Summary: Intervention & Options

Department /Agency:	Title:	
Maritime and Coastguard Agency	**Impact Assessment of the introduction of a safety code for passenger ships operating solely within UK categorised waters**	
Stage: Consultation	**Version:** 1	**Date:**
Related Publications: Draft Statutory Instrument and Merchant Shipping Notice as attached as part of the Consultation package		

Available to view or download at: http://www.mcga.gov.uk

Contact for enquiries: Lucy Luntz/Alison Leighton **Telephone:** 02380 329207/397879

What is the problem under consideration? Why is government intervention necessary?

Ministerial commitment was given in 2005 to improve safety standards on all domestic passenger ships operating in UK categorised waters. A new safety Code, to which this impact assessment relates, has been developed specifically for new build ships.

There remains an obligation to ensure a consistent safety standard for all ships, this will be achieved by introducing transitional arrangements for existing ships once the appropriate safety standards for new ships have been implemented through the new Code.

Between 2004 and 2008, Marine Accident Investigation Branch (MAIB) records show that there has been 124 passenger ships involved in accidents. Of these 124 ships, 13 ships recorded injuries to a total of 17 people. Two ships recorded fatalities, one during passage and one whilst the ship was alongside/moored.

Failure to implement this new safety Code will renege on a past high profile Ministerial commitment and will not be consistent with the Government's Better Regulation Initiative.

What are the policy objectives and the intended effects?

1) Enhance safety standards on passenger ships operating in UK categorised waters.

2) Streamline and simplify existing regulations into one document.

What policy options have been considered? Please justify any preferred option.

1) Introduction of new legislation for new build passenger ships operating solely in UK categorised waters. The new legislation implements the results of the post-Marchioness Formal Safety Assessment and research; and simplifies all existing regulations into one document. This is the preferred option.

2) Do nothing.

When will the policy be reviewed to establish the actual costs and benefits and the achievement of the desired effects? The costs and benefits of new builds will be monitored over the next three years and advice will be sought from industry through the Domestic Passenger Ship Steering Group which meets twice a year.

Ministerial Sign-off For consultation stage Impact Assessments:

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: Introduction of new legislation for new build passenger ships operating solely in UK water.

COSTS

ANNUAL COSTS		Description and scale of **key monetised costs** by 'main affected groups'
One-off (Transition)	**Yrs**	Safety enhancing construction, survey and equipment costs will be borne by the owners and operators of newbuild vessels which operate solely in UK categorised waters.
£ 0	10	
Average Annual Cost (excluding one-off)		
£ 32k –154k		**Total Cost** (PV) **£ 319k – 1.54million**

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

N/A

BENEFITS

ANNUAL BENEFITS		Description and scale of **key monetised benefits** by 'main affected groups' Reduced plan approval and initial survey costs for owners/operators of all newbuild single deck ships of less than 24m carrying less than 70 passengers.
One-off	**Yrs**	
£ 0		
Average Annual Benefit (excluding one-off)		
£ 26k		**Total Benefit** (PV) **£ 259k**

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

Stakeholders, such as vessel designers and surveyors, will benefit from a reduced administrative burden arising from the consolidation of all existing regulations into one document. Potentially large social benefits arise from the prevention of accidents and fatalities.

Key Assumptions/Sensitivities/Risks

Risks

1. Actual safety enhancement costs within vessel categories are different to those typical costs outlined below.
2. Potential additional cost for a rescue boat for ships of over 24m in length that cannot demonstrate adequate manoeuvrability to return to a person overboard.
3. Potential additional cost for ships built from wood or GRP to have galley areas bounded by steel bulkheads.
4. Potential additional cost to install a sprinkler system for any ships built with passenger accommodation.
5. Potential additional servicing costs for those ships choosing to carry inflatable lifejackets.

Assumptions

1. The number of newbuild passenger ships constructed per annum for operation on UK waters only over the 10-year appraisal period is equal to that constructed in the last 10 years.
2. The number of newbuild ships eligible to be surveyed by the Sea Fish Industry Authority over the 10-year appraisal period is equal to the number of eligible ships constructed in the last 10 years.
3. All newbuild single deck passenger ships, carrying less than 70 passengers, are surveyed by the Sea Fish Industry Authority over the appraisal period.
4. All newbuild ships other than those eligible for survey by SFIA and ships of 24m and over operating in Class C and D waters, are surveyed by the MCA over the appraisal period.
5. Best estimates of net benefit is based upon a mix of new build passenger vessels which is exactly the same over the appraisal period as has been constructed in the last 10 years.

Price Base Year 2009	Time Period Years 10	**Net Benefit Range** (NPV) **£ -1.28million - -60k**	**NET BENEFIT** (NPV Best estimate) **£ -742k**

What is the geographic coverage of the policy/option?			UK	
On what date will the policy be implemented?			TBA	
Which organisation(s) will enforce the policy?			MCA	
What is the total annual cost of enforcement for these organisations?			£ 0	
Does enforcement comply with Hampton principles?			Yes	
Will implementation go beyond minimum EU requirements?			No	
What is the value of the proposed offsetting measure per year?			£ N/A	
What is the value of changes in greenhouse gas emissions?			£ N/A	
Will the proposal have a significant impact on competition?			No	
Annual cost (£-£) per organisation (excluding one-off)	Micro **400**	Small **400**	Medium **400**	Large **400**
Are any of these organisations exempt?	No	No	N/A	N/A

Impact on Admin Burdens Baseline (2005 Prices) (Increase - Decrease)

Increase of £ 0 Decrease of £ 0 **Net Impact** **£** 0

Key: **Annual costs and benefits: Constant Prices** **(Net) Present Value**

Evidence Base (for summary sheets)

Introduction

This impact assessment relates to the introduction of new regulatory standards for passenger ships operating solely in UK waters. This new Code of Practice, "Safety Code for Passenger Ships operating solely within UK Categorised Waters", will only be applicable to new ships and will replace existing legislation for Class IV and V ships.

The new Code is the outcome of a review of the regulations governing the safety of all domestic passenger ships. The review has been undertaken with a view to simplifying the current regulations and to implement the findings of post-Marchioness Formal Safety Assessment (FSA) studies and recommendations from the Formal Investigation. It has been developed under Work Area A of the Domestic Passenger Ship Regulatory Review which is outlined later.

Background

The passenger ship MARCHIONESS and dredger BOWBELLE collided on the Thames on the 20th August 1989. As a result a number of inquiries and investigations were undertaken:

- Marine Accident Investigation Branch (MAIB) investigated the circumstances surrounding the collision immediately following the incident;
- the Hayes Inquiry reported to Parliament in July 1992;
- in April 1995, a coroner's inquest returned a verdict of unlawful killing in 43 of the 51 deaths;
- the Thames Safety Inquiry led by Lord Justice Clarke from August 1999, presented the report to Parliament in February 2000;
- a subsequent Formal Investigation also conducted by Lord Justice Clarke during 2000/2001; and
- Department for Transport launched a FSA of Domestic Passenger Ships, followed by more detailed research which concluded in March 2005.

Numerous recommendations came from each inquiry/investigation. The concluding report from the Thames Safety Inquiry noted that there had already been a significant number of improvements to safety on the Thames by that time. However, it was considered that a more comprehensive review of all the safety standards needed to be undertaken for these ships.

Research

An initial FSA undertaken by the MCA, with consultant facilitation, between 2001 and 2003 looked at all aspects of domestic passenger ship safety. This work considered Class IV, V, and VI passenger ships operating on tidal and non-tidal waters. The outcome of this led to more detailed research being undertaken by independent consultants who focused on stability, evacuation, fire safety, bridge visibility and safety management standards and covered all operating environments in the UK.

The MCA's purpose in conducting the research was to provide a baseline for future risk-based regulation of domestic passenger ships by highlighting any areas where the current regulatory framework could be improved to address the identified risks. These research reports[1] were published in March 2005.

[1] Research Project RP 514 Formal Safety Assessment of Local Passenger Ships – Risk Assessment.
Research Project RP 524 The Parameters affecting the Survivability of Small Passenger Vessels in Collisions.

The research included inspection of ships holding current safety certificates and also identified specific features on particular ships as examples of poor arrangements. Features such as signage, evacuation routes and exits, lifejacket stowage and wheelhouse visibility are some examples of where improvements can be made to enhance safety. It was also noted that other safety issues may have arisen whilst the ship was in its operational season which may not have been evident at the time of survey. This is indicative of the difficulty of framing prescriptive legislation to address the variety of situations encountered in practice, and on which, surveyors must form a judgement.

The FSA research concluded that the overall level of safety on passenger ships on the Thames was within the Health and Safety Executive's "tolerable" range. This means that the level of risk is within that generally accepted by the public, provided that risks are demonstrated to be as low as reasonably practicable. Although the reports, specifically the recommendations, did not raise immediate concerns for ship safety, they did identify areas where improvements could be made to current standards, for example by further embedding the safety management concept**.**

Following the conclusion of all investigations, Ministers approved a programme of work to improve the safety of domestic passenger ships operating in UK waters. This programme included:

- a complete review of the regulations applicable to domestic passenger ships, taking into account revised regulations and supporting guidance which address the issues highlighted in research undertaken since 2001 and taking into account any EC developments;

- the introduction of transitional arrangements into key safety regulations to ensure that existing ships which cannot be brought up to the new standards for stability, fire protection and wheelhouse visibility are prevented from operating indefinitely under superseded standards;

- exploration with industry of the scope for an alternative approach to regulation, resulting in the development of appropriate "goal-setting standards" in addition to the revised prescriptive regulations. This could result in more appropriate, risk-based safety standards on some ships;

- strengthening of the standards for fire protection for the engine room on domestic passenger ships as this was identified as an area for potential improvement; and

- preparation of guidance for companies operating domestic passenger ships on how to integrate safety management into their operations.

The MCA developed a specific project to address those issues called the Domestic Passenger Ship Regulatory Review.

Domestic Passenger Ship Regulatory Review

The key objectives for the project are:

- To implement Directive 98/18/EC[2] which provides technical standards for sea-going domestic passenger ships constructed of steel or equivalent materials.

Research Project RP 525 Risk Assessment of the Fire Hazards on Class V Passenger Vessels on the River Thames.
Research Project RP 526 Assessment of Evacuation Standards on Class V Passenger Vessels on the River Thames.
Research Project RP 527 Assessment of Standards of Safety Management on Class V Vessels on the River Thames.
Research Project RP 528a & RP 528b Wheelhouse Visibility on Class V Passenger Vessels on the River Thames.
[2] Council Directive 98/18/EC of 17 March 1998 on safety rules and standards for passenger ships

- To develop risk-based regulations for passenger ships operating in UK categorised waters. This was a Ministerial Commitment made in July 2005, and has resulted in this proposed legislation.

- To implement the findings of post-Marchioness FSA studies and recommendations from the Formal Investigation.

Diagram 1 shows the regulatory structure for passenger ships and the four major areas of work. Work area A addresses passenger ships operating solely in UK categorised waters. Work area B addresses smaller seagoing passenger ships. Work area C considers passenger ships constructed of wood or GRP and work area D establishes some equivalent standards for aspects of the EC Directive 98/18/EC which is concerned with seagoing passenger ships.

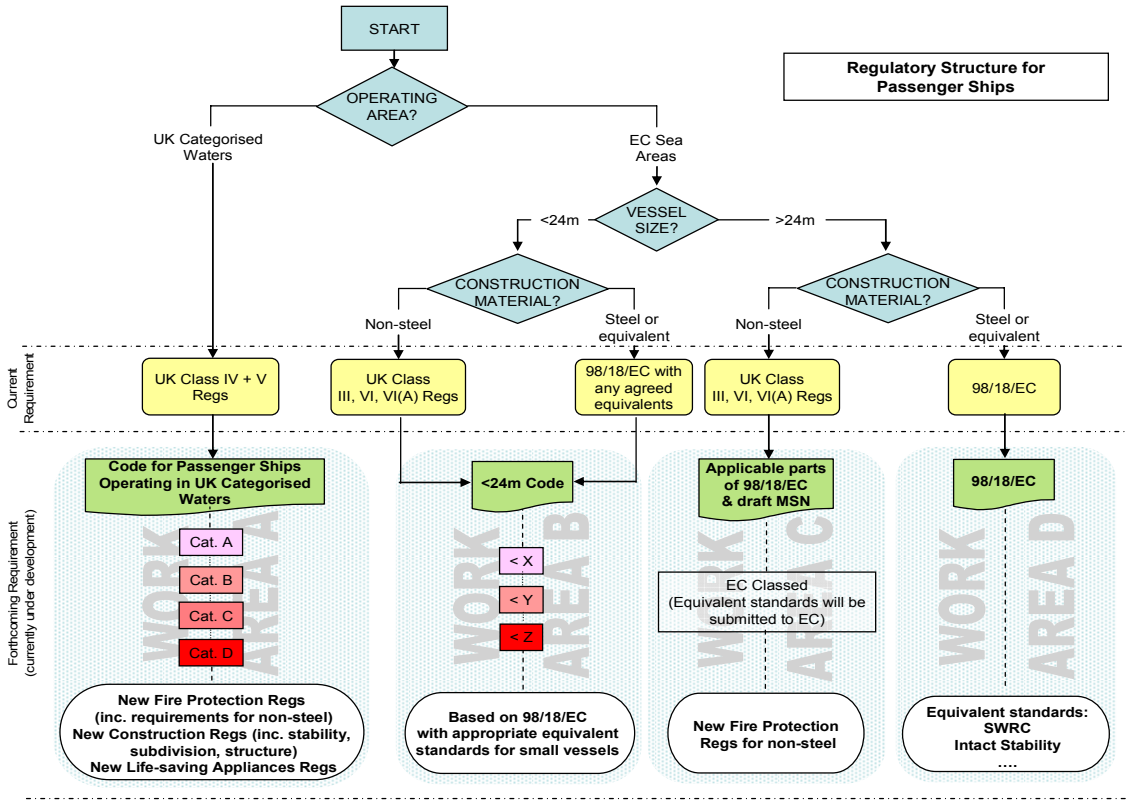

Diagram 1 – Regulatory structure for passenger ships

This impact assessment relates to the introduction of a new Code of Practice for passenger ships operating solely in UK categorised waters, developed under Work Area A.

Options

Option 1: Introducing new legislation. This is the preferred option.

Work area A, as identified in the diagram above, has resulted in the development of a Code of Practice, Safety Code for Passenger Ships operating solely in UK Categorised Waters. The Code will only be applicable to new ships and replaces existing legislation for Class IV and V ships.

The Code streamlines and simplifies the regulations governing the safety of passenger ships operating solely in UK categorised waters by drawing all the applicable requirements together into a single document. It will provide guidance on its application and replace numerous Statutory Instruments (SIs), Merchant Shipping Notices (MSNs) and other documents which operators currently need to refer to. The proposed revised technical standards have incorporated the results of the FSA of domestic passenger ships carried out following the Marchioness accident; the findings of the additional investigations; and

findings from research projects, to ensure that the proposed standards are appropriate to the risks of the individual operating environments.

The new technical requirements have been developed in consultation with surveyors and industry representatives of the Domestic Passenger Ship Steering Group (DPSSG). Regular updates on the progress of the project have been given to industry and an informal consultation on draft technical standards has been undertaken. The proposals to improve technical standards for new ships are broadly accepted by industry as appropriate to the risks associated with the operating areas. The changes have generally received positive support, particularly because the proposed legislation provides all the technical requirements in a single document rather than a great number of statutory instruments and merchant shipping notices.

It is intended to introduce the Code as legislation in the form of a MSN implemented by a SI. The MSN will contain the technical standards which the ship will be required to comply with. These standards will cover constructional aspects, equipment to be carried onboard, inspection and maintenance regimes and also operational aspects.

The surveyor will survey the ship against the requirements given in the MSN. When the surveyor is content that the ship and its operating procedures fully comply with the requirements, a Passenger Ship Safety Certificate will be issued. The ship will be subject to additional surveys and inspections to ensure these standards are maintained. The Master will also have an ongoing obligation to ensure the ship is maintained and operated in accordance with the Code in order for the Passenger Ship Safety Certificate to remain valid. The SI will stipulate that the Master may only proceed on a voyage provided the ship holds a valid Passenger Ship Safety Certificate.

Costs and Benefits

The new regulations are only applicable to new build ships and a comparison has been made to identify all the additional equipment requirements for ships operating in each type of categorised water[3]. The costs and benefits listed in this section are based on the typical size ship built in the last ten years over each category of water.

63% of ships operating in Category A waters and 82% in Category B waters were single deck ships less than 24 metres in length carrying less than 70 passengers and are classed as the typical ship for these categories of water.

There is no one predominant type of ship in Category C waters so the example used in Annex A is a 20m multi-deck ship carrying 200 passengers.

56% of ships operating in Category D waters were multi-deck ships over 24m in length carrying more than 250 passengers. These ships are classed as typical for this category of water.

Summary of Costs and Benefits

Table 1, below, shows a summary of the additional costs per vessel and a full breakdown is listed in Annex 1, attached.

Additional Costs Per Vessel	Water Category of Operation			
	Category A	Category B	Category C	Category D
One-Off Costs				
Equipment costs	£2,266.78	£6,049.84	£6,906.07	£3,749.20

[3] Annex 2 details definitions of UK categorised waters and classes of ships.

Plan approval and initial survey benefit/costs	-£7,140	-£7,140	£0.00	£7,053.00
Total one-off costs	**-£4,783.22**	**-£1,090.16**	**£6,906.07**	**£10,802.20**
Operational Costs (per annum)				
LPG and LSA survey costs	**£80.00**	**£400.00**	**£400.00**	**£400.00**

Table 1 – Summary of additional costs

The additional equipment costs are due to the increased safety standards in fire protection and an increase in the number of life saving appliances required under the new regulations. The more specific requirements for plan approval and the initial survey provide either additional costs or savings dependent on the vessel type. Typically, the additional costs to operators at the build/production stage will range from approximately £6,906 and £10,802 across categories C and D. Across categories A and B the new safety code will entail cost savings at the build production stage of between £1, 090 and £4,783.

Firms operating ships in Category D waters bear the highest burden of the additional costs for the new regulations due to the more prescriptive guidance for plan approval and initial survey work detailed below under initial construction and survey costs

Based on the number of new ships, operating solely on UK waters and surveyed by the MCA over the last ten years, there are on average 11 new ships built each year. The cost to build a new ship can vary greatly depending on vessel size, area of operation and specification, and can vary between £50K and £1M. On average the cost is approximately £400K.

Costs

Additional Stability Requirements

The new regulations further enhance the stability standards for some ships, depending on the area of operation and number of passengers on board. Significant changes were made to the stability requirements in 1992 following the Marchioness disaster. These regulations improved the intact stability and damage survivability for larger ships. The new Code further improves the standards for smaller ships, specifically those ships operating in Category A waters carrying more than 50 passengers will now be required to meet an intact stability standard, those operating in Category B waters carrying 50 passengers or less will need to demonstrate some damage survivability and those in Category C waters if carrying 50 or less passengers will be required to be subdivided.

Based on the figures for new builds over the last five years, it is anticipated that approximately 40% of new ships may incur some additional stability costs as on average 60% are already built to the new stability standard. These extra costs will be incurred mainly at the design stage to ensure the new standards are met, primarily because additional analysis will need to be undertaken. There could also be some increase in construction costs. The costs are hard to quantify, but are considered to be negligible as many designers and boat builders will have previously designed and built similar vessels to such standards since 1992.

Additional Equipment Costs

It should also be noted that ships, operating in Category C and D waters, 24m in length and over may also be required to carry a rescue boat under the new regulations. However, this requirement may be relaxed for ships under 35m in length that can demonstrate the manoeuvrability of the ship to return to a person overboard and the arrangements of recovery. All of the ships built in the last five years proved adequate

manoeuvrability during survey and rescue boat exemptions were issued. While the cost of a rescue boat is approximately £20K, based on a quote for a rescue boat and launch system, the rescue boat costs are not included in the summary table.

New ships will also require galley areas to be bounded by steel bulkheads. There will be no significant extra costs for ships constructed from steel. However, for new ships built from wood or GRP (Glass-reinforced plastic) the galley bulkheads will need to be insulated with structural fire protection. There have only been four ships built from GRP, and none built from wood, in the five year period 2003 – 2007. While the cost for a galley area to have structural fire protection (based on an area of (2m x 2m) x 2m) is £379, this cost has not been included in the summary of additional costs listed above.

Any ships with sleeping accommodation for passengers will be required to fit an automatic pressurised water sprinkler system. MCA records show no new ships, built between 2003 and 2007, to have sleeping accommodation so again this cost has not been included in the overall additional costs. However, the cost of such a system is approximately £52.5K.

There will also be additional ongoing costs for the servicing of liferafts and LPG installations. This cost will range **from £80 to £400 per annum across water categories.**

Ships will be required to carry lifejackets/buoyancy aids for all passengers. These could be inflatable or inherently buoyant lifejackets. For those ships opting to carry inflatable lifejackets there will be an additional cost for servicing of approximately £6.50 per life jacket. Under the new regulations inflatable lifejackets will require servicing once every two years.

Additional Initial Construction and Survey Costs

There has not been a fundamental change to the construction standards required by the new Code as the existing regulations required a ship to be constructed to 'approved' standards and those 'approved' standards were the appropriate rules of a Classification Society for the specific type of ship.

In the new Code the construction standards continue to be the relevant rules of authorised Classification Societies and in addition the approved standards have been extended to include those of the Sea Fish Industry Authority (SFIA) for smaller, single passenger deck ships, carrying less than 70 passengers.

However, the survey requirements have become a little more specific in that the existing regulations did not specify who could undertake the plan approval and survey work during the construction. This would generally have been undertaken by the MCA irrespective of the construction standard.

Under the new Code the MCA will only undertake the plan approval and survey work for those ships being constructed to Lloyds Register Special Service Craft Rules. The justification for this change is in recognition that Classification Societies Rules need to be applied properly and it is unreasonable to expect MCA surveyors to have the detailed knowledge and experience of using several different standards. The Lloyds Register Special Service Craft Rules were selected as the most appropriate standard for the majority of domestic passenger ships.

Furthermore, under the new Code those ships operating in Category C & D waters, of 24 metres in length and over will be required to have the plan approval and initial survey work undertaken by the authorised Classification Society whose standards are being applied.

This more prescriptive guidance will primarily impact only on owners of ships over 24 metres in length operating in Category C & D waters. For all other ships, the choice of which standards are applied will be influenced by who undertakes the plan approval and survey work and ultimately the choice still lies with the owners as to who they choose to undertake the work. Historically, the survey costs of a Classification Society were higher than those of the MCA.

Ships of 24 metres and over in length, operating in category C & D waters, do not have a choice of the MCA or SFIA conducting the plan approval and initial survey work as this has to be conducted by an authorised Classification Society. The additional cost for these ships equates to approximately £7K for a new build ship, see annex 1 for further information. This cost is only showing under Category D waters in the examples used to calculate costs in this impact assessment, however, it should be noted that this additional cost will affect larger ships operating in Category C waters too.

There is no change to the costs associated with the ongoing survey costs throughout the life of the vessel as this can be undertaken by either the MCA or by the Classification Society irrespective of who undertook the plan approval and survey work during the build.

Accident Investigation Costs

There is no additional burden to MAIB under the new regulations.

Benefits

Initial Construction and Survey Benefits

The approved constructions standards under the new Code have been extended to include those of Sea Fish Industry Authority (SFIA) for smaller, single deck ships, carrying less than 70 passengers, as mentioned above. It is estimated that 43 out of the 108 new ships built over the last five years would have had the option to have the plan approval and initial survey work carried out by SFIA. SFIA costs are approximately £7.14K lower than that of the MCA for a typical 20m ship, see Annex 1 for further information.

Annex 1, breakdown of costs, shows the benefit for ship owners going to SFIA under Category A and B waters only but this benefit can apply to such ships operating across all categories of water.

Better Regulation

One key objective of the review is to simplify and streamline the regulations and make them more accessible to the industry.

The research highlighted the fact that the regulations and guidance applying to domestic passenger ships in the UK are difficult to access and understand. Existing regulations are scattered over approximately 90 documents which consist of original legislation, subsequent amendments and related guidance. The production of a comprehensive Code, which draws together all the applicable requirements together into one single document, will make the regulations more accessible for all users, industry and surveyors alike. The regulations can now be tailored more effectively to small ships and to the area of operation.

The opportunity to reduce the number of regulatory documents, which is consistent with the Government's Better Regulations Initiative, will be missed if the Code is not implemented.

There is also an urgent need to review the safety standards for the existing fleet, however, it is believed necessary to establish an appropriate level of safety for new ships first. Once these standards are in place we will consider how the safety of the existing fleet needs to be enhanced, therefore, this work is a critical first stage to improving safety standards across the board.

This IA does not attempt to monetise the benefits of the simplification and streamlining of guidance into one concise document.

Benefits of Improved Safety Standards

Fatalities and Injuries Avoided.

The new requirements for all ships to carry life saving appliances of sufficient number and capacity to accommodate all passengers should mean that in Category B, C and D waters no passengers should need to enter the water in the event of an evacuation. All passengers would also be provided with a lifejacket or buoyancy aid, therefore in the unlikely event of entering the water the risk of drowning would be further minimised.

Ships built under the old regulations did not require a ship to have a fire detection system installed. The cause of accident for five out of the 124 ships was due to either fire or explosion. The requirement under the new regulations to have a fire detection system and increased fire fighting equipment, particularly in machinery spaces, will reduce the chance of a major fire incident which could result in explosion; major damage to a ship; the possible need for evacuation; and injury or death. It should be noted that Research Project, RP 525, recommended that standards should be improved to ensure that in the event of a main machinery fire every ship would have at least 30 minutes in which to evacuate.

The improvement to stability standards highlighted under 'Costs' is supported by the findings of Research Project, RP 524, which studied the behaviour of a ship in a collision with another comparatively large ship, based on the Marchioness/Bowbelle incident. The research provided a better understanding of the capsize mechanisms. The Marchioness/Bowbelle disaster resulted in the loss of 51 lives due to the sudden loss of the ship. Whilst a similar accident may still have severe consequences, it is hoped that the improvements in survivability would reduce the consequences, mostly because the ships could either withstand the damage and remain afloat or would at least remain afloat long enough for the ship to be evacuated. Therefore it is hoped that a potential major disaster could be reduced to a smaller incident with no lives lost and minimal injury.

While the introduction of new safety standards could be expected to have the potentially large social benefit of reducing fatalities and injuries, this IA does not attempt to monetise the benefits of injuries and fatalities avoided.

Incident Response and Rescue Co-ordination

Costs for responding to incidents and co-ordinating rescues have also been considered and where the new regulations improve the standards of safety on small domestic passenger ships, it is anticipated that rather than the number of incidents being reduced the most significant improvement will be the reduction in the severity of the incidents and the need for evacuation of ships.

This IA does not attempt to monetise the benefits of avoiding costs of responding to incidents and co-ordinating rescues.

Post Implementation Review

The implementation of the Regulations will be reviewed through the MCA's normal contact with industry and NGO groups at the DPSSG meetings held twice a year and by monitoring the costs and benefits to new build projects over the next three years.

Option 2: Do nothing

Formal investigations, FSAs and research were undertaken following the Marchioness disaster in 1989, using extensive resources over a number of years and the findings of which were presented to the public in 2005. Ministers publicly committed to the implementation of the recommendations and a review of all the safety standards. Failure to implement this new Code would mean that the recognised safety concerns were not being addressed.

There would be a huge political risk of not addressing the safety of the existing fleet, particularly if another Marchioness-type accident were to occur.

Small Firms Impact Test

A large proportion of the Class IV and V passenger ship industry are small firms and the new regulations apply across the board so no one area of this industry is penalised over others. However, it is recognised that firms operating ships in Category D waters will bear the highest burden of the additional costs for the new regulations.

The Code to which this Impact Assessment refers has been developed in consultation with the DPSSG. The formal consultation exercise will be directed at all ship owners and will seek to identify further information from this sector on potential costs to small businesses. Responses to the consultation will be taken into account in the final version of this Impact Assessment.

Competition Assessment

The industry is fragmented, including many individual operators with few larger concerns. The Code will affect all operators across the board and it is expected that there will be no negative impact on UK competitiveness.

Enforcement, Sanctions and Monitoring

The Code will be made mandatory by a Statutory Instrument and enforced by the Maritime and Coastguard Agency in the same way as in the existing regulatory regime. The regulations provide sanctions for non-compliance.

Penalties

The Master and/or owner will be guilty of an offence if:

- The ship proceeds or attempts to proceed on a voyage without a valid Passenger Ship Safety Certificate (PSSC);
- He does not maintain standards outlined in the regulations;
- Changes are made to the ship after a survey has been undertaken and a PSSC certificate has been issued;
- He does not report an accident or incident;
- He does not undertake an additional survey if required by the Secretary of State;
- He does not have the PSSC available at all times; and
- He does not surrender any cancelled or suspended PSSC to the Secretary of State if required to do so.

These offences are liable on summary conviction to a fine not exceeding the statutory minimum or on indictment be liable to imprisonment for a term not exceeding two years and/or a fine.

Detention

A ship will be detained if there is reason to believe that the PSSC was invalid or if:

- The safety management system and procedures were not being properly implement;
- The condition of the ship did not correspond substantially with the safety requirements of the code;
- The Mater and crew did not appear competent to operate the ship and safety equipment on board;
- The physical condition of the structure of the ship to which the Partial Declaration relates was not maintained in a satisfactory condition or the ship was not fit for the service for which it was intended; and
- The equipment on board was not functional and ready for use whenever the ship proceeded on a voyage.

Specific Impact Tests: Checklist

Use the table below to demonstrate how broadly you have considered the potential impacts of your policy options.

Ensure that the results of any tests that impact on the cost-benefit analysis are contained within the main evidence base; other results may be annexed.

Type of testing undertaken	***Results in Evidence Base?***	***Results annexed?***
Competition Assessment	Yes	No
Small Firms Impact Test	Yes	No
Legal Aid	No	No
Sustainable Development	No	No
Carbon Assessment	No	No
Other Environment	No	No
Health Impact Assessment	No	No
Race Equality	No	No
Disability Equality	No	No
Gender Equality	No	No
Human Rights	No	No
Rural Proofing	No	No

Annexes

ANNEX 1

Code for Passenger Ships Operating in UK Categorised Waters

Additional Costings for New Ships per Category
(All costs are indicative)

1. Ships operating in category A waters

All calculations and costs are based on an typical ship operating in Category A waters. Approximate size: Length 18 m, single deck, 60 passengers.

1.1 Bilge Pumping

Previous regulations required those other than open boats carrying between 50 – 250 passengers to carry one powered bilge pump and hand pumps serving all compartments.

New regulations will require two fixed and independently power pumps, one of which is capable of being supplied by the emergency power source.

Costs of pumps:

Powered	
Electro-magnetic pump, output: 195 litres/min @ 1500 rpm	= £449.08
Submersible pump, output 120 litres/min	= £140.23
Hand operated	
Hand pump, output 100 litres/min	= £55.71

Extra costs for an average new ship, which has three bilge compartments:

Existing ship:		
Powered pump (engine run)	£449.08 x 1	= £449.08
Hand pumps serving 3 compartments	£55.71 x 3	= £167.13
Total		= £616.21
New ship:		
Powered pump (engine run)	£449.08 x 1	= £449.08
Submersible pump	£140.23 x 3	= £420.69
1 per compartment (emergency power)		
Total		= £869.77
Total extra costs involved	£869.77 - £616.21	= £253.56

1.2 Bilge Alarms

There is no requirement under the existing regulations to carry a bilge alarm.

New regulations require a bilge alarm system.

Bilge alarm panel	= £56.25
Float switches x 3	= £77.97

Total extra costs involved	= £134.22

1.3 DSC VHF Radio

Ships operating in category A waters were not previously required to carry a fixed DSC VHF. The new regulations require ships to carry DSC VHF where VHF coverage is available. It is important to note that a vast majority of ships operating in Category A waters are unlikely to have VHF coverage and will not be required to carry fixed VHF, therefore the cost is not shown in the summary.

Extra costs (where required):

DSC VHF Radio	= £99.99
Total extra costs involved in this example	= £0.00

1.4 Means of recovery

Similar requirements to the old regulations, however, the new requirements are more prescriptive. Costs for a more comprehensive system are listed and included in the summary.

Sample costs	
Man over board recovery module	= £599.95
Man over board recovery cradle 1m – 710mm wide	= £952.00
Man over board recovery hoist	= £255.27
Average cost	= £602.41

1.5 Portable Fire Extinguishers

Similar requirements are needed in the new regulations except in spaces where significant amounts of electronics are present, such as the bridge. Suitably sized carbon dioxide or dry powder extinguishers should be used and inlet ports on equipment should be provided, where possible, to aid the extinguishing of fires.

Additional costs for one portable CO^2 fire extinguisher of not less than 3kg and one portable dry powder extinguisher of not less than 4.5kg.

5kg CO^2 fire extinguisher	= £67.97
6kg powder fire extinguisher	= £34.97
Total	= £102.94

1.6 Fixed Fire fighting System

This is an additional requirement under the new regulations. The fire extinguisher should be arranged to discharge into the machinery housing.

9L AFFF	= £35.97
Approximate cost of modified nozzle for injection into engine space	= £30.00
Total	= £65.97

1.7 Heat and smoke detectors for machinery space

No fire detectors were required under the existing regulations; new regulations make provision for these.

Fire detector		£520 - 10% trade discount	= £468.00
Detection heads	- Heat		= £30.00
	- Smoke		= £20.00
Total			= £518.00

1.8 Structural fire protection of a machinery space

The new regulations improve the standard of insulation from A15 to A30.

Example setup: Fire protection material attached by 2.5 mm diameter steel pins. Spring steel washers 250 mm diameter. An overlay wire mesh to be applied.

Calculations are based on a machinery space of 2m x 1.5m x 1.5m.

Extra cost to new ships:

To an A15 standard *(old regulations):*

Fire protection material	£11.23 per m^2 x $14m^2$	= £157.22
Wire mesh	£1.35 per m^2 x 14 m^2	= £18.90
Steel pins	per 1000	= £22.40
Spring washers	per 2000	= £72.05
Total		= £270.57*

To an A30 standard *(new regulations):*

Fire protection material	£12.90 per m^2 x $14m^2$	= £180.60
Wire mesh	£1.35 per m^2 x $14m^2$	= £18.90
Steel pins	per 1000	= £22.40
Spring washers	per 2000	= £72.05
Total		= £293.95*
Total extra cost	£293.95 - £270.57	= £23.38

* Prices are an approximate

1.9 Toilet Facilities

Two WCs are required under the new regulations for ships carrying between 50 and 100 passengers. None were required under the old regulations.

Manual Toilet x 2	£153.15 x 2	= £306.30
Equipment, plumbing and installation		= £140.00
Total		= £446.30

1.10 Corgi Engineer for installation and surveys of LPG systems.

Corgi engineer is now required under the new regulations for the installation of any LPG systems and annual surveys.

Corgi engineer cost per hour (approximate)		= £40.00
Installation	£40 x 3	= £120.00
Annual survey	£40 x 2	= £80.00

Note: It is estimated that an average of 2 hours will be needed to asses any systems onboard, however this is totally dependant on the type and number of systems fitted requiring an assessment.

1.11 Plan approval and initial survey

Under the new regulations owners of single deck ships of less than 24m carrying less than 70 passengers now have the additional option to have the plan approval and initial survey undertaken by Sea Fish Industry Authorities as well as the MCA or Classification Societies.

MCA costs		= £19,740.00
Sea Fish Industry Authority costs	exc. VAT	= £12,600.00
Additional Benefit		= £7,140.00

1.12 Summary of extra costs for average ship operating in category A waters:

Bilge pumping	£253.56
Bilge Alarm	£134.22
Means of recovery	£602.41
Portable fire extinguishers	£102.94
Fixed Fire fighting	£65.97
Heat and Smoke detectors	£518.00
Structural Fire Protection	£23.38
Toilets	£446.30
Corgi engineer	£120.00
Initial construction and survey	
Plan approval and initial survey benefit	-£7,140.00
Total exc. VAT	**-£4,873.22**

1.12 Ongoing Annual Costs

Annual Survey LPG systems	£80.00
Total exc. VAT	**£80.00**

2. Ships Operating in Category B Waters

All calculations and costs are based on an typical ship operating in category B waters. Approximate size: Length 18m, single deck, 60 passengers.

2.1 Bilge Pumping

Previous regulations required those other than open boats carrying between 50 – 250 passengers to carry one powered bilge pump and hand pumps serving all compartments.

New regulations will require two fixed and independently power pumps, one of which is capable of being supplied by the emergency power source.

Costs of pumps:

Powered		
Electro-Magnetic pump, output: 195 litres/min @ 1500 rpm		= £449.08
Submersible pump, output 120 litres/min		= £140.23
Hand operated		
Hand pump, output 100 litres/min		= £55.71

Extra costs for an average new ship, which has three bilge compartments:

Existing ship:		
Powered pump (engine run)	£449.08 x 1	= £449.08
Hand pumps serving 3 compartments	£55.71 x 3	= £167.13
Total		= £616.21
New ship:		
Powered pump (engine run)	£449.08 x 1	= £449.08
Submersible pump	£140.23 x 3	= £420.69
1 per compartment (emergency power)		
Total		= £869.77
Total Extra Costs Involved	£ 869.77 - £ 616.21	= £253.56

2.2 Bilge Alarms

There is no requirement under the existing regulations to carry a bilge alarm.

New regulations require a bilge alarm system.

Bilge alarm panel	= £56.25
Float switches x 3	= £77.97
Total extra costs involved	= £134.22

2.3 Life Saving Appliances

Existing regulations require either 60% buoyant apparatus or 60% liferafts.

New regulations will require 100% liferafts plus an additional 20% buoyant apparatus.

20 man buoyant apparatus	= £895.00
65 man ORIL	= £3,000.00

Existing ship:
To carry 60 passengers, ships required two 20 man buoyant apparatus:

Buoyant apparatus	£895 x 2	= £1,790.00

New ship:
To carry 60 passengers a ship will require one 65 man ORILs and one 20 man buoyant apparatus:

ORILs	£3,000 x 1	= £3,000.00
Buoyant apparatus	£895 x 1	= £ 895.00
Total		= £3,895.00
Extra cost for new ship	£3,895 - £1,790	= £2,105.00

Note: Liferafts require servicing twice in every 5 years. Each service costs approximately **£800 per liferaft**.

Annual cost	(£800 x 2 / 5)	= £320.00

2.4 Lifejackets/ Buoyancy aids:

An existing ship is not required to carry lifejackets. New ships will be required to carry 100%.

It is anticipated that the majority of ships will opt to carry inherently buoyant lifejackets. The individual costs of both are shown but the costs of buoyant lifejackets are used in the example.

Cost of a buoyant lifejacket		= £15.68
Cost of an inflatable lifejacket		= £25.84
Cost of 60 buoyant lifejackets in this example	£15.68 x 60	= £940.80

Price includes discount for bulk orders.

Note: Inflatable lifejackets require servicing once in every two years. Each service costs approximately £6.50 per lifejacket.

Possible annual cost	(£6.50 / 2) x 60	= £195.00

2.5 DSC VHF Radio

Ships operating in category B waters were not previously required to carry a fixed DSC VHF. The new regulations require vessels to carry DSC VHF where VHF coverage is available.

A vast majority of vessels operating in Category B waters are unlikely to have VHF coverage and will not be required to carry fixed VHF, therefore the cost is not shown in the summary of costs.

Extra costs (where required):

DSC VHF Radio	= £99.99
Total extra costs involved in this example	= £0.00

2.6 Portable Communications

Existing ships only required portable VHF (maximum of two) if liferafts are carried. New ships must carry liferafts.

Pair of Handheld VHF Radios	= £69.95

2.7 Portable Fire Extinguishers

Similar requirements are needed in the new regulations except in spaces where significant amounts of electronics are present, such as the bridge. Suitably sized carbon dioxide or dry powder extinguishers should be used and inlet ports on equipment should be provided, where possible, to aid the extinguishing of fires.

Additional costs for one portable CO^2 fire extinguisher of not less than 3 kg and one portable dry powder extinguisher of not less than 4.5 kg

5kg CO^2 fire extinguisher	= £67.97
6kg powder fire extinguisher	= £34.97
Total	= £102.94

2.8 Fixed fire suppression system

This is an additional requirement under the new regulations.

Two options are available depending on the machinery space.

Option 1:

9L AFFF	= £35.97
Approximate cost of modified nozzle for injection into engine space	= £30.00
Total	= £65.97

Option 2:

Pre engineered system with manual override	= £1,621.70*

* This does not include installation costs; however this should not be significant for a pre engineered system such as this

It is estimated that the number of vessels using option 1 & 2 will be equal, therefore an average is taken.

Total	= £ 843.84

2.9 Heat and smoke detectors for a machinery space

No fire detectors were required under the existing regulations; new regulations make provision for these.

Fire detector		£520 - 10% trade discount	= £468.00
Detection heads	- Heat		= £30.00
	- Smoke		= £20.00
Total			= £518.00

2.10 Structural fire protection of a machinery space

The new regulations improve the standard of insulation from A15 to A30.

Example setup: Fire protection material attached by 2.5 mm diameter steel pins. Spring steel washers 250 mm diameter. An overlay wire mesh to be applied.

Calculations are based on a machinery space of 3m x 2m x 1.5m.

To an A15 standard *(old regulations)*

Fire protection material	£11.23 per m^2 x $30m^2$	= £336.90
Wire mesh	£1.35 per m^2 x 30 m^2	= £40.50
Steel pins	per 1000	= £22.40
Spring washers	per 2000	= £72.05
Total		= £471.85*

To an A30 standard *(new regulations)*

Fire protection material	£12.90 per m^2 x $30m^2$	= £ 387.00
Wire mesh	£1.35 per m^2 x 30 m^2	= £ 40.50
Steel pins	per 1000	= £ 22.40
Spring washers	per 2000	= £ 72.05
Total		= £ 521.95*
Total Extra costs	£521.95 - £471.85	= £50.10

* Prices are approximate

2.11 Toilet Facilities

For ships carrying 120 passengers, the new regulations require three WC's whereas existing guidance does not list any requirement.

Manual Toilet x 3	£153.15 x 3	= £ 459.45
Equipment, plumbing and installation		= £ 210.00
Total		= £ 669.45

2.12 Corgi Engineer for installation and surveys of LPG systems

Corgi engineer is now required under the new regulations for the installation of any LPG systems and annual surveys.

Corgi engineer cost per hour (approximate)		= £40.00
Installation:	£40 x 3	= £120.00
Annual survey:	£40 x 2	= £80.00

Note: It is estimated that an average of 2 hours will be needed to asses any systems onboard, however this is totally dependant on the type and number of systems fitted requiring an assessment.

2.13 Navigation equipment.

New ships of the size used in the example will be required to fit an echo sounder and GPS. Existing ships are not required to carry those listed.

Echo sounder	= £82.99
Global Positioning System (GPS)	= £158.99
Total	= £241.98

2.14 Plan approval and initial survey

Under the new regulations owners of single deck ships of less than 24m carrying less than 70 passengers now have the additional option to have the plan approval and initial survey undertaken by Sea Fish Industry Authorities as well as the MCA or Classification Societies.

MCA costs		= £19,740.00
Sea Fish Industry Authority costs	exc. VAT	= £12,600.00
Additional Benefit		= £7,140.00

2.1.5 Summary of extra costs for average ship operating in category B waters:

Bilge pumping	£253.56
Bilge Alarm	£134.22
Liferafts/BA	£2,105.00
Lifejackets/Buoyancy Aids	£940.80
Handheld VHF	£69.95
Portable fire extinguishers	£102.94
Fixed Fire fighting	£843.84
Heat and Smoke detectors	£518.00
Structural Fire Protection	£50.10
Toilets	£669.45
Corgi engineer	£120.00
Navigation Equipment	£241.98
Initial construction and survey	
Plan approval and initial survey benefit	-£7,140.00
Total exc. VAT	**-£1,090.16**

2.15 Ongoing Annual Costs

Service of Liferafts	£320.00
Annual survey LPG systems	£80.00
Total exc. VAT	**£400.00**

3 Ships operating in category C waters

All calculations and costs are based on an typical ship operating in category C waters. Approximate size: Length 20m, multi-deck, 200 passengers.

3.1 Bilge Pumping

Previous regulations required those other than open boats carrying between 50 – 250 passengers to carry a powered bilge pump and hand pumps serving all compartments.

New regulations will require two fixed and independently power pumps, one of which is capable of being supplied by the emergency power source.

Costs of pumps:

Powered		
Electro-Magnetic pump, output: 195 litres/min @ 1500 rpm		= £449.08
Submersible pump, output 120 litres/min		= £140.23
Hand operated		
Hand Pump, output 100 litres/min		= £55.71

Extra costs for an average new ship, which has three bilge compartments:

Existing ship:		
Powered pump (engine run)	£449.08 x 1	= £449.08
Hand pumps serving 3 compartments	£55.71 x 3	= £167.13
Total		= £616.21
New ship:		
Powered pump (engine run)	£449.08 x 1	= £449.08
Submersible pump	£140.23 x 3	= £420.69
1 per compartment (emergency power)		
Total		= £869.77
Total Extra Costs Involved	£869.77 - £616.21	= £253.56

3.2 Bilge Alarms

There is no requirement under the existing regulations to carry a bilge alarm.

New regulations require a bilge alarm system.

Bilge alarm panel	=£56.25
Float switches x 3	=£77.97
Total extra costs involved	=£134.22

3.3 LSA

Existing regulations require 40% buoyant apparatus plus 70% liferafts.

New regulations will require 100% liferafts plus 20% buoyant apparatus.

20 man buoyant apparatus	= £895.00
65 man ORIL	=£3,000.00

Existing Ship:
To carry 200 passengers, ships required four 20 man buoyant apparatus and three 65 man ORILs:

Buoyant apparatus	£895 x 4	= £3,580.00
ORILs	£3000 x 3	= £9,000.00
Total		= £12,580.00

New ships:
To carry 200 passengers a ship will require four 65 man ORIL's and two 20 man buoyant apparatus:

ORILs	£3,000 x 4	= £12,000.00
Bouyant apparatus	£895 x 2	= £1,790.00
Total		= £13,790.00

Extra cost for new ship	£13,790 - £12,580	= £1,210.00

Note: Liferafts require servicing twice in every 5 years. Each service costs approximately **£800 per liferaft**.

Annual cost	£800 x 2 / 5	=£320.00

3.4 DSC VHF Radio

Shipss operating in category C waters were previously not required to carry a fixed DSC VHF. The new regulation will require the vast majority of vessels to carry one as VHF coverage will be available in most cases.

Extra cost:

DSC VHF Radio	= £99.99

3.5 Portable Fire Extinguishers

Similar requirements are needed in the new regulations except in spaces where significant amounts of electronics are present, such as the bridge. Suitably sized carbon dioxide or dry powder extinguishers should be used and inlet ports on equipment should be provided, where possible, to aid the extinguishing of fires.

Additional costs for one portable CO^2 fire extinguisher of not less than 3 kg and one portable dry powder extinguisher of not less than 4.5 kg

5kg CO^2 fire extinguisher	= £67.97
6kg powder fire extinguisher	= £34.97
Total	= £102.94

3.6 Fixed fire suppression system

This is an additional requirement under the new regulations.

It is anticipated that the most if not all ships operating in Category C waters will be required to have an approved system similar to that listed below.

Pre engineered system with manual override	= £1,621.70*

* This does not include installation costs; however this should not be significant for a pre engineered system such as this.

3.7 Heat and smoke detectors for a machinery space

No fire detectors were required under the existing regulations; new regulations make provision for these.

Electronic Devices Type ED 820		£520 - 10% trade discount	= £468.00
Detection heads	- Heat		= £30.00
	- Smoke		= £20.00
Total			= £518.00

3.8 Structural fire protection of a machinery space

The new regulations improve the standard of insulation from A15 to A30.

Example setup: Fire protection material attached by 2.5 mm diameter steel pins. Spring steel washers 250 mm diameter. An overlay wire mesh to be applied.

Calculations are based on a machinery space of 3m x 2m x 1.5m.

To an A15 standard *(old regulations)*

Fire protection material	£11.23 per m^2 x $30m^2$	= £336.90
Wire mesh	£1.35 per m^2 x 30 m^2	= £40.50
Steel pins	per 1000	= £ 22.40
Spring washers	per 2000	= £ 72.05
Total		= £ 471.85*

To an A30 standard *(new regulations)*

Fire protection material	£12.90 per m^2 x $30m^2$	= £387.00
Wire mesh	£1.35 per m^2 x 30 m^2	= £40.50
Steel pins	per 1000	= £22.40
Spring washers	per 2000	= £ 72.05
Total		= £ 521.95*
Total cost	£521.95 - £471.85	= £50.10

* Prices are an approximate

3.9 Toilet Facilities

For ships carrying 200 passengers four 4 WC's are required. Existing regulation does not list any requirements.

Manual Toilet x 4	£153.15 x 4	= £612.60
Equipment, plumbing and installation		= £280.00
Total		= £892.60

3.10 Corgi Engineer for installation and surveys of LPG systems

Corgi engineer is now required under the new regulations for the installation of any LPG systems and annual surveys.

Corgi engineer cost per hour (approximate)		= £40.00
Installation:	£40 x 3	= £120.00
Annual survey:	£40 x 2	= £80.00

Note: It is estimated that an average of 2 hours will be needed to asses any systems onboard, however this is totally dependant on the type and number of systems fitted requiring an assessment.

3.11 Navigation equipment.

New ships of the size used in the example will be required to fit radar, an echo sounder, a radar reflector, GPS, speed measuring log and rudder angle indicator. Existing ships are not required to carry those listed.

Radar& Echo sounder	= £1399.99
Radar Reflector	= £99.99
GPS & Speed Measuring Log	= £158.99
Rudder Angle Indicator	= £243.99
Total	= £1902.96

3.12 Total extra costs for average ship operating in category C waters:

Bilge pumping	£253.56
Bilge Alarm	£134.22
Liferafts/BA	£1,210.00
DSC VHF	£99.99
Portable fire extinguishers	£102.94
Fixed Fire fighting	£1621.70
Heat and Smoke detectors	£518.00
Structural Fire Protection	£50.10
Toilets	£892.60
Corgi engineer	£120.00
Steel Enclosed Galley	£379.45
Navigation	£1902.96
Total exc. VAT	**£ 6,906.07**

Note: there will be additional plan approval and survey costs for ships over 24 metres operating in category C waters. This cost is not shown here as this example uses an average size ship, 20 metres in length, operating in these waters.

3.13 Ongoing Annual Costs

Service of Liferafts	£320.00
Annual survey LPG systems	£80.00
Total exc. VAT	**£400.00**

4. Ships operating in Category D waters

All calculations and costs are based on an typical ship of approximate size: Length 24m, multi-deck, 300 passengers.

4.1 Bilge Alarms

There is no requirement under the existing regulations to carry a bilge alarm.

New regulations require a bilge alarm system.

Bilge alarm panel	= £75.00
Float switches x 4	= £103.96
Total extra costs involved	= £178.96

4.2 Life Saving Appliances

Existing regulations require 40% buoyant apparatus plus 70% liferafts.

New regulations will require 100% liferafts plus 20% buoyant apparatus.

20 man buoyant apparatus	= £895
65 man ORIL	= £3,000.00

Existing ships:

To carry 300 passengers a ship required six 20 man buoyant apparatus and four 65 man ORILs:

Buoyant apparatus	£895 x 6	= £5,370.00
ORIL's	£3,000 x 4	= £12,000.00
Total		= £17,370.00

New ship:

To carry 300 passengers a ship will require five 65 man ORILs and three 20 man buoyant apparatus:

ORILs	£3,000 x 5	= £15,000.00
Buoyant apparatus	£895 x 3	= £2,685.00
Total		= £17,685.00
Extra cost for new ship	£17,685 - £17,370	= £315.00

Note: Liferafts require servicing twice in every 5 years. Each service costs approximately **£800 per liferaft**.

Annual cost	£800 x 2 / 5	=£320.00

4.3 Portable Fire Extinguishers

Similar requirements are needed in the new regulations except in spaces where significant amounts of electronics are present, such as the bridge. Suitably sized carbon dioxide or dry powder extinguishers should be used and inlet ports on equipment should be provided, where possible, to aid the extinguishing of fires.

Additional costs for one portable CO^2 fire extinguisher of not less than 3 kg and one portable dry powder extinguisher of not less than 4.5 kg

5kg CO^2 fire extinguisher	= £67.97
6kg powder fire extinguisher	= £34.97
Total	= £102.94

4.4 Fixed fire suppression system

This is an additional requirement under the new regulations.

Pre engineered system with manual override	= £ 1,621.70*

* This does not include installation costs; however this should not be significant for a pre engineered system such as this.

4. 5 Heat and smoke detectors for a machinery space

No fire detectors were required under the existing regulations; new regulations make provision for these.

Fire detector		£520 - 10% trade discount	= £468.00
Detection heads	- Heat		= £30.00
	- Smoke		= £20.00
Total			= £518.00

4.6 Toilet Facilities

For ships carrying 300 passengers, current guidelines recommend a minimum of two WCs, whereas the new regulations require six WCs. Therefore, there is an additional cost of four WCs.

Manual Toilet x 4	£153.15 x 4	= £612.60
Equipment, plumbing and installation		= £280.00
Total		= £892.60

4.7 Corgi Engineer for installation and survey of LPG systems

Corgi engineer is now required under the new regulations for the installation of any LPG systems and annual surveys.

Corgi engineer cost per hour (approximate)		= £40.00
Installation:	£40 x 3	= £120.00
Annual survey:	£40 x 2	= £80.00

Note: It is estimated that an average of 2 hours will be needed to asses any systems onboard, however this is totally dependant on the type and number of systems fitted requiring an assessment.

4.8 Plan approval and initial survey

Ships of 24m and over operating in category D waters will be required under the new regulations to have the plan approval and initial surveys undertaken by an authorised Classification Society only. The old regulations gave owners the option to choose between a Classification Society or the MCA for this work.

MCA		= £24,280.00
Classification Society		= £31,333.00
Additional cost	£31,333 - £24,280	= £7,053.00

4.9 Total extra costs for average ship operating in category D waters:

Equipment costs	
Bilge Alarm	£178.96
Liferafts/BA	£315.00
Portable fire extinguishers	£102.94
Fixed Fire fighting	£1621.70
Heat and Smoke detectors	£518.00
Toilets	£892.60

Corgi engineer	£120.00
Initial construction and survey costs	
Plan approval and initial survey costs	£7,053.00
Total exc. VAT	**£10,802.20**

4.9 Ongoing Annual Costs

Service of Liferafts	£320.00
Annual survey LPG systems	£80.00
Total exc. VAT	**£400.00**

5.0. Summary of Additional Costs

5.1 Summary Table

Additional Costs Per Vessel	Water Category of Operation			
One-off Costs	**Category A**	**Category B**	**Category C**	**Category D**
Equipment costs				
Bilge Pump	£253.56	£253.56	£253.56	£0.00
Bilge Alarms	£134.22	£134.22	£134.22	£178.96
Life Saving Appliances	£0.00	£2,105.00	£1,210.00	£315.00
Lifejackets/Buoyancy aids	£0.00	£940.80	£0.00	£0.00
DSC VHF Radio	£0.00	£0.00	£99.99	£0.00
Portable Communications	£0.00	£69.95	£0.00	£0.00
Means of Recovery	£602.41	£0.00	£0.00	£0.00
Portable Fire Extinguishers	£102.94	£102.94	£102.94	£102.94
Fixed Fire Suppression System	£65.97	£843.84	£1,621.70	£1,621.70
Heat & Smoke Detectors	£518.00	£518.00	£518.00	£518.00
Structural Fire Protection	£23.38	£50.10	£50.10	£0.00
Toilet Facilities	£446.30	£669.45	£892.60	£892.60
Corgi Engineer	£120.00	£120.00	£120.00	£120.00
Navigation Equipment	£0.00	£241.98	£1,902.96	£0.00
Plan approval and initial survey	-£7,140.00	-£7,140.00	£0.00	£7,053.00
Total one-off costs	**-£4,873.22**	**-£1,090.16**	**£6,906.07**	**£10,802.20**
Operational costs per annum				
LPG and LSA survey costs	**£80.00**	**£400.00**	**£400.00**	**£400.00**

Typically, the additional costs to operators at the build/production stage will range from approximately £6,906 and £10,802 across categories C and D. Across categories A and B the new safety code will entail cost savings at the build production stage of between £1, 090 and £4,783.

Average new-build cost:

The total build costs can vary greatly depending on ship size, area of operation and specification ranging from approximately £50,000 to over £1,000,000. It is thought that an average build cost would be approximately **£400,000.**

The MCA has surveyed a total number of 108 new ships over the last ten years. As an average, it equates to approximately 11 per year.

	Category of Operation			
	A	B	C	D
No. of new builds within the last five years	24	11	55	18

5.2 Initial construction and survey costs

MCA Survey Costs

Typical 20m ship	No. of survey hours	Cost per hour	Total
Plan approval	100	£94	£9,400
Stability approval	50	£94	£4,700
Survey	60	£94	£5,640
Total	**210**	£94	**£19,740**

This example uses a ship requiring a full stability approval. However, there will be some small ships operating in Category A waters that will only require a Heel Test and the stability approval costs will be greatly reduced.

Sea Fish Authority Survey Costs

Typical 20m ship	Cost
Plan approval (Hull Certification)	£2,800.00 + VAT
Stability approval	£4,000.00 + VAT
Survey (Hull & Outfit Certification)	£5,800.00 + VAT
Total	**£12,600 + VAT**

This example uses a ship requiring a full stability approval. However, there will be some small ships operating in Category A waters that will only require a Heel Test and the stability approval costs will be greatly reduced. The costs do not include VAT.

Classification Society Survey Costs

Class	Size of Ship	Cost 2007
American Bureau of Shipping (ABS)	Under 27m	£29,000.00
Germanischer Lloyd (GL)	23m - 25m	£30,000.00
Registro Italiano Navale (RINA)	24m - 30m	£35,000.00

There is no change to the costs associated with the ongoing survey costs throughout the life of the vessel as this can be undertaken by either the Classification Society or by the MCA irrespective of who undertook the plan approval and survey work during the build.

Additional Survey Costs for ships of 24 metres in length and over operating in Category C & D Waters

The mean value of the three Classification Society survey costs and the size of ship, detailed above, are £31,333.33 for a 26 metre ship. In comparison the survey, for a 26 m ship, conducted by the MCA would be approximately £24,280. The table below illustrates the approximate additional cost to build a new ship under survey by a Classification Society.

	Size of Ship	Cost
Classification Society	26 m	£31,333
MCA	26 m	£24,280
Additional Cost		**£7053**

Therefore, based on a 26 metre ship, the approximate additional survey cost for ships of 24 metres in length and over, operating in Category C & D Waters, will be approximately £7053 for a new build.

ANNEX 2

Definitions of Ship Classes and Categories of Water within the UK

UK Domestic Passenger Ships

For the purpose of the existing regulations, passenger ships are arranged in the following Classes as detailed in regulation 2 of SI 1998/2515. This table illustrates where the specific ship Classes are permitted to operate and any operational restrictions which apply to them.

Class III	Ships engaged only on voyages in the course of which they are at no time more than 70 miles by sea from their point of departure and not more than 18 miles from the coast of the United Kingdom, and which are at sea only in favourable weather and during restricted periods;
Class IV	Ships engaged only on voyages in Category A, B, C or D waters;
Class V	Ships engaged only on voyages in Category A, B, or C waters;
Class VI	Ships engaged only on voyages with not more than 250 passengers on board, to sea, or in Category A, B, C or D waters, in all cases in favourable weather and during restricted periods, in the course of which the ships are at no time more than 15 miles, exclusive of any Category A, B, C, or D waters, from their point of departure nor more than 3 miles from land;
Class VI(A)	Ships carrying not more than 50 passengers for a distance of not more than 6 miles on voyages to or from isolated communities on the islands or coast of the United Kingdom and which do not proceed for a distance of more than 3 miles from land; subject to any conditions which the Secretary of State may impose.

The above Classes of ships do not include ships engaged on international voyages.

Relevant areas of operation

The definitions of the passenger ship Classes refer to Category A, B, C and D waters, collectively known as 'Categorised waters'. These are fully defined in MSN 1776, which is given legal force by regulation 2 of SI 1998/2515, which refers to MSN 1504. MSN 1504 is superceded by MSN 1758 and then superceded by MSN 1776.

The extract from MSN 1776 below gives a description of the waters of each category.

a. **"Category A"** means narrow rivers and canals where the depth of water is generally less than1.5 metres;

b. **"Category B"** means wider rivers and canals where the depth of water is generally 1.5 metres or more and where the significant wave height could not be expected to exceed 0.6 metres at any time;

c. **"Category C"** means tidal rivers and estuaries and large, deep lakes and lochs where the significant wave height could not be expected to exceed 1.2 metres at any time;

d. **"Category D"** means tidal rivers and estuaries where the significant wave height could not be expected to exceed 2.0 metres at any time;