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The New Inspection Regime of the Paris Mou on Port State Control: Improvement of the System

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ABSTRACT

After the Amoco Cadiz ecological disaster in France, in 1978, the Paris Memorandum of Understanding (PMoU) on Port State Control (PSC) was created. The purpose of this harmonized inspection system is to prevent substandard ships that present high risk from sailing to European and Canadian N. Atlantic ports and anchorages. The existence of many substandard ships is a well-known fact and they sail not only in European waters but all over the world; most of these substandard ships are registered in states that are very permissive in respect of regulations of design, construction, equipment, safety, working conditions, etc. The original objective of the PMoU was for each member country to inspect individually 25% of all the foreign merchant ships which enter its ports (specified MoU Ports) to identify the degree of risk. The original inspection regime of this system is going to be replaced by a New Inspection Regime (NIR), agreed in 2009. With this NIR, the PSC Committee aims to inspect all ships, i.e. the inspections will rise from 25% to 100% of foreign ships entering these ports. This New Inspection Regime would classify the ships according to thr ee categories based on the level of risk associated with the ship revealed by the inspection; once classified, that particular ship would be subjected to more or less frequent inspections. This article will focus on two aspects. The first is how this NIR is going to be implemented; that is, what are the techniques and measures that the PMoU countries are going to bring into operation before 1st January 2011. The second is to contribute to improving this NIR. Any complex new convention and procedures are bound to have mistakes, flaws and weak points, therefore the corresponding documents are to be amended by new annexes shortly to be published.

1. Introduction

1.1. Port State Control

The Paris Memorandum of Understanding (PMoU) on Port State Control (PSC) was created in 1978 and is an administrative agreement between the maritime authorities of twenty-seven European countries and Canada, with the objective of improving the crew living and working conditions, as required by ILO Convention no. 147. (*Cfr*: Legislative resources in References) (Piniella, 2002 and 2009).

In the light of the increase in maritime transport in recent decades in the developed countries, together with the current rapid increase in large emerging economies like China and India, it is now acknowledged that maritime transport is potentially the most efficient, economical and safe transport method for moving large quantities of bulky goods over long distances. The increase in the world's merchant marine fleet is both a major cause and a major effect of greatly increased world trade. Not only has the number of ships increased but also the number of sailings per ship per year has increased, as owners try to maximize utilization of vessels of all types, of diverse characteristics and conditions. In this situation, it was widely agreed that the original objective of inspecting 25% of the ships arriving at MoU ports was no longer appropriate. Thus a New Inspection Regime (NIR) for Port State Control has been adopted.

To maintain the operational status of a commercial vessel it must undergo a series of inspections, on board or ashore. These inspections are normally conducted in two phases. The first is based on a review of the certificates that give evidence of the characteristics of all elements of the ship and its crew and equipment. In most cases the date of issue and the duration of validity are checked. The second phase is to verify the status of items and equipment, to ensure that it complies with the information contained in the certificates. This phase gives rise to reports, made on the basis of evidence of the performance and results of the inspection, to justify any corrections considered necessary.

The thoroughness of the inspection will reveal the details and the state in which they find the equipment or structural elements, and should discover anomalies that can lead to ac-

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cidents. The implementation of the inspection is more effective if a guide is used; such a guide may consist of a software application capable of identifying negative and abnormal circumstances affecting any of the items covered by the inspection, particularly key technical items.

The procedures used must contain the information necessary to perform a check of the operational conditions in the case of equipment, or status of conservation in the case of structural elements of the vessel.

1.2. Correlation between risk of accident and inspection

The second phase of these inspections is required for several purposes, including ensuring objectivity for setting insurance premiums. The policies offered and premiums charged by the insurance companies are also based on the security conditions of the zones where the vessel operates. The Classification Societies provide a rating that guarantees the condition of the ship in terms of its conservation and maintenance; and the validity of certificates of equipment and knowledge of the crew. Sometimes the insurance companies request reports from consultant companies, which conduct a review of the general state of the vessel, providing more data for insurers to establish fair premiums and reduce the risk involved in insuring a vessel in poor condition. (Vlachos, 2002).

The inspections are intended to increase the safety and security of the vessel and methods of working on board, and thereby to reduce the number of accidents. There is a correlation between the accident and inspection, which is evident every time an accident happens. We can identify three factors that directly impact all inspections carried out to determine the condition of the vessel and its components: regulations, procedures and inspections.

Regulations cover all the regulations issued by the International Maritime Organization, State Maritime Administration and the regulations that are contemplated in the Classification Society manuals; these latter regulations are mostly rules that require standards to be met in the design and construction of the vessel and its equipment.

The PMoU procedures reflect the guidelines that classification societies have developed primarily for use by their own inspectors. The examples used are based on data from inspections that are performed every day in shipyards and ports around the world. These data are classified by the PMoU headquarters, and all its inspection manuals and procedures are based on this work.

Finally a methodology for performing the inspection and associated testing is proposed by the PMoU, but there are aspects what go beyond the purely technical, and others what are specific to each person performing the inspection. The particular structure of the inspection should include a variety of formats, with elements that are common for all types of inspections, with the choice of applying one method or another being left to the particular inspector.

The correlation between the risk of accident and inspection is observed more clearly in the different types of inspections, for example, inspections of cargo. Each ship is equipped to carry a certain type of cargo and one specific reason for inspecting it is to ensure that the ship's cargo is transported under conditions of maximum possible safety. The conditions of stowage and lashing of the cargo are carefully observed during the inspection in order to address problems of safety and possible impact on the environment.

One serious problem is the displacement of the cargo that may occur as a result of defective stowage. The inspections carried out after completion of loading are aimed at identifying for example, in the case of a container ship, if the lashing and distribution of the containers on the vessel is correct, or in the case of a bulk carrier, if the holds have been filled correctly, with no unnecessary and potentially damaging space being left. A rationally and evenly distributed cargo helps to avoid damage during the trip, particularly in bad weather, and reduces the risk of cargo being lost when loading and unloading operations at the ports of departure and destination are carried out.

Problems arise when the inspection of a particular operation reveals that the required safety standards have not been met. The previous regime of PMoU inspections, covering all areas of the ship and its operation, have provided sufficient data to justify the introduction of new inspection techniques or new technology, and/or the modification of existing methods, with the object of better ensuring the physical integrity of the crew and cargo of the ship when under extreme conditions and at the limits of their performance. This ultimately is what is intended by the PMoU system.

The use of means and methods of inspection should eliminate the faults in security and operations with the equipment. We must remember that the inspection is performed under controlled conditions in port, and the results would probably be different under typical operating conditions at sea. Therefore some tests should be performed in extreme conditions, particularly of critical systems affecting the survival and safety of the ship, its cargo and crew. The normal functions of the members of the crew should also be included in the inspection.

The strengthened control measures on the part of the PMoU, common safety standards for equipment, together with the rules from the existing resolutions, should be focused on the role, expertise and authority of the inspecting officer. The inspector needs to be provided with greater powers to impose penalties, and to immobilize the manifestly unsafe ship in port if considered necessary.

1.3. The New Inspection Regime (NIR)

The objective of the NIR is to increase the target for inspections from 25% to 100%. Previously each nation member of the Paris MoU had to examine 25% of the foreign ships that visited its ports and anchorages. With the new regime the intention is to inspect all the vessels entering the MoU ports of the MoU area as a whole.

To implement this new system, the "Ship Target Factor" will be replaced by the "Ship Risk Profile", and this profile will classify the vessels in different risk groups. These groups will be Low Risk Ships (LRS) and High Risk Ships (HRS) and, where a ship is not classified as high or low risk, it will be considered a Standard Risk Ship (SRS).

The data used to apply the Ship Risk Profile to a vessel will be obtained from inspections conducted in the Paris MoU area in the last 3 years. The criteria will be the following: Type of ship; Age of the ship; Performance of the flag state of the ship (including whether or not it participates in the Voluntary IMO Member State Audit Scheme (VIMSAS)); Performance of the recognized organization(s); Performance of the company responsible for the ISM management; Number of deficiencies found; and Number of detentions imposed.

Table 1. Ship Risk Profile

			High Risk Ship (HRS)		Low Risk Ship (LRS)
			Criteria	Weighting Points	Criteria
Type			Oil, Chemical, Gas Bulk, Passenger	2	All types
Age			> 12 yrs	1	All ages
Flag	BGW-List		Black - VHR, HR, M to HR	2	White
			Black - MR	1	
	IMO-Audit		–	–	Yes
Recognized Organization	Performance	H	–	–	High
		M	–	–	–
		L	Low	1	–
		VL	Very Low		–
	EU recognized		–	–	Yes
Company	Performance	H	–	–	High
		M	–	–	–
		L	Low	2	–
		VL	Very Low		–
No. of deficiencies. recorded in each inspection within previous 36 months	Deficiencies		Not eligible	–	≤ 5 (and at least 1 inspection carried out in previous 36 months)
No. of detentions within previous 36 months	Deficiencies		≥ 2 detentions	–	No Detention

HRS = 5 points / LRS = all criteria / SRS = not HRS or LRS

Source: Own Preparation

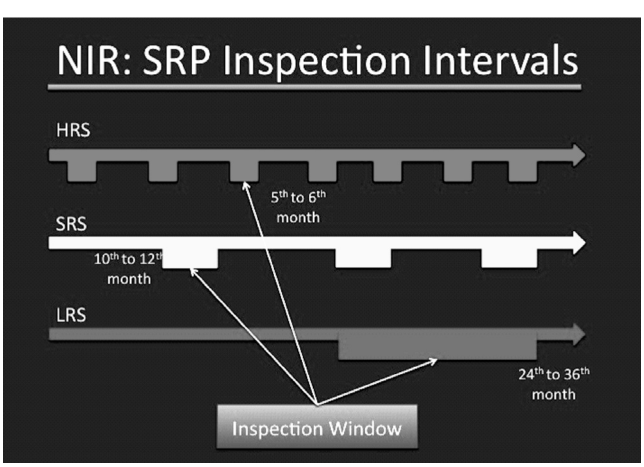

Figure 1. Ship Risk Profile. Inspection Intervals.

1.4. Literature review

A major progress has occurred in the statistical analysis on the effectiveness of PSC inspections from studies Cariou *et al* (2007, 2008 and 2009). Other papers review relevant issues about the implementation of the former inspection regime, from Hare (1997), Owen (1996) or Payoyo (1994) to recent papers as Mejía (2005), Knapp (2004, 2007 and 2009) or Li (2008).

Drawing on the implementation of PSC, Cariou (2009) states that the relevance of the inspection campaigns aiming at targeting specific types of deficiencies.

Anyway, this paper addresses particularly the new Paris Mou inspection regime of inspections (NIR), in force from 1st January 2011. (DGET, 2006).

2. Material and Methods

2.1. Hypothesis

The research hypothesis to be tested in this study is: Implementation of the New Inspection Regime would have been capable of preventing the major maritime accidents that have recently occurred, from that of the Torrey Canyon in 1967 up to the present day.

The methodology used to test this hypothesis draws on several different information sources; the investigation will include a documentary search and a field investigation, and so the technique for the analysis of information can be considered both qualitative and quantitative.

Regarding the research, primary sources, including books, magazines, technical reports, documents of official organism and institutions, and doctoral theses are used. To complement the research a statistical study is performed in order to determine if the most serious accidents (thirty five) that have happened since that of the Torrey Canyon up to the present day could have been prevented if the new inspection regime had been in force. Specifically, the object is to evaluate whether under the NIR, these ships would have been detained in port and stopped from sailing. In that event, those accidents would not have happened and the loss of many lives, damage to the marine ecosystem, and the expenditure of a lot of money on cleaning up beaches and paying compensation would have been avoided.

To perform this statistical study the following variables are used: the flag state of the ship, type of ship, nationality of the crew, and classification society. These data are then used to calculate the number of points that the NIR would have imposed on these ships if it had been operative at the time of the accident. This new data then provides a new parameter with which the conclusions are obtained. The secondary information sources are encyclopaedias, yearbooks, handbooks, bibliographies and indices; these data are mostly related to primary sources.

2.2. Methodology

Statistical techniques are used to calculate which factors are the most important for the PMoU officers in selecting which ships to inspect. To do this, the officers follow the procedure illustrated in figure 1 shown. Information has been collected about the most serious accidents that have occurred in the PMoU area to date, since the Torrey Canyon accident. This accident motivated the European countries to reach the consensus on maritime safety inspections that took the form of the PMoU.

The statistical technique used to meet the objectives of the study is the frequency distribution because the frequency distribution is a very important part of the descriptive statistics.

3. Results and Discussion

3.1. Databases

In conducting this study the author has considered the most serious maritime accidents happened in the historical period from Torrey Canyon incident in 1967 up to the present day. Despite the difficulties encountered in obtaining data, these accidents have been carefully chosen to make the study as objective and rigorous as possible.

The accidents are selected following a pattern, and this pattern includes: Accidents in which people have died; Accidents that have resulted in very serious environmental damage; Accidents or incidents that have resulted in the expenditure of large sums of money.

The data have been collected from various WebPages of relevant National databases (Table 2).
The main data collected are the flag, classification society, age of the ship at the time of the accident and the type of vessel. As can be observed in Figure 1, these are the most important factors for determining the risk profile of the ship.

Because qualitative and quantitative data are used together, it has been necessary to code the qualitative data to assign values to the different classes, in order to determine which class is the most important, as shown in Table 3.

In this case, the Ship Risk Profile was calculated using figure 1 and the Ship Risk Profile Calculator that is given on the Paris MoU webpage. The other factors that are important in the calculations are the number of inspections made of the ship, whether or not all the inspections have revealed five or more deficiencies, and the number of detentions imposed. Obviously, because the majority of the ships studied suffered the accident or incident before the MoU had been implemented, the real data were not available, and with regard the few ships that have sailed when the MoU was operative, the data collected did not contribute to improving the study. Therefore, it was decided to carry out the study with these hypothetical data. Accidents occurring in rivers, and in other continents like Africa where the information is not very reliable and the safety measures are conspicuous by their absence, have not been included. Recent accidents that have happened in EU have also been omitted from the study using, because the vast

Table 2. Databases.

- Annual reports of Paris MoU.
- Equasis: http://www.equasis.org
- Databases of EMSA (European Maritime Safety Agency)
- MAIFA. Marine Accident Investigators Forum Asia. URL: www.maifa.info
- MAIIF. Maritime Accident Investigatiors' International Forum URL: www.maiif.net
- ATSB. Australian Transport Safety Bureau c/o Australian Government Department of Transport. URL: www.atsb.gov.au
- FPS Federal Public Service Transport and Mobility Conseil d'Enquête Maritime. URL: www.mobilit.fgov.be
- Head Office Marine Investigation Operations c/o TSB Transportation Safety Board of Canada. Bureau de la sécurité des transports du Canada. URL: www.tbs.gc.ca
- Division for Investigation of Maritime Accidents c/o DMA Danish Maritime Authority Soefartsstyrelsen. URL: www.dma.dk; www.soefartsstyrelsen.dk
- Marine Casualities Investigation Safety Develop ment Department c/o Estonian Maritime Administration Maritime Safety Division. URL: www.vta.ee
- AIBF. Accident Investigation Board of Finland. URL: www.onnettomuustutkinta.fi/
- Beaver Bureau d'enquêtes sur les événements de mer Ministère de l'Ecologie, du Développement et de l'Aménagement. URL: www.beamer-france.org
- BSU. Bundesstelle fuer Seeunfalluntersuchung. Bundesoberbehoerde im Geschaeftsbereich des Bundesministeriums fuer Verkehr, Bau- und Stadtentwicklung (BMVBS) Federal Bureau of Maritime Casualty Investi gation. URL: www.bsu-bund.de
- Mardep. Marine Department c/o The Government of the Hong Kong Administrative Region. URL: www.mardep.gov.hk
- MCIB. Marine Casualty Investigation Board. Ireland. URL: http://www.mcib.ie/
- CCISM. Commissione Centrale di Indagine sui Sinistri Marittimi c/o Ministero della Infrastrutture dei Trasporti Direzione Generale per la Navigazione e il Tras porto Marittimo e Interno Comando Generale del Corpo delle Capitanerie di Porto – Guardia Costiera. URL: www.guardiacostiera.it
- IMAIB. Icelandic Marine Accident Investigation Board Rannsoknarnefnd Sjoslysa. URL: www.rns.is
- MAIA. Marine Accident Inquiry Agency Japan c/o Ministry for Infrastructure and Transport. URL: www.mlit.go.jp/maia
- DIMA. Division for Investigation of Marine Accidents c/o Maritime Administration Latvia. URL: www.jurasadministracija.lv
- DSB. Dutch Safety Board. URL: www.safetyboard.nl
- SR Internet Ships Register. URL: www.ships-register.com
- MCA. Maritime and Coastguard Agency. URL: www.mcga.gov.uk
- USCG. United States Coast Guard Headquarters (G-PCAt). Office of Investigations and Analysis. URL: http://www.uscg.mil; http://marineinvestigations.us
- MNZ. Maritime New Zealand. URL: www.msa.govt.nz
- AIBN. Accident Investigation Board Norway c/o Statens Havarikommissjon for Transport. URL: www.aibn.no
- MSA. Maritime Safety Administration P.R.C..URL: http://www.msa.gov.cn/
- MAIB. Marine Accident Investigation Branch. URL: www.maib.gov.uk
- Lloyd's Register – Fairplay Ltd. URL: www.lrfairplay.com
- Lloyd's MIU. Marine Investigation Unit. URL: www.lloydsmiu.com
- SHK. Statens Haverikommission. Swedish Accident Investigation Board. URL: www.havkom.se
- SAMSA. South African Maritime Safety Authority. URL: www.samsa.org.za
- KMST. Korean Maritime Safety Tribunal c/o Ministry of Maritime Affairs and Fisheries. URL: http://www.kmst.go.kr/
- MARINA. Maritime Industry Authority c/o Department of Transport and Communication Philippines. URL: www.marina.gov.ph
- Comision permanente de investigación de siniestros maritimos. URL: http://www.fomento.es/MFOM/LANG_CASTELLANO/DIRECCIONES_GENERALES/MARINA_MERCANTE/INFORMES_ACCIDENTES/

Table 3. Data Coding.

Age of the Ship: **1.** Vessels > 12 years old in the moment of the accident **2.** Vessels < 12 years old in the moment of the accident
Flag: **1.** White list **2.** Grey list **3.** Black Medium Risk list **4.** Black Very High Risk, High Risk
Classification Society: **1.** Very Low or Low Performance Level **2.** Others
Type of Vessel: **1.** Passenger Ships, Oil Tankships, Chemical Tankships, Bulk Carrier and Gas Carrier **2.** Others
Ship Risk Profile: In this case, the Ship Risk Profile was calculated using the figure number 1 and the Ship Risk Profile Calculator that is the PMoU webpage.

majority of these accidents or incidents were minor and their inclusion would have weakened the conclusions.

3.2. Flag State

Class	Frequency	Percent	Valid Percent	Cumulative Percent
1 White	27	69,2	69,2	69,2
2 Grey	8	20,5	20,5	89,7
4 Black	4	10,3	10,3	100,0
Total	39	100,0	100,0	

Table 4. Flag Factor.

It can be seen in Table 4 that 69.2 % of the ships/accidents investigated have been assigned to the first risk class; this means that the flag state of these ships is on the WHITE list of the PMoU. The second risk class is the GREY flag states that the PMoU has classified, and 20.5 % of the ships studied are in this class. Only 10.3 % of ships fall into the fourth class. This is the worst of the risk classes in the PMoU classification; ships of BLACK flag states are classed by the PMoU as being of Very High Risk, High Risk and Medium to High Risk. The third class is not represented here, because there are no ships in the study registered in the BLACK flag states with Medium Risk.

3.3. Classification Society

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	2,6	2,6	2,6
	2	38	97,4	97,4	100,0
	Total	39	100,0	100,0	

Table 5. Classification Society.

Table 5 presents the data for ships/accidents studied according to the classification society corresponding to the ship. The first category refers to classification societies rated highest by the PMoU (with Very Low and Low performance levels); 2.6% of these ships fall into this category. However, 97.4% of the ships studied fall into the second category of classification society: those rated by PMoU as having High and Medium performance levels.

3.4. Type of vessel

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	39	100,0	100,0	100,0

Table 6: Type of vessel

It is clear from this table that all the ships involved in serious accidents belong to the same class: oil tankers.

3.5. Age of the ship

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	12	30,8	30,8	30,8
	2	27	69,2	69,2	100,0
	Total	39	100,0	100,0	

Table 7. Age of the Ship.

Table 7 presents the data for these ships according to age. Two categories are used: ships more than 12 years old and ships less than 12 years old. Of the total ships involved in accidents, 30.8% are in the older age group and 69.2% in the younger age group.

3.6. Ship Risk Profile Calculator

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	5	12,8	12,8	12,8
	3	31	79,5	79,5	92,3
	4	3	7,7	7,7	100,0
	Total	39	100,0	100,0	

Table 8. Ship Risk Profile.

Despite the difficulties in calculating the Ship Risk Profile of each ship included in this study, Table 8 presents the results obtained. They are derived from the data in Table 1 and the Ship Risk Profile Calculator found on the PMoU webpage previously cited. The results have been revised four times to avoid errors. Once all the data with regard to Ship Risk Profile had been compiled, they are represented in the statistical study, which is explained below.

Table 8 gives the number of points (for risk) assigned in the Ship Risk Profile to the ships included in this analysis. Following the pattern offered by PMoU, it has been possible to calculate the number of points: 12.8% of the ships have 2 points; 79.5% have 3 points; and 7.7% have 4 points.

4. Conclusions

Flag States

The analysis shows that 70% of the most serious accidents or incidents that have occurred from 1967 to the present day have involved vessels belonging to the WHITE list of countries. In other words, most of the ships involved in the accidents or incidents fly the flag of a traditional (low risk) maritime nation.

The remaining 30% of major accidents are with ships registered in flag countries on the GREY and BLACK lists; GREY list countries account for 20% of these accidents and BLACK list countries for 10%. We have taken into account that the NIR only gives points to the ships that sail under the flag of a BLACK state, therefore 90% of the ships in accidents or incidents included in this study would have been registered in “clean” or low-risk States. This suggests that the PMoU would have rated as Standard Risk Ships 90% of all the ships involved in the most serious accidents in recent history. From this deduction, it can be concluded that the category of flag state should be considered an important indicator for potential safety or risk, in the NIR.

Classification Societies

EU-recognized classification societies classified 97.4% of all the ships involved in accidents, while the remaining 2.6% of the ships in accidents correspond to classification societies with a very low or low performance level in the PMoU list.

This fact is sobering considering that the PMoU takes the performance level of the ship's classification society as neither a very strong nor a very weak indicator when calculating a Ship Risk Profile. It is, however, true that the NIR only gives points for use in calculating the ship risk profile if the ship inspected or examined corresponds to a classification society with a low or very low profile.

The PMoU has registered 28 classification societies and only 4 are rated as having a low or very low performance level. They use a formula invented by them to assign a performance rating to the classification societies. This is difficult to understand because, according to this study, the ships involved in these accidents would not have been assigned any risk points under the NIR. In the author's opinion, classification societies play a very important role in the maritime industry and they probably have had a strong influence on the design of the PMoU formula for assigning the performance level to each classification society. It must be concluded that the PMoU performance level assigned to the classification society should not be an important factor in the NIR.

Type of Vessel

In this section the NIR is doing a good job. Each ship is classified by type, and if it falls into one of five categories: Passenger Ship, Oil Tank ship, Chemical Tank ship, Bulk Carrier and Gas Carrier, it is assigned 2 points, since these are potentially the most dangerous ships. However, a container ship that is carrying dangerous goods classified by the IMO in nine categories of IMDG is not assigned a single point. There is thus some weaknesses in this part of the NIR procedure that could be improved.

In short, all the most serious accidents considered in this study have involved a vessel categorized as potentially dangerous by PMoU, so in this case the NIR would have monitored all these high-risk vessels.

Age of the Ship

With regard to the age of the ship, the NIR assigns two points for calculating the Ship Risk Profile to ships older than 12 years. Very complicated formulas have been used by the PMoU to determine that a ship is potentially dangerous when it is older than 12 years.

This assumption is not unreasonable, but according to this statistical study, only 30.8% of the ships in these accidents were older than 12 years, so the other 69.2% younger ships would not have been identified as high risk and assigned points under the New Inspection Regime. It is impossible for a ship younger than 12 years old to be classified as High Risk under the NIR. Of course, the PMoU may say that, on average, a ship only starts to be dangerous when it reaches 12 years old, but many will not share this opinion. It is well known that, when many ship owners order the construction of a ship, a prime objective is to minimize the capital cost. To save money the ship owner may place the contract for the construction of the ship with an inferior shipyard, in other words, a shipyard with reputation for cheap price, low standards, poor quality. Furthermore, there are no grounds for assuming that the corresponding classification society will refuse to give approval to such a ship. Hence, it is considered easy for an inferior new vessel to enter service. Once in service, it may only receive minimum, poor quality maintenance and may be captained and crewed by poorly trained personnel of diverse nationalities not competent to operate the vessel safely. In the light of this situation (which is not unusual), the fact of the age of the vessel will have little influence on the degree of risk it represents.

Ship Risk Profile

From the above data and the calculations made, it can be affirmed that the PMoU would have classified all the ships involved in these accidents as Standard Risk Ships. This means that each ship would have been inspected once a year.

As a final consideration...

An imaginary exercise is now proposed. Let us imagine that a ship sailing in European waters (say, in the Mediterranean) has a problem with its hull because a freak storm wave has caused a large hole to open up. The ship is spilling oil and this oil reaches some beautiful, highly popular Greek beaches. An economical disaster is declared in the area, because the Greek beaches are a big tourist attraction. Moreover the oil spill has killed all the rich fauna and flora, thus also creating an environmental disaster. It may be said that it is very unlikely that a sufficiently severe storm could occur in the Mediterranean, but it can also be said, with justification, that this is not impossible. After this happens, there are big public demonstrations, the EU Commissioner for Environmental Issues visits the area, and the Greek minister for the Environmental calls for a high-level inquiry. So the investigation starts and the investigators observe the last PMoU inspection of this ship was one year previously, because it is classified as a standard risk ship. Of course, the accident proves that that ship is or was a HR Ship. Suddenly, there is an urgent need to find the person or persons guilty of the evident negligence or incompetence. Under the system, nobody is guilty and therefore the captain is detained, because the people need a guilty party. It may be thought that this story is pure imagination, but something very similar happened off the Spanish coast when the Prestige oil tanker broke up and sank. Personal feelings cannot be introduced in the conclusions of a study of this nature, but the purpose is to demonstrate to the reader that the principal function of PMoU is to prevent this type of disaster. It is logical that accidents can and will happen but the PMoU has the obligation to minimize the risk.

In addition to the analysis made in this study, it should also be emphasized that 80% of maritime accidents are caused by the human factor. Given this, the PMoU can never be more than a part of the solution. It is only an attempt to identify some of the more obvious signs of an "accident waiting to happen" but is worth doing because these accidents cause casualties whose lives are worth saving.

Maritime transport is a very large industry that is already subject to a huge amount of regulation and the good ship-owner is supposed to comply with lots of rules. But it is here where much of the problem lies. Ship-owners have always had problems in keeping to the rules, since keeping to the rules or within the law is expensive. So the PMoU should offer incentives to the good ship-owners. Furthermore, the PMoU should have the authority to inspect the seafarers' licenses. If a Malaysian, Ecuadorian or Philippine doctor cannot practice medicine in Europe without a valid qualification, why can a ship's captain from one of those countries practice his profession without an adequate license? The same situation happens with road vehicle drivers' licenses: non-European nationals have to be re-examined to obtain the driver license in the EU. It is considered that the most of the deficiencies that a PMoU officer finds in an inspection are due to a lack of sufficient education and training of the non-European crews. It seems reasonable to expect the EU commission to oblige such foreign seafarers to obtain a European license.

The NIR has the potential to achieve worthwhile changes, because under this regime the officers are going to pursue offenders, and they are going to force them to follow the rules. With this system the PMoU are going to recognize the good ship-owner, but the bad ship-owner will then create another company, with only one ship, and is this way will try to evade the rules.

One recommendation is that a corps or unit of PMoU officers should be formed at the European level, rather than this inspection work being the responsibility of individual governments as at present. If the PMoU itself operates at the transnational or European level, and the officers are doing the same job in the various European countries, they should receive the same salary, since this would reduce the possibility of bribery.

It would also make sense to create a Coastguard unit in Europe, since the PMoU officer can only act in port and has no jurisdiction outside port waters. A major source of risk of marine accidents arises when, for example, a ship that cannot or will not enter a European port unloads the cargo in another county's port, like Tangier, and feeder vessels then take that cargo to the various European ports of destination. Better policing of these feeder vessels through this measure would contribute to protecting European ports, beaches… and territorial waters.

One final word should be said about ship-owners. Of course, not all ship-owners are irresponsible but they are also businessmen trying to make money. Experience shows that it is relatively easy for them to evade laws and regulations or to observe only the letter and not the spirit of the law. We should consider why piracy at sea is still a serious problem after so many centuries, yet there is no longer any piracy on land or in the air.

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Legislative Resources

Directive 2009/16/EC of the European Parliament and of the Council of 23 April 2009 on Port State Control.

International Conventions

International Convention on Load Lines, 1966 (plus the Protocol of 1988).

International Convention for the Safety of Life at Sea, 1974 (SOLAS 74) plus the Protocol of 1978 and the Protocol of 1988.

International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 (MARPOL 73/78).

Protocol of 1992 to the International Convention on Civil Liability for Oil Pollution Damage (1969).

International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW 78)

Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREG 72).

International Convention on Tonnage Measurement of Ships, 1969 (TONNAGE 69).

Merchant Shipping (Minimum Standards) Convention, 1976 (ILO Convention No. 147) plus the Protocol of 1996.