsement. -(AFS 2001, regulation 5(1) of annex 4)

- International Ballast Water Management Certificate

Ships of 400 gross tonnage and above to which the BWM 2004 applies, excluding floating platforms, FSUs and FPSOs, shall be issued the certificate after successful completion of a survey conducted in accordance with regulation E-1.

Note: The item was added by the Secretariat as per the relevant requirements of the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWM 2004), which will enter into force on 8 September 2017. -(BWM 2004, regulation E-2)

- Ballast Water Management Plan

Each ship shall have on board and implement a ballast water management plan. Such a plan shall be approved by the Administration taking into account guidelines developed by the Organization.

Note: The item was added by the Secretariat as per the relevant requirements of the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWM 2004), which will enter into force on 8 September 2017. -(BWM 2004, regulation B-1; resolution MEPC.127(53))

- Ballast Water Record Book

Each ship shall have on board a ballast water record book that may be an electronic record system, or that may be integrated into another record book or system and which shall at least contain the information specified in appendix II of the Convention. The ballast water record book entries shall be maintained on board the ship for a minimum period of two years after the last entry has been made and thereafter in the Company's control for a minimum period of three years.

Note: The item was added by the Secretariat as per relevant requirements of the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWM 2004), which will enter into force on 8 September 2017. -(BWM 2004, Regulation B-2)

- Certificate of insurance or other financial security in respect of civil liability for bunker oil pollution damage

Certificate attesting that insurance or other financial security is in force in accordance with the provisions of this Convention shall be issued to each ship having a gross tonnage greater than 1,000 after the appropriate authority of a State Party has determined that the requirements of article 7, paragraph 1 have

been complied with. With respect to a ship registered in a State Party such certificate shall be issued or certified by the appropriate authority of the State of the ship's registry; with respect to a ship not registered in a State Party it may be issued or certified by the appropriate authority of any State Party. A State Party may authorize either an institution or an organization recognized by it to issue the certificate referred to in article 7, paragraph 2. This compulsory insurance certificate shall be in the form of the model set out in the annex to the Convention. -(Bunkers 2001, article 7)

- Certificate of insurance or other financial security in respect of liability for the removal of wrecks

Certificate attesting that insurance or other financial security is in force in accordance with the provisions of the Convention shall be issued to each ship of 300 gross tonnage and above by the appropriate authority of the State of the ship's registry after determining that the requirements of article 12.1 have been complied with. With respect to a ship registered in a State Party, such certificate shall be issued or certified by the appropriate authority of the State of the ship's registry; with respect to a ship not registered in a State Party it may be issued or certified by the appropriate authority of any State Party. This compulsory insurance certificate shall be in the form of the model set out in the annex to the Convention. -(Nairobi WRC 2007, article 12)

2 In addition to the certificates listed in section 1 above, passenger ships shall carry:

- Passenger Ship Safety Certificate

A certificate called a Passenger Ship Safety Certificate shall be issued after inspection and survey to a passenger ship which complies with the requirements of chapters II-1, II-2, III, IV and V and any other relevant requirements of SOLAS 1974. A Record of Equipment for the Passenger Ship Safety Certificate (Form P) shall be permanently attached. -(SOLAS 1974, regulation I/12; SOLAS PROT 1988, regulation I/12)

- Decision support system for masters

In all passenger ships, a decision support system for emergency management shall be provided on the navigation bridge. – (SOLAS 1974, regulation III/29)

- Search and rescue cooperation plan

Passenger ships to which chapter I of the Convention applies shall have on board a plan for cooperation with appropriate search and rescue services in event of an emergency. – SOLAS 1974, regulation V/7.3)

- List of operational limitations

Passenger ships to which chapter I of the Convention applies shall keep on board a list of all limitations on the operation of the ship, including exemptions from

any of the SOLAS regulations, restrictions in operating areas, weather restrictions, sea state restrictions, restrictions in permissible loads, trim, speed and any other limitations, whether imposed by the Administration or established during the design or the building stages. -(SOLAS 1974, regulation V/30)

- Special Trade Passenger Ship Safety Certificate, Special Trade Passenger Ship Space Certificate

A Special Trade Passenger Ship Safety Certificate issued under the provisions of the Special Trade Passenger Ships Agreement, 1971.

A certificate called a Special Trade Passenger Ship Space Certificate shall be issued under the provisions of the Protocol on Space Requirements for Special Trade Passenger Ships, 1973. -(STP 71, rule 5 SSTP 73, rule 5

- Certificate of insurance or other financial security in respect of liability for the death of and personal injury to passengers

A certificate attesting that insurance or other financial security is in force in accordance with the provisions of this Convention shall be issued to each ship that is licensed to carry more than 12 passengers, after the appropriate authority of a State Party has determined that the requirements of article 4bis paragraph 1 have been complied with. With respect to a ship registered in a State Party, such certificate shall be issued or certified by the appropriate authority of the State of the ship's registry; with respect to a ship not registered in a State Party it may be issued or certified by the appropriate authority of any State Party. A State Party may authorize an institution or an organization recognized by it to issue the certificate. The certificate shall be in the form of the model set out in the annex to the Convention.

Pursuant to resolution A.988(24), States are recommended to ratify the Athens Protocol as soon as possible with the reservation that they reserve the right to issue and accept insurance certificates with such special exceptions and limitations as the insurance market conditions at the time of issue of the certificate may necessitate, examples being the biochemical clause and terrorism-related clauses (Circular Letter No.2758 refers).- (PAL 1974 as modified by PAL PROT 2002, article 4bis; resolution A.988(24); Circular Letter No.2758

3 In addition to the certificates listed in section 1 above, cargo ships shall carry:

- Cargo Ship Safety Construction Certificate

A certificate called a Cargo Ship Safety Construction Certificate shall be issued after survey to a cargo ship of 500 gross tonnage and over which satisfies the requirements for cargo ships on survey, set out in regulation I/10 of SOLAS 1974, and complies with the applicable requirements of chapters II-1 and II-2, other

than those relating to fire-extinguishing appliances and fire-control plans. - (SOLAS 1974, regulation I/12; SOLAS PROT 1988, regulation I/12)

- Cargo Ship Safety Equipment Certificate

A certificate called a Cargo Ship Safety Equipment Certificate shall be issued after survey to a cargo ship of 500 gross tonnage and over which complies with the relevant requirements of chapters II-1 and II-2, III and V and any other relevant requirements of SOLAS 1974. A Record of Equipment for the Cargo Ship Safety Equipment Certificate (Form E) shall be permanently attached. -(SOLAS 1974, regulation I/12; SOLAS PROT 1988, regulation I/12)

- Cargo Ship Safety Radio Certificate

A certificate called a Cargo Ship Safety Radio Certificate shall be issued after survey to a cargo ship of 300 gross tonnage and over, fitted with a radio installation, including those used in life-saving appliances, which complies with the requirements of chapter IV and any other relevant requirements of SOLAS 1974. A Record of Equipment for the Cargo Ship Safety Radio Certificate (Form R) shall be permanently attached. – (SOLAS 1974, regulation I/12, as amended by the GMDSS amendments; SOLAS PROT 1988, regulation I/12)

- Cargo Ship Safety Certificate

A certificate called a Cargo Ship Safety Certificate may be issued after survey to a cargo ship which complies with the relevant requirements of chapters II-1, II-2, III, IV and V and other relevant requirements of SOLAS 1974 as modified by the 1988 SOLAS Protocol, as an alternative to the Cargo Ship Safety Construction Certificate, Cargo Ship Safety Equipment Certificate and Cargo Ship Safety Radio Certificate. A Record of Equipment for the Cargo Ship Safety Certificate (Form C) shall be permanently attached. -(SOLAS PROT 1988, regulation I/12)

- Ship Structure Access Manual

This regulation applies to oil tankers of 500 gross tonnage and over and bulk carriers, as defined in regulation IX/1, of 20,000 gross tonnage and over, constructed on or after 1 January 2006. A ship's means of access to carry out overall and close-up inspections and thickness measurements shall be described in a Ship Structure Access Manual approved by the Administration, an updated copy of which shall be kept on board. -(SOLAS 1974, regulation II-1/3-6)

- Cargo Information

The shipper shall provide the master or his representative with appropriate information, confirmed in writing, on the cargo, in advance of loading. In bulk carriers, the density of the cargo shall be provided in the above information. - (SOLAS 1974, regulations VI/2 and XII/10; MSC/Circ.663)

- Bulk Carrier Booklet

To enable the master to prevent excessive stress in the ship's structure, the ship loading and unloading solid bulk cargoes shall be provided with a booklet referred to in SOLAS regulation VI/7.2. The booklet shall be endorsed by the Administration or on its behalf to indicate that SOLAS regulations XII/4, 5, 6 and 7, as appropriate, are complied with. As an alternative to a separate booklet, the required information may be contained in the intact stability booklet. – (SOLAS 1974, regulations VI/7 and XII/8; BLU Code)

- Document of authorization for the carriage of grain and grain loading manual

A document of authorization shall be issued for every ship loaded in accordance with the regulations of the International Code for the Safe Carriage of Grain in Bulk. The document shall accompany or be incorporated into the grain loading manual provided to enable the master to meet the stability requirements of the Code. –(SOLAS 1974, regulation VI/9; Grain Code, section 3)

- Enhanced survey report file

Bulk carriers and oil tankers shall have a survey report file and supporting documents complying with paragraphs 6.2 and 6.3 of annex A/ and annex B, part A/part B, 2011 ESP Code. –(SOLAS 1974, regulation XI-1/2; 2011 ESP Code (resolution A.1049(27)), as amended)

- Dedicated Clean Ballast Tank Operation Manual

Every product carrier of 40,000 tonnes deadweight and above delivered on or before 1 June 1982, operating with dedicated clean ballast tanks shall be provided with a Dedicated Clean Ballast Tank Operation Manual detailing the system and specifying operational procedures. Such a Manual shall be to the satisfaction of the Administration and shall contain all the information set out in the Specifications referred to in subparagraph 8.2 of MARPOL Annex I regulation 18. If an alteration affecting the dedicated clean ballast tank system is made, the Operation Manual shall be revised accordingly. –(MARPOL Annex I, regulation 18.8; resolution A.495(XII))

- Condition Assessment Scheme (CAS) Statement of Compliance, CAS Final Report and Review Record

A Statement of Compliance shall be issued by the Administration to every oil tanker which has been surveyed in accordance with the requirements of the Condition Assessment Scheme (CAS) and found to be in compliance with these requirements. In addition, a copy of the CAS Final Report which was reviewed by the Administration for the issue of the Statement of Compliance and a copy of the relevant Review Record shall be placed on board to accompany the Statement of Compliance. –(MARPOL Annex I, regulations 20 and 21; resolution MEPC.94(46), as amended by resolutions MEPC.99(48), MEPC.112(50), MEPC.131(53), resolution MEPC.155(55), and MEPC.236(65))

- Subdivision and stability information

Every oil tanker to which regulation 28 of Annex I of MARPOL applies shall be provided in an approved form with information relative to loading and

distribution of cargo necessary to ensure compliance with the provisions of this regulation and data on the ability of the ship to comply with damage stability criteria as determined by this regulation. – (MARPOL Annex I, regulation 28)

- Record of oil discharge monitoring and control system for the last ballast voyage

Subject to the provisions of paragraphs 4 and 5 of regulation 3 of MARPOL Annex I, every oil tanker of 150 gross tonnage and above shall be equipped with an oil discharge monitoring and control system approved by the Administration. The system shall be fitted with a recording device to provide a continuous record of the discharge in litres per nautical mile and total quantity discharged, or the oil content and rate of discharge. The record shall be identifiable as to time and date and shall be kept for at least three years. –(MARPOL Annex I, regulation 31)

- Oil Discharge Monitoring and Control (ODMC) Operational Manual

Every oil tanker fitted with an Oil Discharge Monitoring and Control system shall be provided with instructions as to the operation of the system in accordance with an operational manual approved by the Administration. –(MARPOL Annex I, regulation 31; resolution A.496(XII); resolution A.586(14), as amended by resolution MEPC.24(22); resolution MEPC.108(49), as amended by resolution MEPC.240(65)

- Crude Oil Washing Operation and Equipment Manual (COW Manual)

Every oil tanker operating with crude oil washing systems shall be provided with an Operations and Equipment Manual detailing the system and equipment and specifying operational procedures. Such a Manual shall be to the satisfaction of the Administration and shall contain all the information set out in the specifications referred to in regulation 35 of Annex I of MARPOL. –(MARPOL Annex I, regulation 35; resolution MEPC.81(43)

- STS Operation Plan and Records of STS Operations

Any oil tanker involved in STS operations shall carry on board a plan prescribing how to conduct STS operations (STS operations Plan) not later than the date of the first annual, intermediate or renewal survey of the ship to be carried out on or after 1 January 2011. Each oil tanker's STS operations plan shall be approved by the Administration. The STS operations plan shall be written in the working language of the ship

Records of STS operations shall be retained on board for three years and be readily available for inspection. – (MARPOL Annex I, regulation 41 VOC Management Plan

A tanker carrying crude oil, to which MARPOL Annex VI, regulation 15.1 applies, shall have on board and implement a VOC Management Plan. –(MARPOL Annex VI, regulation 15.6)

- Document of approval for the stability instrument

All ships, subject to the IBC, IGC, BCH and GC Codes, should be fitted with a stability instrument capable of verifying compliance with intact and damage stability approved by the Administration, at the first scheduled renewal survey of the ship on or after 1 January 2016, but not later than 1 January 2021, having regard to the performance standards recommended by the Organization. The Administration should issue a document of approval for the stability instrument. -(IBC Code para. 2.2.6; IGC Code para. 2.2.6; BCH code para. 2.2.1.2; GC Code para. 2.2.4; 2008 IS Code; MSC.1/Circ.1229; MSC.1/Circ.1461

- Certificate of insurance or other financial security in respect of civil liability for oil pollution damage

A certificate attesting that insurance or other financial security is in force shall be issued to each ship carrying more than 2,000 tonnes of oil in bulk as cargo. It shall be issued or certified by the appropriate authority of the State of the ship's registry after determining that the requirements of article VII, paragraph 1, of the CLC Convention have been complied with. -(CLC 1969, article VII)

- Certificate of insurance or other financial security in respect of civil liability for oil pollution damage

A certificate attesting that insurance or other financial security is in force in accordance with the provisions of the 1992 CLC Convention shall be issued to each ship carrying more than 2,000 tonnes of oil in bulk as cargo after the appropriate authority of a Contracting State has determined that the requirements of article VII, paragraph 1, of the Convention have been complied with. With respect to a ship registered in a Contracting State, such certificate shall be issued by the appropriate authority of the State of the ship's registry; with respect to a ship not registered in a Contracting State, it may be issued or certified by the appropriate authority of any Contracting State. -(CLC 1992, article VII)

4 In addition to the certificates listed in sections 1 and 3 above, where appropriate, any ship carrying noxious liquid chemical substances in bulk shall carry:

- International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk (NLS Certificate)

An international pollution prevention certificate for the carriage of noxious liquid substances in bulk (NLS Certificate) shall be issued, after survey in accordance with the provisions of regulation 8 of Annex II of MARPOL, to any ship carrying noxious liquid substances in bulk and which is engaged in voyages to ports or terminals under the jurisdiction of other Parties to MARPOL. In respect of chemical tankers, the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk and the International Certificate of Fitness for the

Carriage of Dangerous Chemicals in Bulk, issued under the provisions of the Bulk Chemical Code and International Bulk Chemical Code, respectively, shall have the same force and receive the same recognition as the NLS Certificate. - (MARPOL Annex II, regulation 9)

- Cargo Record Book

Ships carrying noxious liquid substances in bulk shall be provided with a Cargo Record Book, whether as part of the ship's official log book or otherwise, in the form specified in appendix II to Annex II. -(MARPOL Annex II, regulation 15.1)

- Procedures and Arrangements Manual (P & A Manual)

Every ship certified to carry noxious liquid substances in bulk shall have on board a Procedures and Arrangements Manual approved by the Administration. - (MARPOL Annex II, regulation 14; resolution MEPC.18(22), as amended by resolution MEPC.62(35))

- Shipboard Marine Pollution Emergency Plan for Noxious Liquid Substances

Every ship of 150 gross tonnage and above certified to carry noxious liquid substances in bulk shall carry on board a shipboard marine pollution emergency plan for noxious liquid substances approved by the Administration. -(MARPOL Annex II, regulation 17; resolution MEPC.85(44), as amended by resolution MEPC.137(53))

5 In addition to the certificates listed in sections 1 and 3 above, where applicable, any chemical tanker shall carry:

- Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk

A certificate called a Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk, the model form of which is set out in the appendix to the Bulk Chemical Code, should be issued after an initial or periodical survey to a chemical tanker engaged in international voyages which complies with the relevant requirements of the Code.

Note: The Code is mandatory under Annex II of MARPOL for chemical tankers constructed before 1 July 1986.

Or BCH Code, section 1.6

- International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk

A certificate called an International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk, the model form of which is set out in the appendix to the International Bulk Chemical Code, should be issued after an initial or periodical survey to a chemical tanker engaged in international voyages, which complies with the relevant requirements of the Code.

Note: The Code is mandatory under both chapter VII of SOLAS 1974 and Annex II of MARPOL for chemical tankers constructed on or after 1 July 1986. -(IBC Code, section 1.5

6 In addition to the certificates listed in sections 1 and 3 above, where applicable, any gas carrier shall carry:

- Certificate of Fitness for the Carriage of Liquefied Gases in Bulk

A certificate called a Certificate of Fitness for the Carriage of Liquefied Gases in Bulk, the model form of which is set out in the appendix to the Gas Carrier Code, should be issued after an initial or periodical survey to a gas carrier which complies with the relevant requirements of the Code. -(GC Code, section 1.6)

- International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk

A certificate called an International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk, the model form of which is set out in the appendix to the International Gas Carrier Code, should be issued after an initial or periodical survey to a gas carrier which complies with the relevant requirements of the Code.

Note: The Code is mandatory under chapter VII of SOLAS 1974 for gas carriers constructed on or after 1 July 1986. – (IGC Code, section 1.4)

7 In addition to the certificates listed in sections 1, and 2 or 3 above, where applicable, any high-speed craft shall carry:

- High-Speed Craft Safety Certificate

A certificate called a High-Speed Craft Safety Certificate shall be issued after completion of an initial or renewal survey to a craft which complies with the requirements of the 1994 HSC Code or the 2000 HSC Code, as appropriate. -(SOLAS 1974, regulation X/3; 1994 HSC Code, section 1.8; 2000 HSC Code, section 1.8

- Permit to Operate High-Speed Craft

A certificate called a Permit to Operate High-Speed Craft shall be issued to a craft which complies with the requirements set out in paragraphs 1.2.2 to 1.2.7 of the 1994 HSC Code or the 2000 HSC Code, as appropriate. -(1994 HSC Code, section 1.9; 2000 HSC Code, section 1.9

8 In addition to the certificates listed in sections 1, and 2 or 3 above, where applicable, any ship carrying dangerous goods shall carry:

- Document of compliance with the special requirements for ships carrying dangerous goods

The Administration shall provide the ship with an appropriate document as evidence of compliance of construction and equipment with the requirements of regulation II-2/19 of SOLAS 1974. Certification for dangerous goods, except solid dangerous goods in bulk, is not required for those cargoes specified as class 6.2 and 7 and dangerous goods in limited quantities. – (SOLAS 1974, regulation II-2/19.4)

9 In addition to the certificates listed in sections 1, and 2 or 3 above, where applicable, any ship carrying dangerous goods in packaged form shall carry:

- Transport information

Transport information relating to the carriage of dangerous goods in packaged form and the container/vehicle packing certificate shall be in accordance with the relevant provisions of the IMDG Code and shall be made available to the person or organization designated by the port State authority. -(SOLAS 1974, regulation VII/4.1

- Dangerous goods manifest or stowage plan

Each ship carrying dangerous goods in packaged form shall have a special list or manifest setting forth, in accordance with the classification set out in the IMDG Code, the dangerous goods on board and the location thereof. Each ship carrying dangerous goods in solid form in bulk shall have a list or manifest setting forth the dangerous goods on board and the location thereof. A detailed stowage plan, which identifies by class and sets out the location of all dangerous goods on board, may be used in place of such a special list or manifest. A copy of one of these documents shall be made available before departure to the person or organization designated by the port State authority. -(SOLAS 1974, regulations VII/4.2 and VII/7-2.2; MARPOL Annex III, regulation 4)

10 In addition to the certificates listed in sections 1, and 2 or 3 above, where applicable, any ship carrying INF cargo shall carry:

- International Certificate of Fitness for the Carriage of INF Cargo

A ship carrying INF cargo shall comply with the requirements of the International Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes on Board Ships (INF Code) in addition to any other applicable requirements of the SOLAS regulations and shall be surveyed and be provided with the International Certificate of Fitness

for the Carriage of INF Cargo. -(SOLAS 1974, regulation VII/16; INF Code (resolution MSC.88(71), as amended), paragraph 1.3)

11 In addition to the certificates listed in sections 1, and 2 or 3 above, where applicable, any Nuclear Ship shall carry:

- Operating Manual for nuclear power plant

A fully detailed Operating Manual shall be prepared for the information and guidance of the operating personnel in their duties on all matters relating to the operation of the nuclear power plant having an important bearing on safety. The Administration, when satisfied, shall approve such Operating Manual and a copy shall be kept on board the ship. The Operating Manual shall always be kept up-to-date. -(SOLAS 1974, regulation VIII/8)

A Nuclear Cargo Ship Safety Certificate or Nuclear Passenger Ship Safety Certificate, in place of the Cargo Ship Safety Certificate or Passenger Ship Safety Certificate, as appropriate.

Every Nuclear powered ship shall be issued with the certificate required by SOLAS chapter VIII. – (SOLAS 1974, regulation VIII/10)

12 In addition to the certificates listed in sections 1, and 2 or 3 above, where applicable, any Ship operating in Polar waters shall carry:

- Polar Ship Certificate

Every ship to which the Polar Code applies shall have on board a valid Polar Ship Certificate. The certificate shall include a supplement recording equipment required by the Code. -(Polar Code, part I-A Section 1.3)

- Polar Water Operational Manual (PWOM)

Every ship to which the Polar Code applies shall have on board a Polar Water Operational Manual (PWOM) as required in part I-A section 2.3 of the Code. – (Polar Code, part I-A section 2.3)

Other certificates and documents which are not mandatory

- Special purpose ships
- Special Purpose Ship Safety Certificate

In addition to SOLAS certificates as specified in paragraph 7 of the Preamble of the 1983 SPS Code and 2008 SPS Code, a Special Purpose Ship Safety Certificate should be issued after survey in accordance with the provisions of paragraph 1.6 of the 1983 SPS Code and 2008 SPS Code. The duration and validity of the certificate should be governed by the respective provisions for cargo ships in SOLAS 1974. If a certificate is issued for a special purpose ship of less than 500 gross tonnage, this certificate should indicate to what extent relaxations in accordance with 1.2 were accepted.

The 2008 SPS Code applies to every special purpose ship of not less than 500 GT certified on or after 13 May 2008. – (1983 SPS Code (resolution A.534(13), as amended); 2008 SPS Code (resolution MSC.266(84), as amended), SOLAS 1974, regulation I/12; SOLAS PROT 1988, regulation I/12

- Offshore support vessels
- Offshore Supply Vessel Document of Compliance

The Document of Compliance should be issued after satisfied that the vessel complies with the provisions of the Guidelines for the design and construction of Offshore Supply Vessels, 2006. -(resolution MSC.235(82), as amended by resolution MSC.335(90)

- Certificate of Fitness for Offshore Support Vessels

When carrying such cargoes, offshore support vessels should carry a Certificate of Fitness issued under the “Guidelines for the Transport and Handling of Limited AMoUnts of Hazardous and Noxious Liquid Substances in Bulk on Offshore Support Vessels”. If an offshore support vessel carries only noxious liquid substances, a suitably endorsed International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk may be issued instead of the above Certificate of Fitness. -(resolution A.673(16), as amended by resolutions MSC.184(79), MSC.236(82) and MEPC.158(55); MARPOL Annex II, regulation 11.2 Diving systems)

- Diving System Safety Certificate

A certificate should be issued either by the Administration or any person or organization duly authorized by it after survey or inspection to a diving system which complies with the requirements of the Code of Safety for Diving Systems. In every case, the Administration should assume full responsibility for the certificate. -(resolution A. 831(19), as amended by resolution MSC.185(79), section 1.6

- Passenger submersible craft
- Safety Compliance Certificate for Passenger Submersible Craft

Applicable to submersible craft adapted to accommodate passengers and intended for underwater excursions with the pressure in the passenger compartment at or near one atmosphere.

A Design and Construction Document issued by the Administration should be attached to the Safety Compliance Certificate. – (MSC/Circ.981, as amended by MSC/Circ.1125_

- Dynamically supported craft
- Dynamically Supported Craft Construction and Equipment Certificate

To be issued after survey carried out in accordance with paragraph 1.5.1(a) of the Code of Safety for Dynamically Supported Craft. -(DSC Code (resolution A.373(X), as amended) section 1.6)

- Mobile offshore drilling units
- Mobile Offshore Drilling Unit Safety Certificate

To be issued after survey carried out in accordance with the provisions of the Code for the Construction and Equipment of Mobile Offshore Drilling Units, 1979, or, for units constructed on or after 1 May 1991, but before 1 January 2012, the Code for the Construction and Equipment of Drilling Units, 1989, or for units constructed on or after 1 January 2012, the Code for the Construction and Equipment of Drilling Units, 2009. -(1979 MODU Code (resolution A.414(XI), as amended) section 1.6; 1989 MODU Code (resolution A.649(16), as amended) section 1.6; 2009 MODU Code (resolution A.1023(26), as amended), section 1.6, Wing-In-Ground (WIG) Craft))

- Wing-in-ground Craft Safety Certificate

A certificate called a WIG Craft Safety Certificate should be issued after completion of an initial or renewal survey to a craft, which complies with the provisions of the Interim Guidelines for WIG craft. -(MSC/Circ.1054, as amended by MSC/Circ.1126, section 9)

- Permit to Operate WIG Craft

A permit to operate should be issued by the Administration to certify compliance with the provisions of the Interim Guidelines for WIG craft. -(MSC/Circ.1054, as amended by MSC/Circ.1126, section 10)

- Noise levels

- Noise Survey Report

Applicable to existing ships to which SOLAS II-1/3-12 does not apply.

A noise survey report should be made for each ship in accordance with the Code on Noise Levels on Board Ships.

-(resolution A.468(XII), section 4.3)

CHECKLIST

Mastering

- 1 Are crewmembers aware of their duties indicated in the muster list and aware of the location where to perform those duties!
- 2 Are muster lists exhibited in conspicuous places throughout the ship, including on the bridge, in the engine room and in the crew accommodation space?
- 3 Does the muster list show the duties assigned to different crewmembers?
- 4 Does the muster list specify which officers are assigned to ensure that LSA and FFA equipment is maintained in good condition and available for immediate use?
- 5 Does the muster list specify substitutes for key persons that might become disabled?
- 6 Is the format of the muster list approved?
- 7 Is the muster list up-to-date and in conformity with the crew list?
- 8 Are the duties assigned to crewmembers manning the survival craft (boats or rafts) in accordance by SOLAS chapter III, part B?
- 9 Are the persons placed in charge of each survival craft and their substitutes named?
- 10 Are the operating instructions for the survival craft satisfactory?

Communication

- 11 Are key persons able to communicate with each other?
- 12 Which languages are the working languages used onboard?
- 13 Are key persons able to understand each other during inspections or drills?

Abandon Ship Drills and LSA Equipment

- 14 Is the correct alarm used for summoning crewmembers to the muster station(s) and are crewmembers familiar with that alarm?
- 15 During drills, are the survival craft correctly manned and operated by the assigned persons?
- 16 Do crewmembers dress suitably for drills and know how to correctly don lifejackets?
- 17 Is at least one lifeboat lowered after the necessary preparations, and launched with its assigned crew into the water at least once every 3 months?
- 18 Can crewmembers start and operate the lifeboat engine(s) satisfactorily?
- 19 Can crewmembers operate the davits (cranes) used for launching liferafts acceptably?

- 20 Are crewmembers familiar with their assigned duties during abandon ship operations?
- 21 Have crewmembers in charge of survival craft complete knowledge of the operation and equipment of the craft?
- 22 Can two crewmembers undertake the preparations for embarking and launching survival craft be undertaken in less than five minutes?
- 23 Does the performance of crewmembers on the drills suggest that the ship could be abandoned in thirty minutes?
- 24 Is the condition of the survival craft, their contents (food, water etc) and launching arrangements (including davits, falls, winches and brakes) satisfactory?
- 25 Is the condition of the side lighting, emergency communication means, operating instructions (posters / signs) and embarkation ladder arrangements satisfactory?
- 26 Are the liferafts correctly serviced, stowed and connected to the ship by hydrostatic releases?
- 27 Is the number and stowage of lifejackets (including immersion suits and thermal protective aids, where appropriate) correct, and the number, condition and validity of life-buoys, rockets, smoke signals and SARTs?
- Fire drills and FFA equipment**
- 28 Do the crewmembers know how to activate the fire alarm?
- 29 Do the crewmembers understand the procedure for reporting a fire, once detected, to the bridge and/or damage control centre?
- 30 When the crew alarm is sounded, do the fire fighting parties promptly muster at their stations?
- 31 During the course of fighting a simulated fire, do the fire fighting parties correctly bring into action, and effectively use all the appropriate equipment?
- 32 Do the fire fighting team leaders give effective orders and report adequately to the bridge and/or damage control centre?
- 33 Do the medical teams correctly take care of injured persons and handle the stretchers in an acceptable manner through narrow passageways, doors and stairways?
- 34 Do the appropriate crewmembers know how to operate the emergency generator, CO2 room, sprinkler and emergency fire pumps correctly?

35 Do the appropriate crewmembers understand the operation of manually-operated fire doors, watertight doors and fire dampers?

36 Do the following function correctly:
fire doors, including their remote operation if appropriate
fire dampers and smoke flaps
quick-closing remotely operated valves
emergency stops of fans and fuel oil pumps
fire detection and fire alarm system
fixed systems in engine room and cargo spaces (servicing dates)
main and emergency fire pumps?

37 Do the fire fighting appliances comply with the fire control plan?

Damage and Fire Control Plans

38 Are the damage and fire control plans (or booklets) provided?

39 Are the crewmembers familiar with their duties according to, and information given on the control plans?

40 Can key persons explain the actions to be taken in various damage conditions?

41 Are key persons knowledgeable in respect of watertight bulkheads and the

openings therein, the means of closing and the positions of any controls?

- 42 Can key persons explain arrangements for the correction of any list due to flooding?
- 43 Can key persons explain the effect of trim and stability in case of damage to and the consequential flooding of a compartment and the countermeasures to be taken?
- 44 Are the fire control plans permanently exhibited, up-to-date, and is one copy readily available in an accessible position?
- 45 Are key persons familiar with the principal structural members forming part of the various fire sections and the means of access to the different compartments?

Manuals and Instructions

- 46 Do key crewmembers understand manuals, instructions etc relevant to the safe condition and operation of the ship and its equipment?
- 47 Is the following information provided in a language understood by the crew and are

the crewmembers aware of the contents and able to respond accordingly to:

- instructions concerning the maintenance and operation of FFA equipment and installations
 - instructions to be followed in the event of an emergency
 - posters and signs illustrating the purpose of controls and the procedures for operating survival craft launching controls
 - instructions for on board maintenance of LSA equipment
 - training manuals containing instructions and information on the LSA equipment provided
 - the shipboard oil pollution emergency plan (SOPEP)
 - the stability booklet, associated plans and information contained therein?
- 48** Are key crewmembers aware of the requirements for maintenance, periodic testing, training, drills and logbook entries?

ISM Code

- 49** Is there a company safety and environmental protection policy and are key personnel familiar with it?
- 50** Is the safety management documentation and manual readily available onboard?
- 51** Is the relevant documentation on the Safety Management System (SMS) in a working language or a language understood by crewmembers?
- 52** Can key personnel identify the company responsible for the operation of the ship and does this correspond with
the company named on the iSM certificates?
- 53** Can key personnel identify the 'designated person'?
- 54** Are procedures in place for establishing and maintaining contact with shore management in an emergency?
- 55** Are there programmes available onboard for drills and exercises to prepare crewmembers for emergency actions?
- 56** Is documentation available to show how new crewmembers have been made familiar with their duties?
- 57** Can the master provide documented proof of his responsibilities and authority, and allow for, and sit comfortably with, his overriding authority?
- 58** Have non-conformities been reported to the company and has corrective action been taken by the company?
- 59** Does the ship have a maintenance routine and are records available?

Bridge and Radio Operations and Equipment

- 60** Is the OOW familiar with the bridge control and navigational equipment, changing the steering mode from automatic to manual and the ship's manoeuvring characteristics?
- 61** Does the OOW have knowledge of the location and operation of all safety and navigational equipment, including fire detection and alarm panels?
- 62** Is the OOW familiar with collision avoidance procedures, the COLREGS, the radar, ARPA controls and capable of obtaining acceptable radar picture?
- 63** Is the OOW familiar with the procedures applying to the navigation of the ship in all circumstances, including:
- management of nautical charts and nautical publications
 - bridge procedures, instructions and manuals
 - voyage planning
 - periodic tests and checks of equipment
 - compass error checks
 - preparations for arrival and departure
 - signalling
 - communications
 - emergencies
 - logbook entries?
- 64** Is the GMDSS radio operator(s) able to use all components of the radio arrangement including its test functions?
- 65** Is the GMDSS operator(s) able to explain the correct procedures for cancelling a false distress alert?
- 66** Is the GMDSS equipment compliant for the sea areas the ship is trading, and if an Exemption Certificate is issued, does the ship comply with the special requirements imposed by the exemption?
- 67** Does the ship receive Navtex MSI messages?
- 68** Are the following satisfactory:
- EPIRB installation
 - radar transponder installation
 - antenna condition
 - radio batteries?

Cargo Operations

- 69** Are personnel assigned with specific duties related to the cargo and any cargo handling equipment familiar with those duties?

- 70 Are such personnel familiar with any dangers posed by the cargo or cargo operations?
- 71 Are the oxygen analysers and other personal protection devices used- during cargo operations in good working order?
- 72 Are Ship / Shore Safety Checklists used?

- 73 Are bending stresses with maximum limits calculated?
- 74 Are cargo / ballasting operations carried out in accordance with the Loading / Discharging Plan and cargo stowage conditions being observed?
- 75 Are the responsible crewmembers familiar with the Cargo Securing Manual and other Codes of Practice, where relevant?
- 76 If the Bulk Carrier Booklet has been endorsed with any restrictions on the cargoes that can be carried, are those restrictions being observed?

Operation of Machinery

- 77 Are key engineering personnel familiar with their duties related to the operation of essential machinery, such as:
 emergency and stand-by sources of electrical power auxiliary steering gear
 bilge and fire pumps any other equipment essential in emergency situations?
- 78 Are such personnel familiar with: the emergency generators actions necessary before the main engine can be started different possibilities of starting the main engine in combination with the source of starting energy procedures when the first attempt to start the main engine fails?
- 79 Are such personnel familiar with: the stand-by generator engine possibilities of starting the stand-by engine automatically and/or by hand blackout procedures load sharing system?
- 80 Are such personnel familiar with: which type of auxiliary steering gear system applies to the ship how it is indicated which steering gear unit is in operation what action is needed to bring the auxiliary steering gear into operation?
- 81 Are such personnel familiar with:
 bilge pumps number and location of bilge pumps, including emergency bilge pumps starting procedures for all these bilge pumps appropriate valves to operate most likely causes of failure of bilge pump operation and the possible remedies fire pumps number and location of fire pumps, including emergency fire pump starting procedures for all fire pumps and appropriate valves to open?

- 82 Are such personnel familiar with the starting and maintenance of lifeboat /rescue boat engines?
- 83 Are such personnel familiar with the local control procedures for those systems which are normally controlled from the bridge?
- 84 Are such personnel familiar with the maintenance procedure for batteries?
- 85 Are such personnel familiar with emergency stops, dampers, fire detection and alarm systems, the operation of watertight and fire doors?

- 86 Are such personnel familiar with the change of control from automatic to manual for cooling water and lube oil systems for the main and auxiliary engines?

Bunkering Operation

- 87 Are bunkering transfer procedures posted, available and understood by all relevant personnel?
- 88 Are an appropriate number of personnel on duty for bunkering?
- 89 Are there means of communication between ship's bunkering personnel and between ship and ashore / barge?
- 90 Are there procedures to report and deal with oil discharges?

Control of Oily Mixtures from Machinery Spaces

- 91 Have all the operational requirements of MARPOL Annex I been met, taking into account:
the quantity of oil residues generated
the capacity of sludge and bilge water holding tanks
the capacity of the oily water separator?
- 92 Have all the correct entries been made in the Oil Record Book?
- 93 Has the correct use been made of reception facilities, and have any alleged inadequate facilities been noted and reported by the master to the flag State?
- 94 Are the responsible personnel familiar with the procedures for handling sludge and bilge water?

Control of Garbage

- 95 Have all the operational requirements of MARPOL AnnexV and national legislation been met?

- 96** Has the correct use been made of reception facilities, and have any alleged inadequate facilities been noted and reported by the master to the flag State?
- 97** Are all ship's personnel familiar with the principle of minimising the aMoUnt potential garbage and the shipboard procedures for handling and storing garbage as contained in the Garbage Management Plan?
- 98** Are ship's personnel familiar with the disposal and discharge requirements under MARPOL AnnexV inside and outside a special area?
- 99** Are they aware of the areas determined as special areas?

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