

<b>Title:</b> Merchant Shipping (Prevention of Oil Pollution) Regulations 2018 <b>IA No:</b> DfT00377 <b>RPC Reference No:</b> <b>Lead department or agency:</b> Maritime & Coastguard Agency <b>Other departments or agencies:</b> Department for Transport	<b>Impact Assessment (IA)</b>			
	<b>Date:</b> 30/05/2018			
	<b>Stage:</b> Consultation			
	<b>Source of intervention:</b> International			
	<b>Type of measure:</b> Secondary legislation			
<b>Contact for enquiries:</b> Steven Dexter steve.dexter@mcga.gov.uk				
<b>Summary: Intervention and Options</b>			<b>RPC Opinion:</b> Awaiting Scrutiny	

Cost of Preferred (or more likely) Option				
Total Net Present Value	Business Net Present Value	Net cost to business per year (EA/NDCB in 2014 prices)	One-In, Three-Out	Business Impact Target Status
-£0.38m	-£0.38m	£0.0m	Not in scope	Qualifying provision

**What is the problem under consideration? Why is government intervention necessary?**  
 A proportion of cargo vessels that operate in UK waters carry crude oil and oil products in bulk. Should maritime pollution occur from oil, it could result in negative impacts on the environment, human health and economic activity. Without regulation, incentives for the shipping industry to ensure the best possible safety precautions are suboptimal since they do not incur the full social costs associated with such incidents, such as the environmental costs. The International Convention for the Prevention of Pollution from Ships (MARPOL) includes regulations for the control of pollution by oil (MARPOL Annex I). Government intervention is required to implement revisions to MARPOL Annex I into UK law, and ensure future revisions are implemented without unnecessary delay.

**What are the policy objectives and the intended effects?**  
 The objectives are (i) take into account the updates to the requirements for MARPOL Annex I which includes the requirement for oil filtering equipment, the segregation of oil and ballast water, the protection of pump rooms, the protection against oil pollution in the event of collision or stranding, new pumping, piping and discharge arrangements, oil pollution emergency plans, oil fuel tank protection amongst other measures; and (ii) introduce ambulatory referencing.  
 The intended effects are to assist in the prevention of pollution by oil from operational measures as well as from accidental discharges. The ambulatory reference will remove legal uncertainty and red tape for industry by referring them always to the most up to date international legislation.

**What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)**  
 Do nothing is the baseline against which Options 1 and 2 are assessed. This is not a realistic option as the UK, as a signatory to MARPOL, has an obligation to implement any changes to MARPOL into UK law.  
**Option 1:** Bring UK law in line with recent updates to MARPOL requirements. However, this would fail to recognise industry's concerns raised during the Red Tape Challenge about the delays in transposition of international requirements.  
**Option 2:** Bring UK law in line with recent updates to MARPOL requirements and introduce ambulatory referencing to refer UK industry to the most up to date international legislation in this area. This has the support of the UK shipping industry and is therefore the preferred option.

<b>Will the policy be reviewed? It will be reviewed. If applicable, set review date:</b> April 2022				
Does implementation go beyond minimum EU/International requirements?			No	
Are any of these organisations in scope?			<b>Micro</b> Yes	<b>Small</b> Yes
			<b>Medium</b> Yes	<b>Large</b> Yes
What is the CO <sub>2</sub> equivalent change in greenhouse gas emissions? (Million tonnes CO <sub>2</sub> equivalent)			<b>Traded:</b> N/A	<b>Non-traded:</b> N/A

*I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.*

Signed by the responsible Minister: ..... Date: .....

# Summary: Analysis & Evidence

# Policy Option 1

**Description:** Update UK legislation in line with current version of MARPOL Annex I

## FULL ECONOMIC ASSESSMENT

Price Base Year 2016	PV Base Year 2007	Time Period Years 19	Net Benefit (Present Value (PV)) (£m)		
			Low: -0.63	High: -0.12	Best Estimate: -0.38

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	0.1	19	0.0	0.1
High	0.8		0.0	0.6
Best Estimate	0.4		0.0	0.4

### Description and scale of key monetised costs by 'main affected groups'

The monetised costs arise from seven outstanding amendments in MARPOL Annex I which have not been transcribed into UK law, and the costs to businesses of compliance, either by making additions to existing ships, or the costs to newly constructed ships. The majority of these are one-off transition costs. Most of these costs are under £15,000 per ship, meaning they are very low compared to the overall costs of construction.

### Other key non-monetised costs by 'main affected groups'

The costs of compliance with Regulation 12A, which affects oil fuel tank protection, have not been monetised in this IA. This is down to a lack of robust evidence over the costs of implementation. This is something which could potentially be answered in the consultation, in which case these could be added to the monetised costs.

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	0	19	0	0
High	0		0	0
Best Estimate	0		0	0

### Description and scale of key monetised benefits by 'main affected groups'

### Other key non-monetised benefits by 'main affected groups'

The main non-monetised benefits come from the reduced risk and severity of accidents due to the measures proposed in MARPOL Annex I. These will include benefits from the reduced risk of injury or fatalities, and the reduction in environmental damage. These are difficult to monetise as there is no evidence linking the measures in this IA to a reduction in incidents. The regulation on oil filtering equipment is also not monetised as it is assumed cost neutral and does not affect any existing UK flagged ships.

Key assumptions/sensitivities/risks	<b>Discount rate (%)</b>	3.5%
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Industry are fully aware of the changes to Annex I and, in most cases, already compliant. This means that the vast majority of the costs identified in this IA have already been incurred. The key risk of option 1 is that it does not solve the existing problem of the backlog of international legislation to be implemented into UK maritime law. While the regulations in MARPOL Annex I will come into force in the UK, any future amendments will add to the backlog and thus apply pressure on the Government's resources.

## BUSINESS ASSESSMENT (Option 1)

<b>Direct impact on business (Equivalent Annual) £m:</b>			<b>Score for Business Impact Target (qualifying provisions only) £m:</b>
Costs: 0.0	Benefits: 0.0	Net: 0.0	

# Summary: Analysis & Evidence

# Policy Option 2

**Description:** Bring UK law in line with recent updates to international requirements and introduce ambulatory referencing to refer UK industry to the most up to date international legislation in this area

## FULL ECONOMIC ASSESSMENT

Price Base Year 2016	PV Base Year 2007	Time Period Years 19	Net Benefit (Present Value (PV)) (£m)		
			Low: -0.63	High: -0.12	Best Estimate: -0.38

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	0.1	19	0.0	0.1
High	0.8		0.0	0.6
Best Estimate	0.4		0.0	0.4

### Description and scale of key monetised costs by 'main affected groups'

The monetised costs arise from seven outstanding amendments in MARPOL Annex I which have not been transcribed into UK law, and the costs to businesses of compliance, either by making additions to existing ships, or the costs to newly constructed ships. The majority of these are one-off transition costs. Most of these costs are under £15,000 per ship.

### Other key non-monetised costs by 'main affected groups'

The costs of Regulation 12A, which affects oil fuel tank protection, have not been monetised in this IA. This is down to a lack of robust evidence over the costs of implementation. Future amendments introduced to MARPOL Annex I may introduce additional costs on UK businesses, and these will automatically come into force through ambulatory referencing. There is no current indication as to what these costs could be, therefore it is proposed that regular PIRs will be carried out to evaluate the impacts of the ambulatory references to MARPOL Annex I.

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	0	19	0	0
High	0		0	0
Best Estimate	0		0	0

### Description and scale of key monetised benefits by 'main affected groups'

The introduction of ambulatory referencing will mean that ship operators can focus on convention text in technical areas instead of having to refer to both the convention and national legislation. This will save operators' time when familiarising themselves with future amendments to MARPOL Annex I. This will be monetised following consultation with the industry.

### Other key non-monetised benefits by 'main affected groups'

In addition to the main non-monetised benefits from the reduced risk and severity of accidents as identified in Option 1 there are a number of benefits to operators from the introduction of ambulatory references. These include simplifying the regulatory framework, improving legal clarity and providing a level playing field for UK and internationally flagged ships. There are also reputational and resource benefits for the UK Authorities.

Key assumptions/sensitivities/risks	Discount rate (%)	3.5%
There have not been any significant risks identified in implementing the options in MARPOL Annex I and the use of ambulatory references. Industry are fully aware of these changes and, in a number of cases, already compliant. This means that the vast majority of the costs identified in this IA have already been incurred. Industry are also supportive of the introduction of ambulatory references.		

## BUSINESS ASSESSMENT (Option 2)

Direct impact on business (Equivalent Annual) £m:			Score for Business Impact Target (qualifying provisions only) £m:
Costs: 0.0	Benefits: 0.0	Net: 0.0	
			0

# Evidence Base (for summary sheets)

## 1 Background

- 1.1 Shipping is an international industry and the regulatory framework must reflect this. The International Maritime Organization (IMO)<sup>1</sup> is the United Nations' specialized agency with responsibility for the safety and security of shipping and the prevention of marine pollution by ships. Its main role is to create a regulatory framework for the shipping industry that is fair and effective, universally adopted and implemented.
- 1.2 The International Convention for the Prevention of Pollution from Ships (MARPOL)<sup>2</sup> is one in a number of Conventions adopted by the IMO to fulfil its remit. The MARPOL Convention was first adopted in 1973 and updated in 1978 in response to a spate of tanker accidents in 1976-1977. The Convention includes regulations aimed at preventing and minimizing pollution from ships - both accidental pollution and that from routine operations. Flag states are responsible for ensuring that ships under their flag comply with its requirements, and certificates are issued as proof of compliance. Their ships are inspected against these requirements in foreign ports.
- 1.3 MARPOL is divided into 6 annexes, each addressing different subjects. MARPOL amendments are developed by a number of technical sub-committees who report to the IMO's Marine Environment Protection Committee (MEPC), which is responsible for overseeing the developments and ultimately approve and adopt amendments. Entry into force of amendments can range between six months and six years after adoption.

## 2 Problem under consideration

- 2.1 The shipping industry does not face the full costs of the risk of pollution from oil. This is because the full impact of pollution isn't solely paid by the owner/operator of the vessel that pollutes. Third parties bear some of the costs, known as 'external costs'; for example, the damage caused to the marine environment. These 'external costs' can arise in the course of normal activity in the maritime transport sector, as a result of accidents, or due to illegal activity. Without regulation, incentives for the shipping industry to ensure the best possible safety precautions are suboptimal since they do not incur the full social costs associated with such incidents, such as the environmental costs.
- 2.2 The shipping industry has been progressively regulated to reduce the risk of pollution incidents occurring. This has been successful in its aims, as the number and severity of pollution incidents occurring internationally has reduced with the introduction of the various elements of MARPOL (see Graph 1 in Annex 4). Pollution incidents do, of course, occur, but are now infrequent and are often of a minor scale. When incidents do take place the procedures and processes are in place to ensure the reaction is swift and any impacts minimised.

### MARPOL Annex I

- 2.3 MARPOL Annex I focuses on the prevention of pollution by oil from operational measures as well as from accidental discharges. Measures include:
  - Surveys and Certification
  - Requirements for machinery spaces of all ships and cargo areas of oil tankers
  - Prevention of pollution arising from an oil incident and/or during transfer of oil cargo between oil tankers at sea

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<sup>1</sup> Further information on the IMO is available from: <http://www.imo.org/en/About/Pages/Default.aspx>

<sup>2</sup> Further information on the MARPOL Convention is available from: <http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-%28MARPOL%29.aspx>

- Reception facilities
  - Special requirements for fixed or floating platforms
  - Special requirements for use or carriage of oils in the Antarctic area
  - Plus other measures
- 2.4 The Torrey Canyon grounding (1967), which was deemed a landmark incident, and a spate of tanker accidents in 1976-77 triggered the adoption of MARPOL at the International Maritime Organisation (IMO). This includes the adoption of Annex I.
- 2.5 At present the transposing legislation does not reflect the latest requirements of MARPOL Annex I, there are still a number of amendments contained in 15 IMO MEPC resolutions dating back from 2004 yet to be implemented.

## **Regulatory approach**

- 2.6 Current practice on implementation is to use a mixture of primary and secondary legislation with technical provisions included either in the instrument, relegated to separate government publications, or occasionally incorporated by direct reference to the international text. The choice between these options has been dictated by the available powers or by what seemed most expedient at the time. Consequently, there is an absence of any coherent regulatory framework to guide users (such as a framework mirroring the international agreements), and this, combined with a mix of international and domestic obligations in the same instrument results in a position that is confusing to both industry and regulators alike.
- 2.7 Any unimplemented amendments to the Annex cannot be enforced against foreign ships visiting UK ports, albeit that the overwhelming majority if these are marginal in nature.

## **3 Policy objectives**

- 3.1 The policy objectives are divided into two distinct areas: transposition of outstanding amendments to MARPOL Annex I into UK law; and the introduction of ambulatory referencing (defined in Annex 1). The existing Regulations will be recast to cover:

### **Transposition of outstanding amendments to MARPOL Annex I into UK law**

- 3.2 The amendments to MARPOL Annex I since 2004 introduce new design and construction developments, new attitudes and new events in order to help towards the prevention of incidents involving oil pollution, therefore improving safety at sea and the environment.
- 3.3 The changes take into account technical improvements to machinery spaces and ship operation management requirements in order to further reduce the risk of an oil pollution event. Areas such as the strengthening of a ships pump room protection; new design, construction and location of oil fuel tanks; and new software technologies to aid ship stability, oil pollution emergency plans and outflow performance are some of the amendments introduced for MARPOL Annex I. The proposed Regulations must be introduced in order to establish that the construction and design of ships will meet the criteria to assist in the prevention of oil pollution incidents.

### **Introduce Ambulatory Referencing and reduce legal uncertainty**

- 3.4 The new Regulations as drafted would implement many of the technical provisions in MARPOL Annex I by way of cross reference to the international Convention. By use of the power in section 306A of the Merchant Shipping Act 1995 (inserted by the Deregulation Act 2015) the Regulations also include an ambulatory reference provision which means that amendments to those technical requirements implemented by way of cross reference will automatically be updated in UK law.
- 3.5 Supporting documentation in the form of a Marine Guidance Note (MGN)) may be used to provide additional guidance, as required. For example, where the Convention states that a requirement is

“to the satisfaction of the administration”, the Maritime and Coastguard Agency will specify what is required to meet this obligation in a MGN.

- 3.6 The industry has, in the past, expressed a desire for amendments to international Conventions to be transposed into UK law more rapidly, to minimise legal uncertainty and disparity between national and international legislation, which may already have been adopted by other maritime administrations.
- 3.7 Specifically, the UK Chamber of Shipping’s<sup>3</sup> view expressed to the government was:

*“The UK shipping industry was very pleased to contribute to the Government’s recent Red Tape Challenge initiative and proposed a number of basic principles which might help ensure ‘better regulation’ into the future.*

*One of these involved the direct read-across through ‘ambulatory references’ of international conventions which have been accepted by Government into UK law without their provisions having to be rewritten in the national context.*

*This would in particular help with keeping the national law up to date when amendments were agreed, of course again subject to their acceptance by Government.*

*The international convention text would clearly remain subject to the same scrutiny as at present and could be supplemented by guidance in the UK as to interpretation as necessary.*

*We believe that such a practice in the UK would substantially reduce the regulatory and legal process surrounding the adoption in this country of international regulations, which are an essential part of international shipping and without which the UK merchant fleet would not be able to operate.”*

- 3.8 In response, DfT sought regulatory reform through the Deregulation Act 2015. The Act amended the Merchant Shipping Act 1995 to introduce a new ambulatory reference power which may be used in the implementation of international instruments. Where the power is used, the effect is that a reference in UK legislation to provisions in an international instrument is to that provision as modified from time to time (and not simply to the provision as drafted at the time the secondary legislation is made).
- 3.9 It is worthwhile noting that whilst the UK Chamber of Shipping advocates the use of an ‘ambulatory reference’ power, this does not negate the Government’s principle of consultation. Amendments to international Conventions are developed and agreed at the IMO, where in addition to Member States, industry is well represented. Industry is therefore heavily involved with policy development and also in helping to shape the UK’s negotiating position. Working in partnership, UK officials and industry actively contribute to negotiations on new initiatives to ensure there are appropriate and proportionate measures to improve safety.

## **Level Playing Field**

- 3.10 UK ships are liable to be detained in a non-UK port if they do not in comply with the latest requirements of MARPOL. Most UK owners and operators comply as a matter of course with the up to date requirements of MARPOL (regardless of whether the UK has transposed them into UK legislation) so as to continue operating worldwide and reduce the risk of detention. Whilst the cost of rectifying a detention to enable the ship to sail may be low, the commercial cost of the time lost to the operator can be extremely high.
- 3.11 Without transposition of the latest MARPOL requirements into UK law, the UK is unable to take enforcement action against non-UK flagged ships that are not compliant with the latest refinements of the MARPOL standards. Examples of enforcement actions include the detention of a non-

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<sup>3</sup> The UK Chamber of Shipping is a trade association and considered to be voice for the UK shipping industry. It has around 150 members from across the maritime sector. Further information on the Chamber is available from: <https://www.ukchamberofshipping.com/about-us/>

compliant ship at Port State Control inspections, and prosecution of the ship's owners/operators should the cause of an accident be due to non-compliance with the latest MARPOL amendments.

## **UK Reputation and status on the white list**

- 3.12 As a signatory to the MARPOL Convention, the UK has an obligation to implement any changes to MARPOL Annex I in UK law. Whilst the IMO does not take action for failure of Member States to implement amendments, such failures are noted as part of the now mandatory IMO audit scheme<sup>4</sup>.

## **Compliance with the Flag State Directive**

- 3.13 Recital 3 of the Directive, which is theoretically non-binding, requires the implementation of IMO Conventions into Member States law. Article 4(1) of the same Directive requires Member States to take all the measures it deems appropriate to ensure that the ship in question complies with the applicable international rules and regulations. Reading both recital and article in conjunction, the requirement can be deduced as implementation of IMO Conventions into domestic law.
- 3.14 The European Commission will take a keen interest in the IMO Member State Audit Scheme, a non-compliance for implementing IMO Conventions in their up to date form will be indicative of the UK failing to meet obligations under the Directive. The Commission would then be able to commence infraction proceedings against the UK.

# **4 Description of options and issues considered**

## **Do nothing**

- 4.1 The UK, as a signatory to the MARPOL Convention, has an obligation to implement any changes to MARPOL Annex I in UK law. Without timely implementation:
- there is a lack of legal certainty for operators due to differing international and domestic requirements;
  - the playing field is not level for UK operators; and
  - the UK's reputation is at risk
- 4.2 'Do nothing' is the baseline against which Options 1 and 2 are assessed.

## **Option 1: Update UK legislation in line with current version of MARPOL Annex I**

- 4.3 This option would address the UK's current breach of its obligation to give effect to the requirements in MARPOL by transposing the requirements for (i) oil filtering equipment, (ii) pump room bottom protection, (iii) accidental oil outflow performance, (iv) pumping, piping and discharge arrangements, (v) shipboard oil pollution emergency plan, (vi) special requirements for fixed or floating platforms, (vii) oil tank fuel protection, (viii) special requirements in Antarctic area, (ix) stability instrument,
- 4.4 In relation to the transposition of the outstanding MARPOL amendments, the UK will implement the international requirements in the least burdensome way for business. The majority of costs imposed on businesses have already been incurred as the majority of regulations have already been implemented internationally.
- 4.5 However, this option would fail to recognise industry's comments about the delays in transposition of international requirements.

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<sup>4</sup> Prior to 2016, the IMO operated a voluntary audit scheme. The UK was one of the Member States to volunteer for two reasons:

1. undergoing the IMO audit was a prerequisite for achieving 'White List' status for Port State Control schemes (e.g. Paris MoU), which means that UK ships are considered as low risk and therefore less likely to be targeted for inspection at ports; and
2. the European Commission expected all EU Member States to volunteer for the IMO audit.

4.6 The updates in Annex I yet to be transposed into UK legislation are<sup>5</sup>:

4.6.1 **Oil Filtering Equipment**

This amendment adds new exceptions to the rule requiring that ships between 400 gross tonnage (gt) and 10,000gt be fit with oil filtering equipment. The exceptions apply to certain ships, such as hotel ships and storage vessels etc. These ships can be provided with a holding tank. The requirements may also be waived for ships certified under the International Code of Safety for High-Speed Craft.

4.6.2 **Pump room bottom protection**

A report of the Chief Inspector of Marine Accidents into the grounding and subsequent salvage of the tanker Sea Empress at Milford Haven between 15 and 21 February 1996, details the circumstances relevant to the major pollution incident that resulted from the grounding of this single-hulled oil tanker. The initial grounding resulted in approximately 2,500 tonnes of crude oil escaping and about a further 69,300 tonnes was lost to the sea during the period of the salvage operation. Therefore, it was proposed oil tankers provide an additional safeguard to the pump room to enable lightening operations to be undertaken in the event of bottom damage.

4.6.3 Therefore, a new regulation requires pump rooms to be protected with a double bottom (with adequate separation) on oil tankers of 5,000 deadweight tonnage and above, constructed after 1 January 2007.

4.6.4 **Accidental oil outflow performance**

While major accidental oil spills from tankers are relatively rare occurrences, the transportation of oil remains one of the main concerns for the various stakeholders in the protection of the marine environment. In risk assessment of maritime transportation, estimation of accidental oil outflow from tankers is important for assessing environmental impacts.

4.6.5 Computerised aid design systems have been further developed to help calculate the accidental oil outflow performance of a vessel. The goal was to provide a performance based accidental oil outflow regulation that effectively handles variations in subdivision.

4.6.6 This new regulation focuses on the provision of adequate protection against oil pollution in the event of collision or stranding. It applies to oil tankers delivered on or after 1 January 2010.

4.6.7 **Pumping, Piping and Discharge arrangements**

An Australian report provided a report described an incident in which 300 m<sup>3</sup> of crude oil was released into Sydney harbour from a tanker discharging at a local terminal. The basic cause of the release was a procedural failure on the part of the ship's staff to properly check the integrity of the sea-chest valves, through which the oil escaped. As a consequence, it was proposed that any cross-over arrangement between the various pipelines and pumps be isolated from the sea chest and sea chest valves by an easily operated spectacle piece or, some other positive, but easily reversible isolation mechanism. It was further proposed that the status of such valves should be remotely indicated at the control position.

4.6.8 Therefore, a new requirement is established that applies to every oil tanker of 150 gross tonnage and above delivered on or after 1 January 2010, which has installed a sea chest that is permanently connected to the cargo pipeline system. These ships must be equipped with both a sea chest valve and an inboard isolation valve.

4.6.9 **Shipboard oil pollution emergency plan**

The Sea Empress pollution incident (see Par 4.6.2) triggered the proposal for a shipboard oil pollution emergency plan. This is a new requirement for every oil tanker of 150 Gross Tonnes (GT) and above and other ship of 400GT and above. Oil tankers of 5,000 tons deadweight or more must have prompt access to computerised, shore-based damage stability and residual structural strength calculation programs.

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<sup>5</sup> The first 8 objectives were created as part of a wholesale editorial change to MARPOL Annex I. Since Annex I came into force, there have been numerous amendments, resulting in a complicated set of regulations and unified interpretations. It made it difficult for end-users to comprehend the requirements. A general review was taken up with the intention of providing an editorial improvement of Annex I.



#### 4.6.10 **Special requirements for fixed or floating platforms**

Although Floating Production Storage and Offloading Units (FPSO) and Floating Storage Units (FSU) are not classified as oil tankers, significant environmental hazards are associated with the quantities of oil stored on board operational FPSOs and FSUs. As part of the review of Annex I it was considered that many of the requirements in relation to oil tankers could be adapted to address those hazards in an appropriate manner. The review recommended that, as an interim measure, flag States, Coastal States and others associated with the operation of FPSOs and FSUs should apply the provisions of Annex I to these units.

4.6.11 The amendment clarifies the applicability of the special requirements and provide further guidance for maritime administrations. This regulation applies to FPSOs and FSUs used for the offshore storage of produced oil. **[DS said: do we need to add something about offshore installations not subject to these requirements?]**

#### 4.6.12 **Oil fuel tank protection**

The motivation behind the new regulation is to obtain a similar degree of double hull protection to fuel oil tanks on ships to that of cargo tanks in oil tankers. This is an introduction of a new regulation affecting the design, construction and location of oil fuel tanks for all ships delivered after 1 August 2010 with an oil fuel capacity of 600m<sup>3</sup> and above.

#### 4.6.13 **Tanks for oil residue (sludge)**

These amendments clarify design requirements for on-board tanks for holding oil residue, and processes to be followed when disposing the oil residue at port reception facilities. The text has been rewritten to improve understanding of the requirements, rather than to impose new requirements.

#### 4.6.14 **Special requirements for use or carriage of oils in the Antarctic area**

A new MARPOL fuel oil ban on ships entering Antarctic waters aims to avoid heavy oil spills and subsequent environmental pollution. This new regulation applies to ships (bar exceptions) carrying certain heavy oils. It impacts on these ships which are now prohibited to carry substances such as bitumen, tar and their emulsions as well as other heavy fuel oil substances in this area.

#### 4.6.15 **Stability Instrument**

Concerns were first raised over the issue of damage stability verification on tank vessels in 2005 as a result of problems highlighted during flag in of tank vessels, port state control inspection and a survey of UK tank ship operators. It was therefore proposed to provide a new instrument to manage the risk.

4.6.16 This is a new requirement which applies to all oil tankers (bar waivers). All oil tankers must be fitted with a stability instrument, capable of verifying compliance with intact and damage stability requirements approved by the Administration having regard to the performance standards recommended by the Organization

### **Option 2: Bring UK law in line with recent updates to international requirements and include an ambulatory reference provision to ensure amendments to technical provisions in MARPOL Annex I are automatically implemented in UK law**

4.7 In addition to the proposals outlined under Option 1, this option would include using an ambulatory reference provision in the Regulations to enable technical amendments to MARPOL Annex I to be automatically implemented in UK law. This would help towards addressing the comments from industry about the delays in transposition of international requirements. This option also:

- provides the legal certainty sought by industry as technical requirements in domestic legislation will no-longer be out of step with international requirements;
- reduces the administrative burden for industry, as it can focus on the convention text in technical areas rather than also having to refer to national implementing legislation;
- meets the industry desire for copy-out text, and reduce debates on whether a provision has been “gold-plated”; and

- provides a level playing field between UK ships calling at foreign ports and foreign flagged ships calling at UK ports.

4.8 This option has the support of the UK shipping industry and is therefore the preferred option.

## 5 Ambulatory Reference

### MARPOL Annex I

- 5.1 Where an ambulatory reference provision applies, future amendments to MARPOL Annex I will automatically come into force at the same time as they do internationally. It applies where the Regulations include a specific reference to provisions in MARPOL Annex I. Many of the technical provisions in Annex I are implemented by way of cross reference to the international text (see in particular Regulations 29 and 30 of the draft Regulations). So, when any of the Annex I Regulations implemented in this way are amended, those amendments will automatically take effect in UK law. This IA explores published changes which have come into force internationally since the MARPOL I Regulations were last amended.
- 5.2 MARPOL Annex I is long established and deals with a single issue (the prevention of pollution by oil). The main amendments to the Convention over the years have focused on oil outflow and stability of the ship, shipboard oil pollution emergency plans and, more significantly the introduction of double hulls to ships to aid the prevention of oil pollution in the event of a collision or stranding. Other areas included editorial changes with little real impact on business.
- 5.3 There have been 26 amending Resolutions in the last 33 years (i.e. since Annex I combined instruments entered into force in 1983). These mostly provide further clarity, make technical changes, or redefine geographical operational areas.

### Consideration of future amendments

- 5.4 There are currently no future changes planned in the IMO work programme which spans the next two years. It is fully expected that any further changes which do occur will be minor, as those over the last 33 years have been. Historically MARPOL Annex I has been largely stable with infrequent changes. Since the wholesale amendments made in 2004 there have been only two other occasions (2006 and 2010) where the changes have impacted on MARPOL Annex I.
- 5.5 Beyond this, IMO legislation will discuss 3 areas of MARPOL Annex I. First, the amendment of the IOPP certificate B which will remove design/arrangements that no longer exist and any other obsolete entries. There will be no substantial technical issue apart from a requirement on ship-owners and Recognised Organisations to ensure the certificates are replaced. This represents a very insignificant impact on cost. Secondly, the exemption of unmanned non-self-propelled (UNSP) barges from survey and certification requirements. This is expected to reduce the administration burden for Ship-owners, Ship managers and flag Administrations. Finally, a discussion to determine if the scope of application of the stability instrument provisions applies to new and existing FPSOs, FSUs and unmanned ships, which are not propelled by mechanical means. If the conclusion to this in respect to FPSOs and FSUs is affirmative, then a revision appears necessary for revised interpretations and guidance.<sup>6</sup>
- 5.6 Any future amendments will be scrutinised by the UK government and industry as they progress through the IMO process. In addition, any amendments that are introduced will be reviewed again at five-yearly intervals through the Post Implementation Review (PIR) process.
- 5.7 All the provisions in MARPOL Annex I which will come within the scope of the Ambulatory Reference provision are technical in nature. Subsequent technical amendments, during the international negotiation process, will continue to be subject to:
- consideration of high level impacts against a checklist; and

<sup>6</sup> Future IMO Legislation – Lloyds Register EMEA, October 2016 and paper MEPC 69/14/2

- stakeholder engagement involving representatives of the UK shipping industry.
- 5.8 The PIR will evaluate whether the policy has achieved its goal and is still valid, and also evaluate the costs and benefits of all the technical amendments enacted since the previous review (or Impact Assessment). This will be validated by the Regulatory Policy Committee (RPC).
- 5.9 If any amendment is found to be undesirable, the UK may reject it at the IMO, in which case it will not come into force for the UK. Additionally, the Secretary of State has the power to prevent such an amendment coming into force in the UK or revoke it if already in force. However, the likelihood of this is thought to be remote because the amendments will have been agreed with UK government and industry, as well as internationally, before coming into force.

## 6 Costs and benefits of each policy option

### Introduction

- 6.1 This impact assessment (IA) assesses the additional costs and benefits of the recast Regulations compared to the 'Do Nothing' scenario; the 'Do Nothing' scenario represents what would happen if the amendments to in Annex I were not brought into force. As a result, it should be noted that the majority of costs identified within this IA have already been incurred and would not represent a future burden to business. However, they are included as they have been assessed against the baseline of no implementation of the amendments to MARPOL Annex I.
- 6.2 In line with the Better Regulation Framework and the Treasury's Green Book, a 10 year appraisal period has been used for each individual policy evaluated in this IA. However, as the policies have a number of starting dates, the overall appraisal covers 19 years (2007 – 2025).
- 6.3 The discussion of the costs and benefits under Options 1 and 2 is structured as follows:

<i>Description of ships affected</i>	<i>Option 1</i>	<i>Option 2</i>
Monetised costs to business	Section 6.7	Section 6.11
Non-monetised costs to business	Section 6.8	Section 6.12
Monetised benefits to business	Section 6.9	Section 6.13
Non-monetised benefits to business	Section 6.10	Section 6.14

- 6.4 A set of questions were distributed to Industry and others who could provide statistics and/or indicative costs for each area of impact. A table of questions was created and discussed with those connected with the proposed changes as well as the holder's key data. The table of questions is provided in Annex 2. Given the limitations of the available evidence base, it has not been possible to monetise some of the costs and benefits of each option. Where it has not been possible to monetise a cost or benefit a full qualitative description of the impact has been provided. A number of questions are posed in this IA in order to obtain more information on the costs and benefits identified via consultation.
- 6.5 A number of the monetised costs in this IA are estimated with a fairly broad range. This is due to the fact that some of these proposals are implemented into a new build at the blueprint stage, and therefore do not have a specific unit cost as this would have been absorbed into the overall cost of the ship's contract. The costs have therefore been estimated by policy experts, using a wide range to capture this uncertainty. This applies to the pump room bottom protection, accidental oil outflow performance systems, pumping, piping and discharge arrangements, and special requirements for fixed and floating platforms. Conversely, the oil pollution emergency plan and the stability instrument can be added onto an existing ship can therefore be costed with higher certainty. These other cost approximations are based from public web sites connected directly with merchant shipping such as Bunkerworld and Tradewinds.
- 6.6 Note: Unless otherwise stated, the numbers of ships quoted from this point onwards are based on the UK Ship Register (UKSR) and SeaWeb as at 25 July 2016.

## Option 1: Update UK legislation in line with current version of MARPOL Annex I

### 6.7 Monetised costs

#### Pump Room Bottom Protection (Regulation 22, MARPOL I)

- 6.7.1 There are currently 6 UK flagged oil tankers<sup>7</sup> potentially affected by this new regulation although the impact would be a sunk cost for those constructed between 2007 to date. The cost for a new build would depend on the size of the ship and the amount of double bottom protection required under the pump room.
- 6.7.2 We have used the number of UK oil tankers built in this period i.e. 6 in 10 years as the basis for forecasting future tanker builds. This legislation will impact new builds only.

Table 1 Estimated cost\* for fitting pump room double bottom (DB) protection (Affected ships)

	From	To	UK Ships**
DB protection	£1000	£10,000	6
Total	£6000	£60,000 (if all ships required fitting)	

\*2007 prices

\*\*The current number of UK oil tankers of which this rule applies (1 built 2007, 2 in 2010 and 3 in 2013)

#### Accidental oil outflow performance systems using computerised aid design (CAD) (Regulation 23, MARPOL I)

- 6.7.3 This is a new regulation which applies to oil tankers delivered on or after 01/01/2010. It requires ships to provide adequate protection against oil pollution in the event of collision or stranding. Computerised aid design systems would be used to help calculate the accidental oil outflow performance of a vessel. The goal is to provide a performance based accidental oil outflow regulation that effectively handles variations in subdivision.
- 6.7.4 The process involves 3 steps:
- determine the probability of penetrating each oil tank within the cargo block length, for both side damage (collision) and bottom damage (stranding);
  - assess the expected oil outflow from each damaged oil tank; and
  - compute the mean outflow parameter and compare to the specified maximum permissible value.
- 6.7.5 There are currently 5 UK flagged oil tankers<sup>8</sup> that have been delivered on or after 01/01/2010. We also assume a sixth tanker for the ten-year period will be built at some point 2017-19. As we have no details of planned construction, we have spread these costs evenly over the three-year period. No UK flagged oil tankers have been scrapped in the last 10 years. The indicative cost for a new build ship design, is within a scale of £1,000 to £10,000 based on the creation of a computerised aid design (CAD). This legislation will impact new builds only.

Table 2 Estimated cost range\* for fitting computerised aid design (CAD) (Affected ships)

	From	To	UK Ships**
CAD	£1000	£10,000	6
Total	£6000	£60,000 (if all ships required fitting)	

\*2010 prices

\*\*The current number of UK oil tankers of which this rule applies (2 built in 2010, 3 in 2013) plus an additional tanker assumed constructed before 2020

<sup>7</sup> SeaWeb

<sup>8</sup> SeaWeb

## Pumping, piping and discharge arrangements (Regulation 30, MARPOL I)

- 6.7.6 This is a new requirement which applies to all oil tankers of 150gt and above delivered on or after 01/01/2010 which has installed a sea chest that is permanently connected to the cargo pipeline system.
- 6.7.7 These ships must be equipped with both a sea chest valve and an inboard isolation valve. In addition to these valves, the sea chest shall be capable of isolation from the cargo piping system whilst the tanker is loading, transporting, or discharging cargo by use of a positive means that is to the satisfaction of the Administration.
- 6.7.8 There are currently 5 UK flagged oil tankers that have been delivered on or after 01/01/2010. We also assume a sixth tanker for the ten-year period will be built at some point 2017-19. As we have no details of planned construction, we have spread these costs evenly over the three-year period.
- 6.7.9 There is currently no indication of whether or not any of them have installed a sea chest valve that is permanently connected to the cargo pipeline system. No UK flagged oil tankers have been scrapped in last ten years. An indicative cost for a given ship, depending on size, would be £1,000 to £10,000. This legislation will impact new builds only.

Table 3a Estimated cost range\* for fitting a sea chest valve and isolation valve (Affected ships)

	From	To	UK Ships**
DB protection	£1,000	£10,000	6
Total	£6,000	£60,000 (if all ships required fitting)	

\*2010 prices

\*\*The current number of UK oil tankers of which this rule applies (2 built in 2010, 3 in 2013) plus an additional tanker assumed constructed before 2020

## Shipboard oil pollution emergency plan (Regulation 37, MARPOL I)

- 6.7.10 This is a new requirement addressed under the shipboard oil pollution emergency plan. It applies to all oil tankers of 5,000dwt or more. These ships shall have prompt access to computerised, shore-based damage stability and residual structural strength calculation programs. This is regarded more as a “service” in practice, i.e. a ship owner exchanges contracts with service providers who own the programme. The service is not necessarily from the recognised organisation of the ship (i.e. the entity which issues the IOPP Certificate<sup>9</sup>) or the Classification Society of the ship. Any consultant can take up the role. There are currently 14 UK flagged oil tankers of 5,000dwt or more.<sup>10</sup>
- 6.7.11 For a new build; the cost associated with the setting up and maintaining of a shore-based computer program for damage stability and residual structural strength calculations, is negligible compared to the overall cost of the ship.
- 6.7.12 Service, fees consist of an initial cost (creating the ship model in the computer) of £4,000 and an annual fee of £700.<sup>11</sup> Table 4 shows the initial costs in 2016 of the emergency plan and the initial annual fee paid for each ship. We assumed an additional 6 ships would be built during the subsequent ten-year appraisal period, which would each face the same cost per ship. This legislation will impact existing ships as well as new builds.

<sup>9</sup> International Oil Pollution Prevention Certificate

<sup>10</sup> SeaWeb and UK Ship Register Statistics

<sup>11</sup> Lloyds Register

Table 4 Estimated initial cost range\* of computerised programs (based on number of ships)

	<b>Low</b>	<b>Mid</b>	<b>High</b>
Initial number of ships	6**	10	14
One off fee (@£4,000)	£24,000	£40,000	£56,000
Annual fee (@£700pa)	£4,200pa	£7,000pa	£9,800pa

\*2016 prices

\*\*Based on the number of new builds on or after 01/01/2007

### Special requirements for fixed or floating platforms (Regulation 39, MARPOL I)

- 6.7.13 This is an additional requirement; the existing rule of compliance for all of Annex I, which is applicable to ships of 400gt and above other than oil tankers and in new oil tankers of 150 gross tonnage and above, has been extended from fixed and floating drilling rigs to floating production, storage and offloading facilities (FPSOs) used for the offshore production and storage of oil, and floating storage units (FSUs) used for the offshore storage of produced oil. The amendments clarify the applicability of the special requirements and provide further guidance for maritime administrations. There are likely to be familiarisation costs. These additional costs based on familiarisation with Annex I including additional survey and certification which could cost £100 to £1000.
- 6.7.14 It has been recognised that FPSOs and FSUs were not classified as oil tankers, however due to the quantities of oil storage on board these ships, it imposes a potential hazard to environment should there be an incident. MARPOL Annex I adopted a Resolution which provides the requirements as to how FPSOs and FSUs are certified. FPSOs and FSUs certified to the requirements in the Resolution should meet the standard similar to an oil tanker due to the requirement of oil storage capacity, FPSOs and FSUs designed as oil tankers in the first place. Hence, the impact on new build costs should not be of great significance. Also, it is normal oil tankers are converted to FPSOs and FSUs to meet market demand. In that case, the requirements pose an insignificant impact. This legislation will impact existing ships as well as new builds.

Table 5 Estimated familiarisation cost range\* including survey and inspection

	<b>From</b>	<b>To</b>	<b>UK Ships**</b>
FPSO/FSU	£100	£1,000	4
Total	£400	£4,000 (if all ships required fitting)	

\*2016 prices

\*\*The current number of UK FPSO/FSU of which this rule applies

### Carriage or use of oils in Antarctic area (Regulation 43, MARPOL I)

- 6.7.15 This is a new regulation to protect the Antarctic from pollution by heavy-grade oils within a new chapter on Special requirements for the use or carriage of oils in the Antarctic area. It prohibits both the carriage in bulk as cargo and the carriage and use as fuel, of:
- crude oils having a density, at 15°C, higher than 900 kg/m<sup>3</sup>;
  - oils, other than crude oils, having a density, at 15°C, higher than 900 kg/m<sup>3</sup> or a kinematic viscosity, at 50°C, higher than 180 mm<sup>2</sup>/s;
  - or bitumen, tar and their emulsions.
- 6.7.16 This means, in effect, that ships trading to the area, whether passenger or cargo ships, would need to switch to a different fuel type when transiting the Antarctic area, defined

as “the sea area south of latitude 60°S”. An exception is envisaged for vessels engaged in securing the safety of ships or in a search-and-rescue operation.

- 6.7.17 Within the UK the only specialist shipping providers for Antarctic destinations are government owned operations for science i.e. British Antarctic Survey (currently 2 ships which are flagged in the Falkland Islands<sup>12</sup>) or security i.e. Royal Navy Ice Patrol.
- 6.7.18 The 2 British survey vessels run on marine gas oil and marine diesel oil, neither of these fuels are included in the ban. This legislation would apply to all new builds and existing ships.

### **Stability Instrument (Regulation 28, MARPOL I)**

- 6.7.19 This is a new requirement which applies to all oil tankers barring waivers. All tankers on international voyages must meet the IMO requirements for damage stability. In 2005, several port states, led primarily by the UK’s Maritime and Coast Guard Agency (MCA), recognised that many tankers had on board documentation to demonstrate compliance with these damage stability requirements only when the ships were loaded in accordance with the ships standard loading conditions in the approved Stability Booklet. However, during actual operations many tankers were loaded to conditions, which significantly differed from these standard loading conditions. A survey by the MCA indicated that ‘more than 50% of vessels were operating to conditions, which were not in the approved Stability Information Booklet’. The new requirement states that all oil tankers must be fitted with a stability instrument, capable of verifying compliance with intact and damage stability requirements approved by the Administration having regard to the performance standards recommended by the Organization:
- oil tankers constructed before 01/01/2016 must comply with this regulation at the first scheduled renewal survey of the ship on or after 01/01/2016 but not later than 01/01/2021;
  - a stability instrument fitted on an oil tanker constructed before 01/01/2016 need not be replaced provided it is capable of verifying compliance with intact and damage stability, to the satisfaction of the Administration; and
  - the Administration shall issue a document of approval for the stability instrument.
- 6.7.20 The Administration may waive the requirements for the following oil tankers if loaded in accordance with the conditions approved by the Administration taking into account the guidelines developed by the Organization:
- oil tankers which are on a dedicated service, with a limited number of permutations of loading such that all anticipated conditions have been approved.
  - oil tankers where stability verification is made remotely by a means approved by the Administration;
  - oil tankers which are loaded within an approved range of loading conditions; or
  - oil tankers constructed before 01/01/2016 provided with approved limiting KG (centre of gravity)/GM (Metacentric height) curves covering all applicable intact and damage stability requirements.
- 6.7.21 The use of an approved computer program (Type 3 Loading Computer System), to verify that the non-standard loading condition complies with the damage stability requirements, can be readily applied to new ship loading computers or implemented as an upgrade to existing loading computer programs.
- 6.7.22 It should be noted that the stability instrument is not a substitute for the approved stability documentation but serves as a supplement to facilitate stability calculations.

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<sup>12</sup> SeaWeb

6.7.23 There are currently 26 UK flagged oil tankers<sup>13</sup> in operation. Typically, the estimated cost of providing stability instrument programs is £17,600 per ship<sup>14</sup> (Note: This may represent an overestimated quote as it was provided by a media company). We also assumed an additional six ships would be built during the appraisal period, which would also need to install a stability instrument program. This legislation applies to new builds and existing ships.

Table 6 Estimated cost range\* of computerised stability instrument programs (based on number of ships)

	Low	Mid	High
Number of ships	0**	13	26***
Total Cost of implementation	£0	£228,800	£457,600

\*2016 prices

\*\*Cost if all tankers already complied with the conditions approved by the Administration

\*\*\*Cost if no ships complied

## 6.8 Non-monetised costs

### Oil fuel tank protection (Regulation 12A, MARPOL I)

- 6.8.1 This is a new regulation regarding oil fuel tank protection. It applies to all ships delivered on or after 1 August 2010 with an aggregate oil fuel capacity of 600 m<sup>3</sup> and above. It includes requirements for the protected location of the fuel tanks and performance standards for accidental oil fuel outflow.
- 6.8.2 A maximum capacity limit of 2,500m<sup>3</sup> per oil fuel tank is included in the regulation. Administrations need to consider general safety aspects, including the need for maintenance and inspection of wing and double-bottom tanks or spaces, when approving the design and construction of ships in accordance with the regulation.
- 6.8.3 In essence, the protection requirements oblige the oil fuel tanks to be located inside the double hull, thus helping prevent spillages of oil fuel in case of collision or grounding.
- 6.8.4 Yards and designers should have considered the regulation and looked at how this will affect their ship designs. Owners should have considered early implementation and the possibility to include the regulation as a requirement for ships to be built prior to the entry into force of the regulation.
- 6.8.5 Since 1 August 2010 there have been 39 new build UK flagged vessels delivered that match the criteria. Eight of these vessels (tankers) already needed to comply before this regulation came into force. The remainder (31) were predominantly container ships or bulk carriers. These ships have been in compliance with the requirements as they had all received international port state control inspections many times and no deficiencies were found connected to this regulation since it came into force in 2010. In addition, the bulk of these vessels are owned by CMA CGM and Evergreen who have stated that their vessels comply with this regulation.
- 6.8.6 The difference with this regulation compared to others is that it applied to new builds only when it came into force. Therefore, the changes to design were made at the blueprint stage. No retrofitting of existing vessels was required. Any new ship designed, built and delivered had to comply with the regulation in order to function at sea. This represents a level playing field in terms of ship design for fuel tank protection.
- 6.8.7 As this regulation is implemented at the blueprint stage, it is difficult to accurately measure its cost to businesses, as these are usually absorbed in the construction cost. There were indicative costs for a new build ship to meet the new requirement published in the media. These ranged from 1% of new build cost to \$3m (£1.9m based on 2010

<sup>13</sup> SeaWeb

<sup>14</sup> Hellenic Shipping News (\$25,000 based on January 2016 exchange rate @ \$1.42/£1.00)



average GBP/USD exchange rate)<sup>15</sup> per ship. However, we feel this evidence is not robust enough in order to monetise the costs for the purpose of the Impact Assessment. Should the consultation bring more evidence to light, these costs could be monetised and added to the overall NPV. This legislation applies only to new builds.

**Questions to Consultees:**

Are the estimates of the cost of 12A (oil fuel tank protection), which range from 1% of build costs to \$3m per ship, an accurate representation of the costs to business? If not, can you provide a better estimate of the cost?

Does Regulation 12A (oil fuel tank protection) represent an additional cost to a new build? If so, what is the scale of this cost?

**6.9 Monetised savings/benefits**

6.9.1 It has not been possible to monetise the benefits described in this IA. Section 6.9 below describes their potential impacts and explains why they have not been monetised.

**6.10 Non-monetised savings/benefits**

**Oil Filtering Equipment (Regulation 14, MARPOL I)**

6.10.1 MARPOL I now introduces exceptions to the rule that ships between 400GT and 10000GT have to be fitted with oil filtering equipment. These exceptions do not apply to any UK flagged vessels to date. For any future builds that fall under the exception rule, the cost (as it stands) of a holding tank counter balance the cost of oil filtering equipment for ships that are outside of the exception rule. Overall, we assume the amendment represents a neutral cost and has not been monetised.

Table 7 Estimated cost comparisons between fitting oil filtering equipment and holding tanks

	<i>From</i>	<i>To</i>	<i>UK Ships*</i>
Oil filtering equipment	£6,200	£10,800	0
Holding Tanks	£8,000	£10,000	0

\* The current number of UK ships of which the exception rule applies (I.e. Hotel ships and storage vessels etc.)

**Improving the safety of the seafaring environment**

6.10.2 All of the measures are aimed at bringing an improvement to the safety of the seafaring environment, the benefits of which are reducing the number of accidents occurring to UK ships. This is difficult to monetise as there is no evidence that directly links the prevention of an incident through application of one of the measures covered in this IA.

6.10.3 Nevertheless, an idea of the associated benefit of the measure can be gleaned from past accidents that could have been prevented had amendments been in force. Table 8 below identifies a number of accidents to UK flagged vessels that may have been

<sup>15</sup> Bunkerworld - "New bunker tank rules could see new buildings fast-tracked ... into ordering new ships earlier than initially planned to avoid extra costs. ... force set for 1 January 2007 includes a new regulation 12A on oil fuel tank protection. ... could add an additional \$3 million to the cost of a new build ..."

prevented if the measures described in this IA had been in force. A table of similar accidents to all other flagged vessels around the globe can be seen in Annex 3.

6.10.4 There have been around 688 tons of fuel oil spills from UK flagged vessels since 2004. This equates to approximately £2m to £3m clean-up costs alone.<sup>16</sup>

Table 8: Preventable accidents<sup>17</sup>

Ship	Year	Description of Accident	Impact	Measure that could have prevented accident
UK Flagged Vessels				
levoli Splendor (Tanker)	2004	In collision with moored barge 'Kirby 7500' Texas, USA. No injuries reported. One of the levoli Splendor's fuel tanks was damaged in the collision and began leaking fuel.	An estimated 2,200 to 3,000 litres of heavy grade fuel oil spilled through a 16 inch gash in vessels port wing bunker tank.	Increased hull protection to the fuel oil tanks.
Scot Isles (General Cargo)	2008	In collision with mv 'Wadi Halfa' in the north sea 25 miles east of Ramsgate. Sustained severe damage to starboard midships hull plating. No injuries reported. The master saw evidence of oil in the water beside the vessel, emanating from number two starboard wing fuel tank, which had been ruptured by the collision.	60 tons of bunker fuel leaked into sea.	Increased hull protection to the fuel oil tanks.
Seagate (General Cargo)	2012	In collision with mv 'Timor Stream' in the Caribbean sea. No injuries reported. Sustained severe damage to starboard aft hull and accommodation and took water in engine room. All 21 crew rescued by mv 'Timor Stream' and yacht 'Battered Bull'. Seagate suffered extensive damage to the aft starboard side. The engine room was holed above and below the waterline and flooded. Around 12500 litres of diesel oil and 5500 litres of lubricating oil spilled into the sea and flooded engine room from two damaged tanks.	18000 litres of oil leaked into sea.	Increased hull protection to the fuel oil tanks.
CMA CGM Florida (Container)	2013	In collision with mv 'Chou Shan' in the south china sea. No injuries reported. Sustained severe damage to port side of hull and took water. Damage was focused in the vicinity of No.5 cargo hold and the outboard No.5 upper HSFO tank, which were holed above and below the waterline. No.4 cargo hold and the engine room LSFO tank adjacent to No.5 cargo hold were also breached.	610 tonnes of fuel oil spilled into water.	Increased hull protection to the fuel oil tanks.

6.10.5 Table 8 above shows the need for the changes in MARPOL I to be implemented and suggests that there is the possibility for benefits in the future, given the potential to enhance ship safety in terms of new and improved preventative oil pollution measures.

**Option 2: Bring UK law in line with recent updates to international navigational requirements and include an ambulatory reference provision to ensure amendments to technical provisions in MARPOL Annex I are automatically implemented in UK law.**

6.11 Monetised Costs

- Please refer to section 6.5 for the monetised costs of this option.

6.12 Non-Monetised Costs

<sup>16</sup> SKEMA – Sustainable Knowledge Platform for the European Maritime & Logistics Industry. Costs at £ per ton of oil spilled.

<sup>17</sup> SeaWeb Casualties

- In addition to the non-monetised costs identified in section 6.6, there will be cost associated with future amendments to MARPOL Annex I, which, by virtue of the ambulatory reference provision will automatically come into force. The cost associated with future amendments cannot be monetised at this stage as there is currently no indication of what form future amendments may take. It is proposed that regular Post Implementation Reviews (PIR) will be undertaken to evaluate whether the use of an ambulatory reference provision in relation to MARPOL Annex I has achieved its goal and is still valid, and also to estimate the costs and benefits of all the technical amendments enacted since this impact assessment.

### 6.13 Monetised Benefits

- In addition to the monetised benefit identified in section 6.7 ship operators will also benefit from a reduction in time spent to familiarise themselves with both international and national legislation. At present ship operators need to be sure that where provisions of international conventions have been framed differently in UK law, it is given the same interpretation that it has internationally (in the convention). The effect of the ambulatory reference provision is that ship operators can focus on the convention text in technical areas rather than also having to refer to national implementing legislation; which presents a benefit to industry. In order to monetise this benefit, the questions below are posed to industry.

#### **Question to Consultees:**

On average how many hours does it take for a member of your organisation to familiarise themselves with UK legislation on MARPOL I?

At what level of seniority would a member of staff be expected to be (on behalf of the organisation) familiar with UK legislation on MARPOL I?

### 6.14 Non-Monetised Benefits

- In addition to the non-monetised benefits identified in section 6.8, the use of an ambulatory reference provision in the new Regulations will:
  - simplify the regulatory framework for both industry and regulatory users – currently a mixture of primary and secondary legislation is used to implement international maritime conventions;
  - give legal clarity to operators – there will no-longer be disparity between national and international requirements;
  - provide a level playing field between UK and foreign operators calling at UK ports – the automatic incorporation of amendments in legislation means that the UK will be able to enforce amendments as soon as they come into force internationally. Therefore, foreign ships visiting the UK that are not compliant with the latest international requirements could be detained;
  - ensure the UK's reputation, which would be threatened should the UK be identified during a future IMO audit for failing to meet its obligation to give effect to MARPOL, which was a finding of the previous audit; and
  - safeguard the UK's influence at the IMO.

## 7 Rationale and evidence that justify the level of analysis in the IA

- 7.1 The new Merchant Shipping (Prevention of Oil pollution) Regulations to implement outstanding MARPOL Annex I amendments and the use of an ambulatory reference provision to implement future technical amendments to MARPOL Annex I is fully supported by industry. Industry has been fully engaged throughout the process of policy development at the IMO and contributing towards the UK negotiating position at the IMO. Industry voiced its concern regarding the perceived lengthy delay for the transposition of international requirements into domestic law and championed the introduction of an ambulatory reference power as the solution. In spite of legal uncertainty arising from the discrepancy between domestic and international requirements, industry complies with

international requirements to avoid commercial disruption caused by non-compliance delays at PSC when operating worldwide.

- 7.2 Figures relating to the number of ships affected by the amendments are taken directly from the UK Ship Register and SeaWeb which is correct as at 25 July 2016. Details for PSC records are taken from the both the Ship Inspection and Surveys (SIAS) and THETIS databases. Authorised officials from 27 countries (including EU Member States) upload details from PSC inspections onto THETIS.

Equipment costs are based on a sample of quotes obtained from policy experts within the MCA and Lloyds Register. Other cost approximations are based from public web sites connected directly with merchant shipping such as Bunkerworld and Tradewinds.

- 7.3 The level of analysis undertaken is in line with the depth of available information. It should be noted that the majority of costs identified within this IA have already been incurred and would not represent a future burden to business. However, they are included as they have been assessed against the baseline of no implementation of MARPOL Annex I.

## 8 Risks

### **Risks of doing nothing**

- 8.1 The risk of doing nothing is damaging to the UK's reputation as a world leader in the maritime industry. This would have a negative effect on the UK's influence at the IMO and in the EU forum on maritime issues. Furthermore, the UK would only be able to detain and/or prosecute non-UK ships operating in UK waters for non-compliance with the existing standards, not the marginally updated standards.

### **Risks of only bringing UK law in line with recent updates to international navigational requirements**

- 8.2 Whilst the recent updates will be implemented into UK law, this option only brings temporary relief as future amendments would require another statutory instrument in order to implement them. This option would not address industry's key request for an ambulatory reference power to help expedite the implementation of amendments to international conventions.

### **Risks of implementing all the options**

- 8.3 There are no risks involved in implementing the outstanding MARPOL Annex I measures; industry are fully aware of the changes and are in compliance in order to continue trading internationally without hindrance.

## 9 OI30, EANDCB and Business Impact Target

- 9.1 The direct costs and benefits to business have been appraised in section 5. This measure is a non-qualifying regulatory provision and therefore not scored against the Business Impact Target. This is because the proposals are an international measure that will be implemented according to the minimal requirement.

### **Equivalent Annual Direct Cost to Business (EANDCB)**

- 9.2 The EANCb for both option 1 and option 2 is £0.0m, as the difference between the options, the use of the ambulatory reference power is not monetised and assumed to be cost-neutral.

## 10 Wider Impacts

10.1 The wider social, environmental and economic impacts of the proposed policy options have been considered, together with possible unintended consequences. Where we have identified potential impacts, they are described in the following paragraphs:

### Small and Micro Business Assessment

10.2 Based on an analysis of the companies owning UK registered vessels (as at 25 July 2016), it is concluded that the majority of these companies affected by the MARPOL Annex I amendments are large, multinational or subsidiaries of multinationals and would therefore fall outside of the scope of the small and micro business assessment<sup>18</sup>.

### Competition assessment

10.3 The new measures apply equally to all ships calling at UK ports. Issues would not arise in respect of competition as MARPOL applies equally to all international ships.

### Environmental & Carbon Impact

10.4 None of the options would have any adverse environmental or carbon impact. In fact, the amendments to MARPOL I would have an effect of providing a positive impact on the environment as they will enhance ship safety in terms of new and improved preventative oil pollution measures. In addition, by reducing the risk of oil pollution from ships, the cost of environmental clean-up operations would also reduce.

### Equalities and Families

10.5 All options have been assessed for relevance, but the measures proposed are not going to have any variation in impact on different groups; an Equalities Impact assessment is therefore not required.

10.6 It is considered that there are no significant impacts on families.

### Enforcement

10.7 There are no new penalties being introduced by these new measures as the existing offences and penalties are sufficiently broad to cover all requirements and new requirements which fall under MARPOL Annex I.

<sup>18</sup> The following business size definitions were used to categorise companies which own ships on the UKSR:

- micro firm: 0 - 9 employees
- small firm: 0 - 49 employees (includes micro)
- medium firm: 50 - 249 employees
- large firm: over 250 employees

The following assumptions have been made when analysing companies owning UK registered ships:

- Multinational / Multidisciplinary companies are unlikely to be smaller than a medium sized firm – otherwise they will not be able to conduct their operations
- Companies operating 6 small cargo/5 small passenger ships or more are unlikely to be smaller than a medium sized firm – otherwise it would not be able to comply with safe manning requirements and provide the shore based personnel infrastructure to deliver business needs. For example, based on a sample of the minimum number of crew required to comply with safe manning requirements for ships less than 50,000GT, it was found that on average:

Ship Type and Size	Min. no. of crew
Cargo Ship 150GT - 499GT	5
Cargo Ship 500GT - 2,999GT	10
Cargo Ship 3,000GT - 19,999GT	14
Cargo Ship 20,000GT - 49,999GT	17

Ship Type and Size	Min. no. of crew
Passenger Ship 150GT - 499GT	6
Passenger Ship 500GT - 2,999GT	10
Passenger Ship 3,000GT - 19,999GT	16
Passenger Ship 20,000GT - 49,999GT	31

## 11 Summary of preferred option

11.1 Under the preferred option, the UK will fulfil its obligation to give effect to MARPOL Annex I and retain its reputation as a leading maritime nation and influence at the IMO. Transposition of the MARPOL Annex I amendments will create a level playing field and allow the UK to take enforcement action against any substandard ships in UK waters. The use of an ambulatory provision to automatically implement amendments to technical provisions will provide legal certainty for industry and address their comments regarding delays in transposition.

## 12 Post-implementation Review Plan

<b>Review status:</b> Please classify with an 'x' and provide any explanations below									
<input type="checkbox"/>	Sunset clause	<input checked="" type="checkbox"/>	Other review clause	<input type="checkbox"/>	Political commitment	<input type="checkbox"/>	Other reason	<input type="checkbox"/>	No plan to review
<b>Rationale for PIR approach</b>									
<b>Will the level of evidence and resourcing be low, medium or high? (See Guidance for conducting PIRs)</b> The level of evidence and resourcing for this review will be low. The Regulations implement MARPOL Annex I, and, where applicable, aspects of a number of EU Directives which echo the requirements of MARPOL I.									
<b>What forms of monitoring data will be collected?</b> The review will include analysing data contained on the Ship Inspection and Surveys (SIAS) and THETIS databases to identify non-compliances with the requirements of MARPOL Annex I established through Port State Control inspections.									
<b>What evaluation approaches will be used? (e.g. impact, process, economic)</b> Aspects of impact, process and economic evaluation processes will be used. The review will engage with industry and classification societies to better understand the actual costs experienced. The Maritime & Coastguard Agency (MCA) will check whether the shipping industry is complying with the new Regulations and, where possible, also whether they are having the desired effect on improving safety.									
<b>How will stakeholder views be collected? (e.g. feedback mechanisms, consultations, research)</b> Officials from the MCA regularly host and/or attend meetings with stakeholders – their feedback on whether measures have had the desired effect or problems encountered is sought as part of ongoing stakeholder engagement.									

# Annex 1 – Ambulatory References

## Definition of ambulatory reference

An ambulatory reference for the purposes of this Impact Assessment is a reference in domestic legislation to specific provision in an international instrument which is interpreted as a reference to the specific provision as modified from time to time (and not simply the version of that provision which exists at the time the domestic legislation is made).

## What does an ambulatory reference provision achieve?

The effect of the ambulatory reference provision is that amendments to any parts of the International Convention which are specifically referred to in the Statutory Instrument (SI) will automatically transposed into UK law at the same time as they come into force internationally. No additional SIs/ amendments to existing SIs will be required to bring such amendments into force.

## Enabling Power to make Ambulatory Reference

On 26 March 2015, the Deregulation Act 2015 received Royal Assent. The Act inserted new section 306A of the Merchant Shipping Act 1995 (MSA 95), which contains a power to make ambulatory references to international instruments. This power will only be used for “technical”, and therefore non-controversial, aspects of the Convention.

## What assurances are in place to prevent undesirable amendments to international Conventions automatically coming into force?

1. 1. A new SI must be created to introduce an ambulatory reference provision in relation to an international Convention. The suitability of the international Convention will be assessed (taking into consideration the nature of amendments and the likelihood of whether they will be controversial) prior to the use of the power being approved.
2. Where the UK does not agree with a proposed amendment to an international Convention, the Secretary of State (SoS) may object to block to it amendments to International Conventions in order to prevent it coming into force with respect to which the UK does not agree. This facility will be available for exceptional circumstances; however, this “opt-out” it is not expected to be used frequently, if at all, because:
  - a. any UK arguments deemed necessary to shape the amendments will have been applied argued in the international negotiation stage;
  - b. the amendments, being of a technical nature, are not expected to be politically controversial;
  - c. the amendments, once agreed, will in any case be binding on the international community and therefore it will be necessary for UK ships wishing to operate internationally without hindrance to comply anyway.

## Regulatory process supported by the Better Regulation Executive for Ambulatory Reference measures

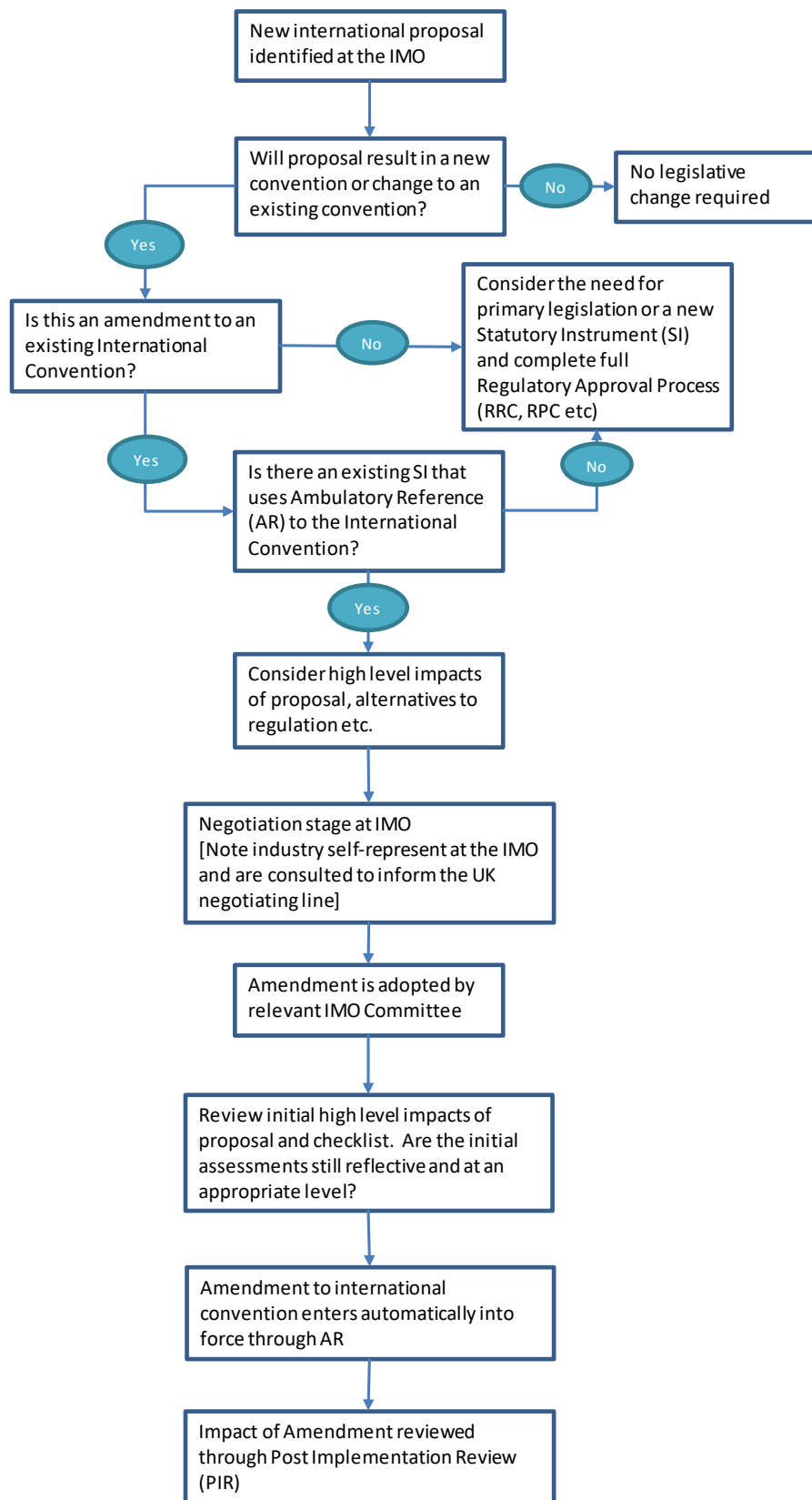
A flow diagram of the agreed scrutiny process is depicted overleaf, the process will require:

- an ambulatory reference provision to be included in secondary legislation which will follow the full Parliamentary and Regulatory processes;
- subsequent technical amendments during the international negotiation process, will continue to be subject to:
  - consideration of high level impacts
  - stakeholder engagement
- full Post Implementation Review to be undertaken to evaluate whether the policy has achieved its goal and is still valid and evaluate the costs and benefits of all the technical amendments enacted since the previous review (or impact assessment).

The proposed approach streamlines the traditional regulatory process and directs it where the greatest influence can be achieved, at negotiation stage. The principles of Better Regulation are still captured:

- **Alternatives to Regulation** – prior to work commencing on any proposal at the IMO, a case for action must be demonstrated against the following criteria: practicality, feasibility and proportionality; costs and benefits to industry, including legislative and administrative burdens; and alternatives to regulation.
- **Consultation** – industry is represented at the IMO through non-governmental organisations, which are heavily involved in early stage policy development, contributing to working and drafting groups where policy is designed, as well as participating in plenary where policy is examined. Industry representatives are invited to meetings hosted by the MCA prior to IMO sessions to assist with the development of the UK's negotiating position.
- **Assessment of Impact** – a high level consideration of impact is undertaken at proposal stage to inform the UK's negotiation position. Post Implementation Reviews will be used to assess the robustness of the original assessment and will be timed to ensure they can feed into negotiations for future rounds of amendments.





## How does Ambulatory Reference support Economic Growth?

The UK's ability to implement international agreements efficiently and effectively is important to the commercial shipping sector for a number of reasons:

- timely implementation means that UK ships plying internationally can properly be issued with certificates that confirm compliance with relevant international rules. Recent experience with the Maritime Labour Convention has highlighted a risk that current implementation practice could

result in the UK delaying ratification of major agreements, potentially restricting the participation of UK shipping in international trade;

- the uniform implementation of international rules in all contracting states is vital in order to achieve a level playing field for UK ships that trade internationally. The UK must be capable of certifying its own ships to the relevant standards; failure to do so makes it much more likely that a UK ship will be detained in a non-UK port for non-compliance. We must also be able to enforce those same standards against non-UK ships in UK ports, to ensure that compliant UK ships are not disadvantaged;
- current implementation practice has created a complicated and disjointed regulatory regime that diverges significantly from the international structure. This creates administrative burden for industry, because of the needless duplication of effort needed to ascertain the domestic legal position, and because of the unnecessary complexity of the domestic regime;
- a transparent, accessible and up-to-date legal regime is a vital component of a quality flag. Improving the way we implement international law will reflect the UK's ambition to make its flag a more attractive place to do business, as well as protecting our reputation as a world-class maritime administration, both with industry and the international institutions (such as the EU and the IMO) with responsibility for maritime policy;
- when discussing technical matters with overseas clients or shipyards and designers, it helps to have a common source of reference. Those working within the UK regime will be familiar with the UK's implementation, but those in other states will have no knowledge of it;
- when an owner wishes to change flag to the UK, the ship will have been constructed to the international requirements. Differences in UK law (occasionally deliberate gold-plating, but mostly differences in legislative drafting styles and delays in implementing amendments) make assessing a ship's compliance unnecessarily complicated and may create additional hurdles capable of discouraging owners from transferring to the UK.

# Annex 2 – Cost / Statistics survey

MARPOL Annex I					
No. Resolution	Regulation	Subject	Entered into force	Background	Change
1	MEPC 117(52)	Oil filtering equipment	01/01/2007	Any ship of 400 gross tonnage and above but less than 10,000 gross tonnage shall be fitted with oil filtering equipment. It shall be of a design approved by the Administration and shall be such as will ensure that any oily mixture discharged into the sea after passing through the system has an oil content not exceeding 15 parts per million.	Ships, such as hotel ships, storage vessels, etc. which are stationary except for non-cargo-carrying relocation voyages need not be provided with oil filtering equipment. Such ships shall be provided with a holding tank having a volume adequate, to the satisfaction of the Administration, for the total retention on board of the oily bilge water. All oily bilge water shall be retained on board for subsequent discharge to reception facilities. The Administration may also waive the requirements for any ship certified under the International Code of Safety for High-Speed Craft (or otherwise within the scope of this Code with regard to size and design) engaged on a scheduled service with a turn-around time not exceeding 24 hours and covering also non-passenger/cargo-carrying relocation voyages for these ships.
<p><b>Q.No. What's needed</b></p> <p><b>1a</b> How many UK flagged ships are categorised as "hotel ships", "storage vessels", "High speed craft"</p>					
<p><b>Reply</b></p>					
<p><b>1b</b> Bearing in mind this regulation came into force on 01/01/2007, can you provide an indicative cost for a particular ship that would have been affected by this change?</p>					
<p><b>2a</b> How many UK flagged ships (4000gt and over) and UK flagged oil tankers (150gt and over) including date of delivery? Do they comply with the regulation?</p>					
<p><b>2b</b></p>					
<p><b>2c</b> Bearing in mind this regulation came into force on 01/01/2007, can you provide an indicative cost for a particular ship that would have been affected by this change?</p>					
2	MEPC 117(52)	Segregation of oil and water ballast	01/01/2007	New ships of 4,000 tons gross tonnage and above other than oil tankers, and in new oil tankers of 150 tons gross tonnage and above, no ballast water shall be carried in any oil fuel tank.	The same rule applies except it now also applies to ships (4000gt and over) and oil tankers (150gt and over) delivered after 31 December 1979.

No. Resolution	Regulation Subject	Entered into force	Background	Change	Q.No. What's needed	Reply
3 IMEPC 117(52)	22 Pump room bottom protection	01/01/2007	The pump-room shall be provided with a double bottom such that at any cross-section the depth of each double bottom tank or space shall be such that the distance h between the bottom of the pump-room and the ship's base line measured at right angles to the ship's base line is not less than specified below: h=8/15(m) h=2m, whichever is the lesser The minimum value of h=1m	This is a new regulation in MARPOL Annex 1  This regulation applies to oil tankers of 5,000 tonnes deadweight and above constructed on or after 01/01/2007  Whilst the impact of the regulation is a sunk cost for those constructed between 2007 and now, it will be a cost for new ships. It seems unlikely that we'll be able to get a detailed assessment of the cost of the regulations, so a rough indication of the scale should be sufficient.	3a How many UK flagged oil tankers of 5000 dwt and above constructed on or after 01/01/2007 are there?	
					3b How many UK flagged oil tankers of 5000 dwt and above previously on the register in the past 10 years (but left due to transfer to another flag or regulation?)	
					3c Can you provide a scale or broad monetised estimate of cost, for a given ship, of the regulation?	
4 IMEPC 117(52)	23 Accidental oil outflow performance	01/01/2007	To provide adequate protection against oil pollution in the event of collision or stranding.  [The technical aspect of the regulation can be seen in full detail in Regulation 23 of MARPOL Annex I]	This is a new regulation in MARPOL Annex 1 It applies to oil tankers delivered on or after 1 January 2010  This new regulation will have an impact on ship design and construction. Whilst the impact of the regulation is a sunk cost for those constructed between 2010 and now, it will be a cost for new ships. It seems unlikely that we'll be able to get a detailed assessment of the cost of the regulations, so a rough indication of the scale should be sufficient.	4a How many UK flagged oil tankers constructed on or after 01/01/2010 are there?	
					4b How many UK flagged oil tankers, affected by this regulation, previously on the register in the past 10 years (but left due to transfer to another flag or scrapping)?	
					4c Can you provide a scale or broad monetised estimate of cost, for a given ship, of the regulation?	

No.	Resolution	Regulation	Subject	Entered into force	Background	Change	Q.No.	What's needed	Reply
5	MEPC 117/52)	30	Pumping, piping and discharge arrangements	01/01/2007	In every oil tanker, a discharge manifold for connection to reception facilities for the discharge of dirty ballast water or oil-contaminated water shall be located on the open deck on both sides of the ship.	<p>A new requirement was added for regulation 30 (par. 7) it applies to oil tankers delivered on or after 1 January 2010 which has installed a sea chest that is permanently connected to the cargo pipeline system</p> <p>These ships shall be equipped with both a sea chest valve and an inboard isolation valve. In addition to these valves, the sea chest shall be capable of isolation from the cargo piping system whilst the tanker is loading, transporting, or discharging cargo by use of a positive means that is to the satisfaction of the Administration. Such a positive means is a facility that is installed in the pipeline system in order to prevent, under all circumstances, the section of pipeline between the sea chest valve and the inboard valve being filled with cargo.</p> <p>This new regulation will have an impact on ship design and construction. Whilst the impact of the regulation is a sunk cost for those constructed between 2010 and now, it will be a cost for new ships. It seems unlikely that we'll be able to get a detailed assessment of the cost of the regulations, so a rough indication of the scale should be sufficient.</p>	5a	How many UK flagged oil tankers, constructed on or after 01/01/2010, that have been fitted with a sea chest that is permanently connected to the cargo pipeline system, are there?	
6	MEPC 117/52)	37	Shipboard oil pollution emergency plan	01/01/2007	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.	<p>A new requirement was added for regulation 37 (par. 4) All oil tankers of 5,000 tons deadweight or more shall have prompt access to computerised, shore-based damage stability and residual structural strength calculation programs.</p>	5b	How many UK flagged oil tankers, affected by this regulation, previously on the register in the past 10 years (but left due to transfer to another flag or scrapping)?	
							5c	Can you provide a scale or broad monetised estimate of cost, for a given ship, of the regulation?	
							6a	Can we identify who owns these programs?	
							6b	Are ship owners charged for using these programs. If so could we have an estimated cost for a ship?	

N o.	Resolution number	Regulation	Subject	Entered into	Background	Change	Q No.	What's needed	Reply
7	MEPC 117(52)	39	Special requirements for fixed or floating platforms	01/01/2007	Fixed and floating drilling rigs when engaged in the exploration, exploitation and associated offshore processing of sea-bed mineral resources and other platforms shall comply with the requirements of this Annex applicable to ships of 400gt and above other than oil tankers.	This regulation now also applies to fixed or floating platforms including drilling rigs. <b>floating production, storage and offloading facilities (FPSOs)</b> used for the offshore production and storage of oil, and floating storage units (FSUs) used for the offshore storage of produced oil.  In verifying compliance with this Annex in relation to platforms configured as FPSOs or FSUs, Administrations should take account of the Guidelines developed by the Organization  The amendments clarify the applicability of the special requirements and provide further guidance for maritime administrations. There are likely to be familiarisation costs to the MCA.	7a	Will there be costs to industry from understanding the new guidelines and making sure they are complying with them?	
8	MEPC 141(54)	12A	Oil Fuel tank protection	#####	For ships, other than self-elevating drilling units, having an aggregate oil fuel capacity of 600 m <sup>3</sup> and above, oil fuel tanks shall be located above the moulded line of the bottom shell plating nowhere less than the distance h as specified below:  h = B/20 m or,  h = 2.0 m, whichever is the lesser.  The minimum value of h = 0.76 m	This is a new regulation in MARPOL Annex I  This regulation applies to all ships with an aggregate oil fuel capacity of 600 m <sup>3</sup> and above which are delivered on or after 1 August 2010.  Whilst the impact on ships already delivered between 2010 and now, can be considered neutral, we may be required to assess the impact of the regulations on future ships. It seems unlikely that we'll be able to get a detailed assessment of the cost of the regulations, so a rough indication of the scale should be sufficient.	7b  8a	If yes, can you provide an estimated cost?  How many UK flagged ships constructed on or after 01/08/2010, with an aggregate oil fuel capacity of 600m <sup>3</sup> and above, are there?	
9	MEPC 189(60)	43	Carriage or use of oils in Antarctic area	01/06/2011	With the exception of vessels engaged in securing the safety of ships or in a search and rescue operation, the carriage in bulk as cargo, use as ballast, or carriage and use as fuel of the following:  .1 crude oils having a density at 15 C higher than 900 kg/m <sup>3</sup> ;  .2 oils, other than crude oils, having a density at 15 C higher than 900 kg/m <sup>3</sup> or a kinematic viscosity at 50 C higher than 180 mm <sup>2</sup> /s; or  .3 bitumen, tar and their emulsions  <b>shall be prohibited in the Antarctic area</b>	This is a new regulation in MARPOL Annex I  As a minimum, it is worth understanding how many ships will be affected by these requirements. We can then judge whether the costs are significant enough for us to attempt to monetise them.	8b  8c  9a	How many UK flagged oil tankers, affected by this regulation, previously on the register in the past 10 years (but left due to transfer to another flag or scrapping)?  Can you provide a scale or broad monetised estimate of cost, for a given ship, of the regulation?  Can you provide the number of UK flagged ships that are likely to be affected by the proposals?	

No.	Resolution	Regulation	Subject	Entered into	Background	Change	Q No.	What's needed	Reply
10	MEPC 248(66)	3.19.20.2.8	Stability instrument	01/01/2016	<p>Every oil tanker delivered after 31 December 1979, as defined in regulation 1.28.2, of 150 gross tonnage and above, shall comply with the subdivision and damage stability criteria.</p> <p>Oil tankers shall be regarded as complying with the damage stability criteria if the following requirements are met:</p> <p>.1 The final watertight line, taking into account sinkage, heel and trim, shall be below the lower edge of any opening through which progressive flooding may take place. Such openings shall include air-pipes and those which are closed by means of watertight doors or hatch covers and may exclude those openings closed by means of watertight manhole covers and flush scuttles, small watertight cargo tank hatch covers which maintain the high integrity of the deck, remotely operated watertight sliding doors, and sidescuttles of the non-opening type.</p> <p>.2 In the final stage of flooding, the angle of heel due to unsymmetrical flooding shall not exceed 25°, provided that this angle may be increased up to 30° if no deck immersion occurs.</p> <p>.3 The stability in the final stage of flooding shall be investigated and may be regarded as sufficient if the righting lever curve has at least a range of 20° beyond the position of equilibrium in association with a maximum residual righting lever of at least 0.1 metre within the 20° range; the area under the curve within this range shall not be less than 0.0175 metre radians. Unprotected openings shall not be immersed within this range unless the space concerned is assumed to be flooded. Within this range, the immersion of any of the openings listed in subparagraph 3.1 of this paragraph and other openings capable of being closed watertight may be permitted.</p> <p>.4 The Administration shall be satisfied that the stability is sufficient during intermediate stages of flooding.</p> <p>.5 Equalization arrangements requiring mechanical aids such as valves or cross-levelling pipes, if fitted, shall not be considered for the purpose of reducing an angle of heel or attaining the minimum range of residual stability to meet the requirements of subparagraphs 3.1.3.2 and 3.3 of this paragraph and sufficient residual stability shall be maintained during all stages where equalization is used. Spaces which are linked by ducts of a large cross-sectional area may be considered to be common.</p>	<p>Applies to all oil tankers (bar exemption and waivers).</p> <p>All oil tankers shall be <b>fitted with a stability instrument</b>, capable of verifying compliance with intact and damage stability requirements approved by the Administration having regard to the performance standards recommended by the Organization.</p> <p>.1 Oil tankers constructed before 1 January 2016 shall comply with this regulation at the first scheduled renewal survey of the ship on or after 1 January 2016 but not later than 1 January 2021;</p> <p>.2 Notwithstanding the requirements of subparagraph .1, a stability instrument fitted on an oil tanker constructed before 1 January 2016 need not be replaced provided it is capable of verifying compliance with intact and damage stability, to the satisfaction of the Administration; and</p> <p>.3 For the purposes of control under regulation 11, the Administration shall issue a document of approval for the stability instrument.</p>	10a	<p>Can you provide a scale or broad monetized estimate of cost, for a given ship, of the regulation?</p>	

## Annex 3 – Non UK flagged vessel accidents around the globe

Ship	Year	Description of Accident	Impact	Measure that could have prevented accident
<b>Non UK Flagged Vessels</b>				
Eric Spirit (Tanker)	2005	A 14 inch crack in the bulkhead was discovered between no.1 ballast tank and no.1 port cargo tank while unloading product at Seattle.	Reported oil sheen on the water from the vessel during the discharge from no.2 port tank and de-ballasting of the no.1 port ballast tank.	The provision of adequate pump room protection (i.e. double bottom protection with adequate separation).
Saetta (Tanker)	2005	Stranded on coral reef while in the colonial channel when departing from Cartagena, Colombia. Sustained damage to hull. Divers reported no.1 port ballast tank fractured and oil had entered from no.1 centre cargo tank. An oil slick 7 miles long by 600 feet wide drifted south from Cartagena.	Approximately 176 barrels oil and water leaked into sea.	The provision of systems to help calculate the accidental oil outflow performance of a vessel with the intention to provide a performance based accidental oil outflow regulation that effectively handles variations in subdivision. The focus being on the provision of adequate protection against oil pollution in the event of collision or stranding. Prompt access to computerised, shore-based damage stability and residual structural strength calculation programs.
Anna PC (Tanker)	2006	Stranded in the Kabrit channel, Suez canal Egypt. Extent of damage not known. Vessel was detained by the canal authorities pending payment of 10 million Egyptian pounds compensation. No injuries reported.	5,000 tonnes oil reported spilled into the water	The provision of systems to help calculate the accidental oil outflow performance of a vessel with the intention to provide a performance based accidental oil outflow regulation that effectively handles variations in subdivision. The focus being on the provision of adequate protection against oil pollution in the event of collision or stranding. Prompt access to computerised, shore-based damage stability and residual structural strength calculation programs.
Seabulk Pride (Tanker)	2006	Struck by heavy ice floe and broke from moorings, lost anchor, drifted and stranded while loading at port Nikiski, Cook inlet, USA. Stranded in silt 1/2 mile north of the dock. Sustained damage to fuel arm and 7" and 4" cracks in outer hull.	Approximately 200 gallons of fuel oil were spilled of which 125 gallons were contained on the ship's deck and 75 gallons leaked into the inlet.	Increased hull protection to the fuel oil tanks.
Grigoroussa I (Tanker)	2006	Struck quay following a technical failure and drifted in the Suez canal, Egypt. Sustained damage to no's. 1 and 2 cargo tanks.	Approximately 3,000 tons oil cargo leaked into the water.	The provision of systems to help calculate the accidental oil outflow performance of a vessel with the intention to provide a performance based accidental oil outflow regulation that effectively handles variations in subdivision. The focus being on the provision of adequate protection against oil pollution in the event of collision or stranding. Prompt access to computerised, shore-based damage stability and residual structural strength calculation programs.
Hebei Spirit (Tanker)	2007	In collision while anchored with drifting crane barge 'Samsung no.1' 5 miles off Daesan, South Korea. Crane barge broke free from tow and drifted into tanker. Sustained holing damage to no's. 1, 3 and 5 cargo tanks on port side above waterline.	12,547 tonnes of oil leaked into sea forming oil slick 2 x 7.4 kilometres.	The provision of systems to help calculate the accidental oil outflow performance of a vessel with the intention to provide a performance based accidental oil outflow regulation that effectively handles variations in subdivision. The focus being on the provision of adequate protection against oil pollution in the event of collision or stranding. Prompt access to computerised, shore-based damage stability and residual structural strength calculation programs.
Tigana (Tanker)	2007	Reported a crack in a scupper pipe at Paulsboro, USA. The damaged pipe passed through a fuel oil tank which resulted in a leakage of oil into the water.	An anti-pollution boom was deployed and 2,300 gallons of oil were recovered. Some oil was reported to have escaped the boom and light	The implementation of a sea chest that is permanently connected to the cargo pipe line system. Both equipped with a sea chest valve and an inboard isolation valve.

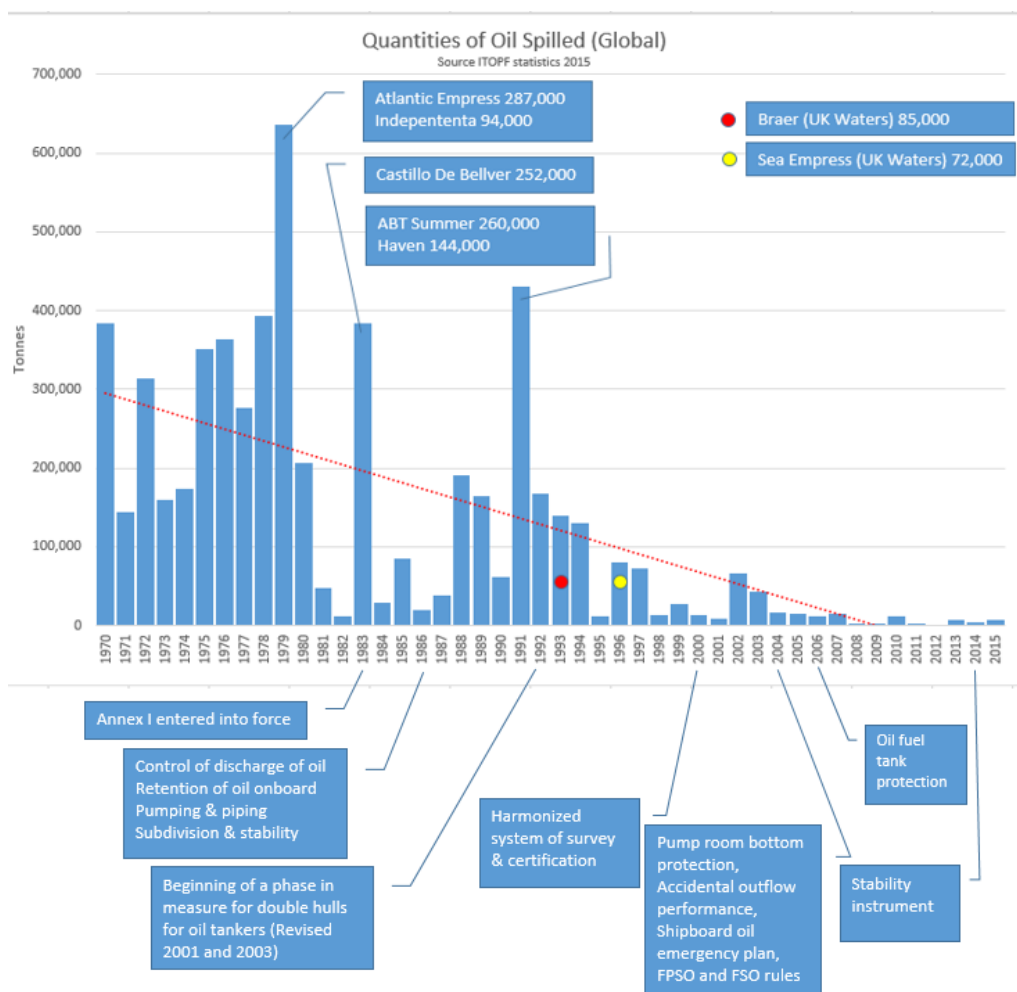


			amounts were reported up to half a mile from the vessel. A total of up to 10,000 gallons is thought to have been spilled.	
Yeo Myung No.7 (Tanker)	2008	In collision with mv 'Keumho 5' in the yellow sea off Mokpo, South Korea. No injuries reported.	2,000 litres of bunker fuel 'c' leaked into the sea.	Increased hull protection to the fuel oil tanks.
Alfa Ege (Tanker)	2009	Sustained valve failure whilst transferring cargo at Aliaga, Turkey.	1 ton of fuel oil leaked in the sea	Increased hull protection to the fuel oil tanks.
Krymsk (Tanker)	2009	In collision with mv 'AET Endeavour' 50 miles south of Galveston, USA. Sustained damage to no. 2 port bunker fuel tank. No injuries reported.	Approximately 50 tons of fuel spilled into sea.	Increased hull protection to the fuel oil tanks.
Bunga Kelana 3 (Tanker)	2010	In collision with mv 'Waily' in the Singapore strait. Sustained serious damage to port no. 4 cargo tank. No injuries reported.	Approximately 2500 tonnes of crude oil spilled into the sea.	The provision of systems to help calculate the accidental oil outflow performance of a vessel with the intention to provide a performance based accidental oil outflow regulation that effectively handles variations in subdivision. The focus being on the provision of adequate protection against oil pollution in the event of collision or stranding. Prompt access to computerised, shore-based damage stability and residual structural strength calculation programs.
Eagle Otome (Tanker)	2010	In collision with moored mv 'Gull Arrow', Texas, USA. Sustained damage to port bow, no. 1 starboard cargo tank and starboard ballast tank. No injuries reported. Vessel was under pilotage at the time of the incident.	Approximately 462,000 gallons of crude oil spilled into water.	The provision of systems to help calculate the accidental oil outflow performance of a vessel with the intention to provide a performance based accidental oil outflow regulation that effectively handles variations in subdivision. The focus being on the provision of adequate protection against oil pollution in the event of collision or stranding. Prompt access to computerised, shore-based damage stability and residual structural strength calculation programs.
Ratna Urvi (Tanker)	2011	Struck the jetty whilst berthing at Haldia, India. No injuries reported. Sustained 15 centimetre tear in starboard slop tank 2 metres above the waterline.	Approximately 10 tons of crude oil spilled into water.	The provision of systems to help calculate the accidental oil outflow performance of a vessel with the intention to provide a performance based accidental oil outflow regulation that effectively handles variations in subdivision. The focus being on the provision of adequate protection against oil pollution in the event of collision or stranding. Prompt access to computerised, shore-based damage stability and residual structural strength calculation programs.
Guo Chang (Tanker)	2011	In collision with Chinese coastal MT 'Jiangzhou no. 1' in the south china sea. Sustained damage to starboard side of hull. No injuries reported.	Approximately 2 tonnes of diesel oil spilled into sea.	Increased hull protection to the fuel oil tanks.
Da Qing 75 (Tanker)	2012	Struck oil platform 'bz28-1' in the Bohai sea. Sustained damage to bunker fuel tank. No injuries reported.	Unknown quantity of oil leaked into sea.	Increased hull protection to the fuel oil tanks.
Patriot Andalan (Tanker)	2013	Struck jetty whilst discharging fuel oil at the Pertamina terminal at ternate, Indonesia and subsequently partially sank after being hit by a large wave. All crew evacuated the vessel which took water and sank by the stern later the same morning. No injuries reported.	Unknown quantity of oil leaked from damaged no. 5 cargo tank creating a 1 kilometre oil slick.	Increased hull protection to the fuel oil tanks.
Alyarmouk (Tanker)	2015	In collision with mv 'Sinar Kapuas' in the south china sea. Sustained severe damage to starboard side of bow. No injuries reported.	Reported 4,500 tonnes of crude oil spilled into the sea.	The provision of systems to help calculate the accidental oil outflow performance of a vessel with the intention to provide a performance based accidental oil outflow regulation that effectively handles variations in subdivision. The focus being on the provision of adequate protection against oil pollution in the event of collision or stranding. Prompt access to computerised, shore-based damage stability and residual structural strength calculation programs.

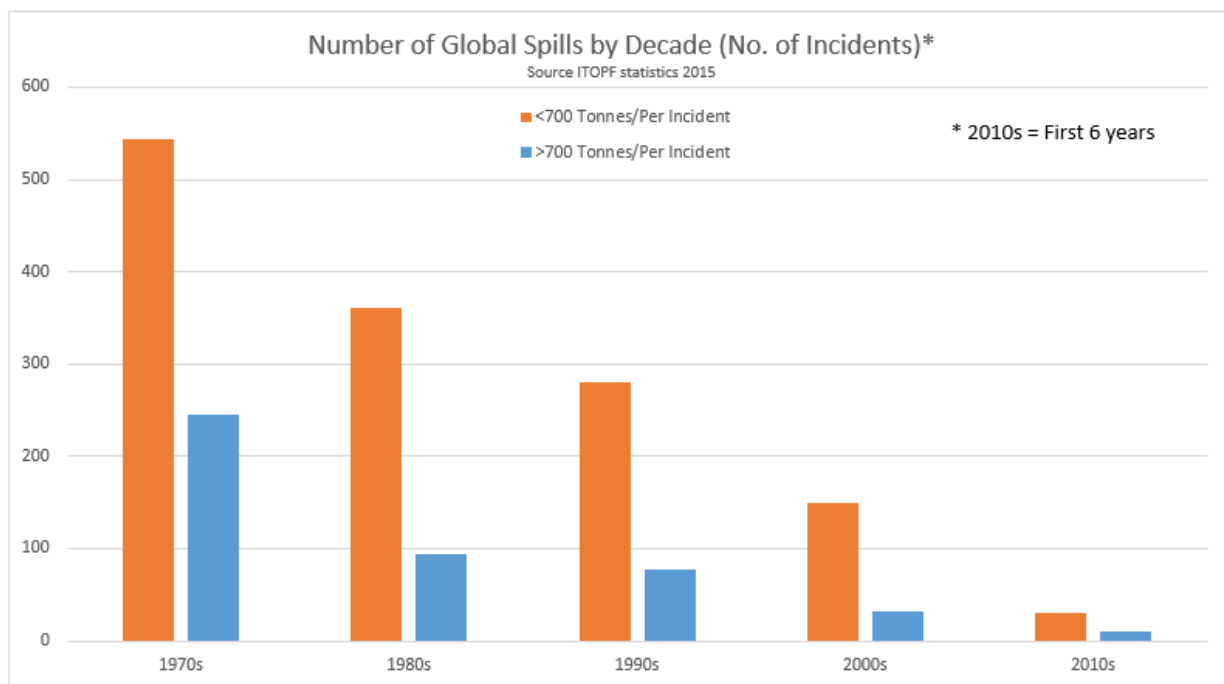
Bravo (Tanker)	2015	In collision whilst discharging cargo with drifting mv 'Privocean' at St James, LA, USA. No injuries reported. Sustained damage to 4 starboard ballast tanks and took water.	The collision parted the mooring lines and cargo discharge pipes resulting in about 420 gallons of oil being spilled and propeller and rudder fouled by mooring lines.	The provision of adequate pump room protection (i.e. double bottom protection with adequate separation). The implementation of a sea chest that is permanently connected to the cargo pipe line system. Both equipped with a sea chest valve and an inboard isolation valve.
Martha Petrol (Tanker)	2015	Stranded on reef and developed list whilst under pilotage in Teluk Penyu off Indonesia. No injuries reported. Sustained damage to hull.	Approximately 4,000 tons of oil cargo leaked into sea.	The provision of systems to help calculate the accidental oil outflow performance of a vessel with the intention to provide a performance based accidental oil outflow regulation that effectively handles variations in subdivision. The focus being on the provision of adequate protection against oil pollution in the event of collision or stranding. Prompt access to computerised, shore-based damage stability and residual structural strength calculation programs.
Wako Maru No2 (Tanker)	2015	In collision with MT 'Sulphur Garland' in the Hibiki-nada sea east of Masurejima, Japan. No injuries reported. Sustained dent and scratches to mid-section of starboard side of hull.	13,000 litres of bunker fuel oil spilled into sea creating an 8 mile slick which reached the coastline.	Increased hull protection to the fuel oil tanks.

# Annex 4 – Global oil spill incidents plus the spills against global oil sea borne trade

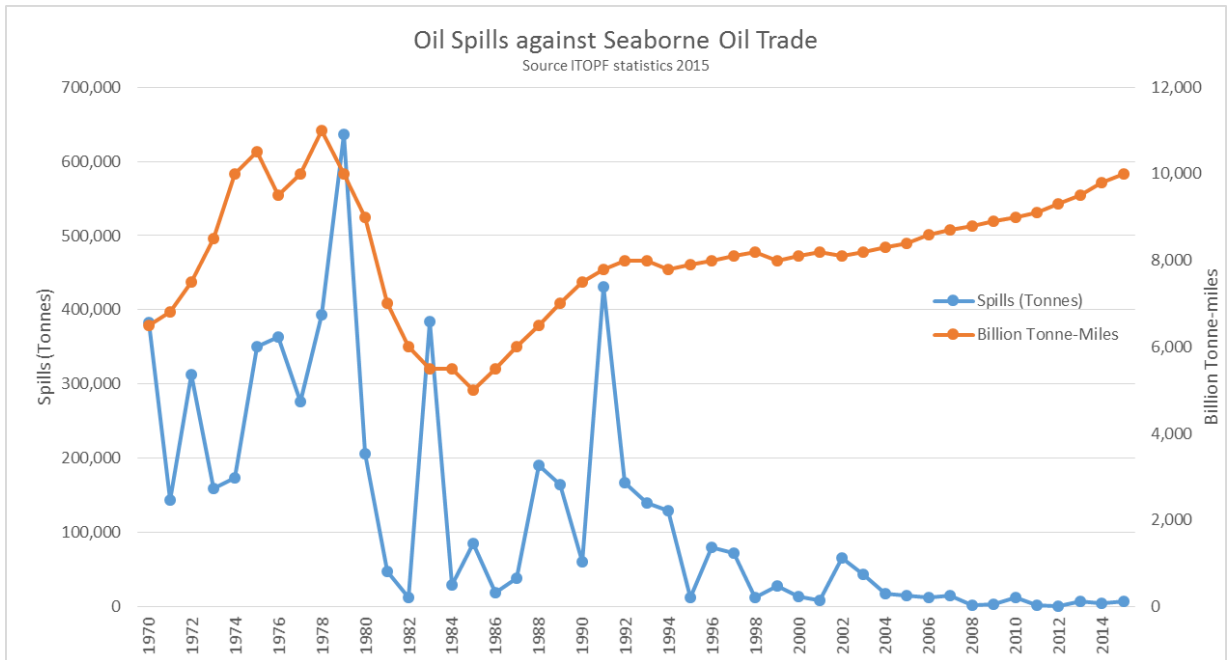
Graph 1: Global quantities of oil spilled



Graph 2: Oil spill trends



Graph 3: Spills against sea borne oil trade



Another area which helps determine safety measures in terms of oil pollution can be seen under the ports state control inspections for UK flagged ships and all ships under the Paris MOU agreement (table 9). These statistics show inspection deficiencies related to MARPOL I for UK and international ships inspected within the Paris MOU region. The tables below provide evidence of the number of deficiencies connected to MARPOL I regulations.

Table 9: Paris MOU Ports state control inspection deficiencies

PSC DEF Code Description	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Grand Total
OIL RECORD BOOK	62	46	55	42	58	64	76	41	50	84	578
(IOPP) PREVENTION OF POLLUTION BY OIL	27	15	27	20	19	15	11	8	9	16	167
OIL FILTERING EQUIPMENT	13	9	12	11	35	8	14	17	5	7	132
15 PPM ALARM ARRANGEMENTS	7	9	9	22	14	15	18	10	11	10	125
OTHER (MARPOL - ANNEX 1)	12	12	15	12	16	8	11	8	10	10	114
RETENTION OF OIL ON BOARD	12	7	16	11	14	14	7	10	11	7	109
OIL DISCHARGE MONITORING AND CONTROL SYSTEM	2	7	14	7	18	6	5	7	4	5	75
CONTROL OF DISCHARGE OF OIL	3	6	3	3	6	9	5	5	1	5	46
OIL AND OILY MIXTURES FROM MACHINERY SPACES	4	2	3	2	1	1	4		3	1	21
SUSPECTED OF DISCHARGE VIOLATION	2	2	1	2	5	1			1	5	19
POLLUTION PREVENTION NOXIOUS LIQUID SUBSTANCES IN BULK			1	2	2	10	1	1	1		18
PUMPING, PIPING AND DISCHARGE ARRANGEMENTS OF OIL TANKERS	1		1		2			1	1		14
STANDARD DISCHARGE CONNECTION	5				5	2					12
POLLUTION REPORT	3	1	1	1		1	1				11
OIL / WATER INTERFACE DETECTOR	1	2		2	1		2		1		9
SEGREGATION OF OIL AND WATER BALLAST				1	1	1					3
Condition assessment scheme										1	1
<b>Grand Total</b>	<b>154</b>	<b>118</b>	<b>158</b>	<b>138</b>	<b>197</b>	<b>155</b>	<b>155</b>	<b>108</b>	<b>109</b>	<b>161</b>	<b>1454</b>

Source: PSC SIAS Paris MOU (All Flags)

PSC DEF Code Description	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Grand Total
OIL RECORD BOOK	3	1								1	5
15 PPM ALARM ARRANGEMENTS			1	1							2
OTHER (MARPOL - ANNEX 1)			1								1
STANDARD DISCHARGE CONNECTION	1										1
<b>Grand Total</b>	<b>4</b>	<b>2</b>	<b>1</b>	<b>1</b>						<b>1</b>	<b>9</b>

Source: PSC SIAS Paris MOU (UK flag only)