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| Title: Introduction of the proposed Workboat CodeIA No: DfT00326RPC Reference No: RPC-3292(2)-DfTLead department or agency: Maritime and Coastguard AgencyOther departments or agencies: Department for Transport |

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| Impact Assessment (IA) |
| Date: 08/12/2017 |
| Stage: Final |
| Source of intervention: Domestic |
| Type of measure: Other |
| Contact for enquiries: Jenny Vines (Jenny.Vines@mcga.gov.uk)  |

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| Summary: Intervention and Options | **RPC Opinion:** Awaiting Scrutiny |

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| Cost of Preferred (or more likely) Option |
| Total Net Present Value | Business Net Present Value | EANDCB£0.1m | One-In, Three-Out | Business Impact Target Status |
| £-1.34m | £-1.34m |  | In scope | Qualifying provision |
| What is the problem under consideration? Why is government intervention necessary?A workboat is a small vessel used for commercial purposes other than sport or pleasure. Typically, they carry cargo and/or up to 12 passengers. The MCA is responsible for regulation of the UK workboat industry. Regulation or codification is required to address issues of asymmetric information between vessel manufactures, owners and operators of workboats about the sea worthiness of vessels and thus the risk posed to industry workers and the public at large. Appropriate regulation reduces the risk of externalities such as serious and fatal accidents that might otherwise occur due to a misalignment of social and private costs. This Impact Assessment refers to proposed changes to the existing workboat code requirements that are intended to:Harmonise UK and international standards;Reduce costs to workboat operators;Improve clarity of required standards; andSave lives and reduce fatalities.Will apply to “new”Workboats are currently built to standards[[1]](#footnote-2) introduced in 1998 or equivalent standards set out in the Marine Guidance Notice (MGN) 280[[2]](#footnote-3), introduced in 2003. MGN 280 harmonised four Codes of Practice for four different small commercial vessels, where many standards and operating procedures were similar. The aim of the rationalisation was to facilitate vessels operating under more than one code to assist with clarity of understanding around standards applying to the industry. Each of these sets of standards include primarily standards of construction, machinery, weathertight integrity, electrical arrangements, systems and equipment, stability, lifesaving, fire safety and appliances, radio, navigation, anchors, accommodation, medical stores, tenders, manning, survey, and clean seas.  However, the workboat industry saw this harmonisation as lessening the safety standards for workboats. This has impacted most on workboats operating overseas whose owners are finding it increasingly difficult to win contracts because other Flag States no longer recognise UK standards as being sufficiently robust. As the role and usage of workboats has changed, their usage has diverged from the other three types of vessels covered under MGN 280. MGN 280 is increasingly unsuited to dealing with the technical issues workboat manufacturers are facing. Government intervention is required to create more suitable design and operation standards specifically for workboats that will facilitate growth and competitiveness of the UK maritime sector. The proposed changes are wide-ranging mostly covering small tweaks and clarifications that have previously caused disputes between Certifying Authorities[[3]](#footnote-4) and the vessels operators, but also covering such issues as: -stability (allowing for hull designs that were previously not able to meet the standards which allows certain operators to work their vessels further from a safe haven, introducing less repeated calculations where vessels are acknowledged to be “sister ships” and additional methods for calculating stability for vessels engaged in towing); -bringing the electrical standards in line with current practices on vessels of this size (which could possibly reduce costs as builders will not have to try to meet two parallel levels of standards); -towing guidance (making improvements in light of accidents, making it clearer the responsibilities of the owner and the link between the equipment and stability); -clarifying in what systems plastic pipes can be accepted and how non steel fuel tanks can be accepted (recognising the current fitment trends); -introducing more flexibility through a new Area Category 5 (to allow night time operations closer to shore rather than just for 20 miles as before); -introducing a risk assessment process (to cover equipment not included in the code or change in usage); -introducing flexibility by formally documenting the concept of a daughter craft (by allowing another vessel to act as a safe haven rather than a safe haven just being considered from the shore); -introducing the use of kill cords to planing boats (following various accidents); -documenting a standard for fitment of air receivers where these are fitted; -providing a framework where liquid fuelled heaters or cookers are fitted;- updating the radio standards (in line with international standards and best practice); - improved anchor and cable standards (taking account of vessel usage and acknowledging machinery redundancy available to multihulls) -clarifying standards when cranes are fitted; - introducing standards for vessels operating at speed;- manning standards (allowing workboats to be manned according to the voyage undertaken as opposed to solely the category of the operation certified to, a requirement for training in navigation equipment fitted on board); - introducing standards applicable specifically for vessels engaged in offshore energy work; - updating the prevention of pollution and carriage of dangerous cargoes requirements (in line with international expectations and the needs of the industry); and- updating the format and content of the lifesaving appliance requirements (taking account of recent fatalities). It is the intended, through publishing the new Code, to provide greater flexibility in the design of workboats to allow for more flexible operations.The workboat vessel population under operation through the UK Flag are a heterogeneous group of vessels that are disparate in design and diverse in size and use and each suited to its different environment whether that be in close UK waters or undertaking work abroad. Many of the vessels are one-off designs suited to their particular operator which is different to many of the other small commercial vessels operating under the Sport and Pleasure Regulations[[4]](#footnote-5). Since the original Workboat and Pilot Boat Code was published in 1998 and the equivalent standard published in the technical annex to MGN 280 was published in 2003 the diversity of the fleet has greatly increased, the physical size and complexity of vessels has increased and the sheer number of vessels has increased, work being carried out by these vessels such as the offshore wind farm work (which this code specifically intended to address) was not conceived and it was not predicted, for instance, the level and quantities of carriage of dangerous goods that would become necessary in today’s market. These are specialist roles that are met, however the Certifying Authorities also certify many very small workboats such as Rigid Inflatable Boats (RIBs) that may perform simple stand-by construction tasks. The vessels are increasingly being manned for more than 24-hour periods and crew may also be required to live on board the vessels in a way that did not happen when the original codes were drafted. Vessels now also commonly needs the option of having daughter craft operating from their decks which undertake work for the vessel under the safety procedures of the vessel in a way that was never needed before. Each variable described above affects such things as the equipment fitted, hull materials used, main engines installed and numbers of crew working on a vessel; and all these new operational demands need to be met within the regulatory framework.The diverse nature of the fleet dictates that the costs to business of providing detailed information on individual vessels and their performance characteristics is excessively high to both the operators and the Certifying Authorities to have historically required this reporting. As the UK workboat fleet has grown and the speed potential of vessels on the fleet has increased the need for regulatory change has developed, yet an accurate database that comprehensively covers the population affected does not exist. Consequently, the MCA are now attempting to collect the survey data more effectively that could be used in future code changes. However, it will take many years for this data to become properly populated - this will not be in a suitable timeframe for this IA associated with this most recent proposed Code.Evidence provided to the MCA through the National Workboat Association (NWA) suggests that the proposed Code is net beneficial for industry when taking into consideration wider costs and benefits. |
| What are the policy objectives and the intended effects?The objective of the policy is to enhance the safety standards, to create an updated code specifically for workboats that provides clear and comprehensive standards for the design and operation of all workboats on the UK flag. The aim of the Code is to provide UK workboat manufacturers with a ‘one-stop shop’ consolidated document to inform the design of workboats without having to refer to other regulatory standards. It is intended that the Code provides an appropriate balance between ensuring robust safety standards (in order to be recognised by other Flag States), whilst being proportionate and allowing adequate flexibility for different types of operations (as many workboats are bespoke in their construction). This will facilitate growth of the workboat sector including increased work potential for owners of UK workboats competing against those in other countries to win contracts in the UK and abroad. |
| What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)There were 3 options under consideration:**Option 0 (Do nothing):** The do-nothing option would be to retain the current Workboat Code published in 1998 for new workboats and its equivalent standard published as MGN 280, both of which are out of date. Although vessels would be able to build to higher standards without a regulated Code, they would not be able to demonstrate through a formal Certificate, to National Authorities or to Contractors that they meet the higher standards required of either, this would likely affect the operator’s ability to trade their vessels. Doing nothing does not address the concerns raised by industry who want to achieve a world class standard to drive the operation, build and design of UK vessels to the forefront of the industry. Doing nothing is not considered an appropriate option as it would fail to recognise safety recommendations from investigations (see 2.1.1 for details) into small commercial vessel accidents by the Marine Accident Investigation Branch (in other words would result intolerable levels of risk). It would also lead to an inconsistency in safety standards across the fleet. This was not considered to be a suitable approach to achieve UK workboat industry’s aim to raise the UK vessels to the forefront of the workboat industry and was therefore rejected as not a viable option as it would result in an intolerable level of risk of injury.**Option 1 – Preferred option - (Co-regulation):** Revise the Workboat Code as developed jointly with industry, to facilitate industry growth and improved safety, by introducing a 2nd Edition of an already published standard, applicable to new workboats, through a Merchant Shipping Notice. It is not planned to apply the proposed Code to the existing workboats at this time, consideration of the existing workboat standards will be made under a separate IA. Mandatory standards ensure a level playing field in the sector and maintain safety by providing an adequate enforcement mechanism against operators using unsafe vessels. **Option 2 (Voluntary regulation):** Voluntary regulation was considered and discarded. Introducing the Code as a voluntary option with efforts to promote safety through training and education is not considered to be a viable option, this is because the MCA considers that the safety conscious workboat operators have already adopted many of the measures and undergone much of the mandatory and recommended training operating their vessels at a standard above the minimum specified in the draft Code. The operators that would take on board voluntary regulation would improve anyway (many having already improved their operations in line with the draft code) but these are not the operators that we need to protect our crews and the environment against. The operators who do the bare minimum with regard to the build and maintenance of their vessels are those that the Secretary of State needs to protect crews and passengers against because it is those vessels that are more prone to accidents through the operators’ avoidance of their duty of care to operate the vessel in a safe manner. In the case of the radar training: if the Workboat Code was applied voluntarily there would be no mandatory requirement in place for formal training in the use of that equipment and the MCA, as the Regulator, and the industry would not be addressing serious concerns to safety.Option 1 is the preferred option for both the MCA and industry. This is the only viable option as this addresses the unintended impacts of the harmonisation of the four Codes of Practice (e.g. MGN 280 in 2004) and will facilitate further growth in this varied maritime sector. The proposed code provides for the safe construction and equipping of workboats to meet the challenges of the current busy commercial operations, in line with up-to-date equipment which is already on the market and now being fitted as standard on new build workboats. The changes also reflect changes in other national and international regulations applicable to workboats, of accidents investigated by the MAIB, all of which need to be taken account of to ensure safe operation of the UK fleet of workboats. The original 1998 Workboat Code is enforced by existing legislation which does not need amending as it was the original intent of the 1998 Regulations (Statutory Instrument 1998 No. 1609 Regulation 3(1)) to allow for amended versions of the Code which it allows for through publishing a Merchant Shipping Notice. This process is further described in Section 4 of this IA.During consultation significant challenges were faced gathering evidence to support monetisation of costs and benefits of the policy options. The NWA has been particularly helpful in assisting the assumptions behind the estimates presented here. A number of specific questions were asked (as cited in annex 7), many of which received a nil response. Given the nature of workboats all being different in design and equipment installed, this IA presents a proportionate approach to the estimation of costs and benefits supported by both available quantitative data and anecdotal/qualitative information obtained through stakeholder engagement.  |

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| Will the policy be reviewed? It will be reviewed. If applicable, set review date: October/2022 |

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| Does implementation go beyond minimum EU requirements? | N/A |
| Are any of these organisations in scope? | MicroYes | SmallYes | MediumYes | LargeYes |
| What is the CO2 equivalent change in greenhouse gas emissions? (Million tonnes CO2 equivalent)  | Traded:N/A | Non-traded:N/A |

I have read the Impact Assessment and I am satisfied that (a) it represents a fair and reasonable view of the expected costs, benefits and impact of the policy, and (b) that the benefits justify the costs.

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| Signed by the responsible : |  |  Date :  | Enter a date |

# Summary: Analysis & Evidence Policy Option 1

Description:  **Revision of the Code of Practice for the Safe Operation of Small Workboats and Pilot Boats**

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| Price Base Year: 2016 | PV Base Year: 2016 | Time Period Years: 10 | Net Benefit (Present Value (PV)) (£m) |
| Low: -5.7 | High: 0.89 | Best Estimate: -1.34 |

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| --- | --- | --- | --- |
| COSTS (£m) | Total Transition (Constant Price) Years | Average Annual (excl. Transition) (Constant Price) | Total Cost (Present Value) |
| Low  | 0.1 | Optional | 0.1 | 0.9 |
| High  | 0.2 | 0.8 | 6.7 |
| Best Estimate | 0.1 | 0.3 | 2.7 |
| Description and scale of key monetised costs by ‘main affected groups’The key monetised costs are training requirements for any crew member who uses radar equipment and electronic chart systems. The National Workboat Association (NWA) estimate approximately 50% of the crews are already trained (in recognition of past short falls, resulting in accidents, in having equipment fitted on board and needing to be trained in using it affectively, also the MCA advised them in about 2014 that training might become necessary), with the remaining crew training to be completed over the next three years. Annual costs are estimated to be £0.3 million per year on an annual average basis. Familiarisation costs are estimated at £477,205 and retrofitting costs are estimated at £120,000. The main sector that this will affect are the wind farm support boats which typically belong to businesses, but equally this will have a proportionally larger impact on individuals whom own small workboats. |
| Other key non-monetised costs by ‘main affected groups’Much of the additional/revised equipment standards, for example double fuel tanks, alternative standards for multihull damage stability, radar, electronic chart systems and anchors will be subsumed within the design and construction costs for a new build (bespoke) workboats and are therefore the costs of monetising these will be disproportionate to the scale of the impacts of the policy change. These requirements may also affect any existing vessels wanting to newly certify as a workboat, however, data is not available to monetise the impacts for these vessels which will already meet requirements to varying degrees on an individual basis. |
| BENEFITS (£m) | Total Transition (Constant Price) Years | Average Annual (excl. Transition) (Constant Price) | Total (Present Value) |
| Low  | 0 | 00 | 0.1 | 1.0 |
| High  | 0 | 0.2 | 1.7 |
| Best Estimate | 0 | 0.2 | 1.4 |
| Description and scale of key monetised benefits by ‘main affected groups’The key monetised benefit is the relaxation of the International Maritime Organizations’ (IMO) International Convention for the Safety of Life at Sea (SOLAS) standard for liferafts and their service requirements for certain workboats. This annual benefit is estimated at £81,000 in year one, rising to £251,829 in year ten. In the case of these workboats non SOLAS liferafts have been allowed which are smaller and lighter (than the SOLAS standard liferafts), provide an equivalent level of safety for operations closer to safe havens and are more suited to these workboats. These non – SOLAS rafts are cheaper to purchase initially and require cheaper servicing often at lesser intervals. |
| ther key non-monetised benefits by ‘main affected groups’Five non-monetised benefits have been identified: relaxation of the requirement for a compass to be swung (e.g. validating that the compass is accurate using a qualified compass adjuster) every two years which impacts all workboats and inevitably will have a cost benefit for the operator; the increase in the size of fuel tanks will increase in earning potential of a vessel;; and the recognition of alternative multihull damage stability standards for multihull workboats will allow vessels to operate a greater distance from safe haven thereby increasing the range of contracts that they can work to. There are also indirect benefits in terms of the value to UK workboat operators from international recognition of the proposed Workboat Code; and safety benefits resulting from the updates to the Code. The impact of the Workboat Code on potential earnings is also discussed in this IA. The key benefits to businesses are as follows: improved safety for UK registered small workboats, crews and the environment; MCA assume that if all the fleet are required to comply with the new requirements, a reduction in the number of accidents can be expected; potential increase in demand of UK registered small workboats both in UK waters and abroad. It is not possible to calculate safety benefits due to a lack of evidence related to the number of accidents specifically on workboats and the extent that these will be reduced or avoided through changes to the workboat code. |
| Key assumptions/sensitivities/risks Discount rate (%) | 3.5% |
| As explained earlier, the workboat vessel population under operation through the UK Flag are a heterogeneous group of vessels, disparate in design and diverse in size and use and each is suited to its different environment. Many of the vessels are one-off designs suited to their particular operator. Since the original Workboat and Pilot Boat Code was published in 1998 and the equivalent standard published in the technical annex to MGN 280 was published in 2003 the diversity of the fleet has greatly increased, the physical size and complexity of vessels has increased and the sheer number of vessels has increased, work being carried out by these vessels such as the offshore wind farm work (which this code specifically intended to address) was not conceived and it was not predicted, for instance, the level and quantities of carriage of dangerous goods that would become necessary in today’s market. These are specialist roles that are met, however the Certifying Authorities also certify many very small workboats such as Rigid Inflatable Boats (RIBs) that may perform simple stand-by construction tasks. The vessels are increasingly being manned for more than 24 hour periods and crew may also be required to live on board the vessels in a way that did not happen when the original codes were drafted. Vessels now also commonly needs the option of having daughter craft operating from their decks which undertake work for the vessel under the safety procedures of the vessel in a way that was never needed before. Each variable described above affects such things as the equipment fitted, hull materials used, main engines installed and numbers of crew working on a vessel; and all these new operational demands need to be met within the regulatory framework in an appropriate, cost effective and proportionate way.The diverse nature of the fleet dictates that the costs to business of providing detailed information on individual vessels and their performance characteristics is excessively high to both the operators and the Certifying Authorities to have historically required this reporting. As the UK workboat fleet has grown and the speed potential of vessels on the fleet has increased the need for regulatory change has developed, yet an accurate database that comprehensively covers the population affected does not exist. The analysis rests on a number of assumptions around how many workboats will be built under the new code, and which category waters they will operate in. The issues with collecting workboat data is fully described in Section 5.3. The estimated costs and benefits are heavily reliant on data and assumptions provided by the National Workboat Association[[5]](#footnote-6) (NWA) whose members are mostly the larger workboat businesses that also typically operate the larger boats in the fleet such as the very technical wind farm support boats (this is better described in section 8). Given the limitation of the available evidence base, it has not been possible to monetise all the proposals within the Code, and therefore the monetised cost-benefit analysis should be considered partial. Therefore, these estimates have been used for purely illustrative purposes and should be considered an indicative representation of the order of magnitude of these costs. We are certain however that the proposed Code is net beneficial for industry when taking into consideration wider costs and benefits. |

BUSINESS ASSESSMENT (Option 1)

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| Direct impact on business (Equivalent Annual) £m:  | Score for Business Impact Target (qualifying provisions only) £m: 0.5 |
| Costs: 0.3 | Benefits: 0.15 | Net: -0.15 |

# Evidence Base

## Background

### The Code of Practice for the Safety of Small Workboats and Pilot Boats

The *Code of Practice for the Safety of Small Workboats and Pilot Boats*, also known as the Brown Code, is one of four Codes of Practice[[6]](#footnote-7) published for small commercial vessels operating in UK waters. The Brown Code was published in 1998 and applies to pilot boats of any size, plus commercial workboats[[7]](#footnote-8) of up to 24 metres length which carry cargo and/or a maximum of 12 passengers. The philosophy of the Brown Code (and this remains true in the latest proposed Edition 2) is based on area of operation and distance from a safe haven and is therefore different to some of the other MCA codes (e.g. Fishing Codes) which are based on the length of the vessel. Prior to the development of the Brown Code small commercial vessels were required to meet standards based on those of larger deep sea vessels - vessels which face greater risks and are more appropriate to their larger size. The Workboat Code and its alternative standard MGN 280 provides an equivalent[[8]](#footnote-9) to the vessel being issued a UK Load Line Exemption Certificate by the MCA having been assessed directly against the Load Line Regulations[[9]](#footnote-10), Life Saving Appliances Regulations[[10]](#footnote-11) and the Fire Protection Regulations[[11]](#footnote-12). Some operators choose this old (pre 1998) and rather disproportionate route to certification.

The Brown Code provided standards on the construction, machinery, safety equipment, stability and the correct operation of a vessel. Its overarching aim was to provide safety for the crew, passengers and any other personnel carried in the course of business and the safety of all other users of UK coastal waters with whom they may contact.

The Brown Code set a national standard and was generally accepted by industry because it could be easily referenced and understood. It created a level playing field within the sector by forming a framework that removed opportunities for less scrupulous operators to undercut costs by operating to a lower standard not investing in maintenance, or safety equipment or cutting costs in vessel construction that compromised safety. It also saved workboat manufacturers from having to re-interpret standards typically applied to larger vessels, when building workboats. Instead, they were able to rely on the Brown Code to provide them with an appropriate safety framework for building such vessels.

Due to its high standard, the Brown Code was recognised internationally and used by other national maritime administrations as a basis for standards of their own vessels. As a result, UK flagged workboats were able to win contracts and operate widely across the UK and the rest of Europe.

Some other Port States for UK workboats operating overseas do sometimes insist on additional requirements however. For instance, some insist on crew needing to be certified to the International Convention for the Standards of Training, Certification and Watchkeeping (STCW)[[12]](#footnote-13), rather than UK national standards for Boatmasters[[13]](#footnote-14).

### Harmonisation in 2004

The Brown Code stood alongside a package of 3 other MCA Codes of Practice which addressed the separate needs of other types of small commercial vessels used for sport or pleasure purposes carrying less than 12 passengers or possibly an amount of cargo: The Blue Code for sailing vessels, the Yellow Code for motor vessels and the Red Code for nominated departure point vessels. The 4 codes together are generally referred to as the Small Commercial Vessel Codes. All the Codes are considered to provide a proportionate alternative approach to the otherwise applicable separate Load Line, Stability, Fire Protection and Life Saving Appliances Regulations, which typically apply to larger vessels.

In 2003 a decision[[14]](#footnote-15) was made to combine the four Codes of Practice into one consolidated document based on the assumption that many of the standards and operating principles were common across the Codes. It facilitated vessels who wished to operate under more than one remit[[15]](#footnote-16). Although there was vehement opposition from the NWA at the time, the consolidation went ahead using the other Small Commercial Vessel Codes, not the Brown Code, as the base document. This is widely acknowledged in the workboat industry to have led to a watering down[[16]](#footnote-17) of the high standards within the Brown Code.

This combined Code of Practice was issued as Marine Guidance Note (MGN) 280 (M), The Small Commercial Vessel and Pilot Boats Code in 2004. This MGN 280 updated the four Codes of Practice, consolidated the requirements and became an equivalent standard which many builders and owner/operators of these vessels have been using instead of the four Codes of Practice. Unfortunately, MGN 280 was never given the force of law because its legal framework could not be established effectively. At the time there was a moratorium on applying new legislation to small businesses in force which was judged to affect that necessary Legislation. This leaves MGN 280 as an equivalent to the original codes, rather than the intended replacement for, it is therefore still possible to build to the outdated 1998 Brown Code.

##  Problem under consideration and rationale for intervention

### Problem

There have been unforeseen impacts to workboats following the harmonisation of the Brown Code with the other three codes of practice for vessels engaged in sport and pleasure in MGN 280, many of which are yachts. It is considered by the workboat sector that the high safety standards set by the Brown Code have been significantly lowered to facilitate the consolidation. MGN 280 also contains too many references to yachts which has been difficult to apply the text to workboats and is cited by industry as something which has impacted negatively upon the attitude towards the suitability and quality of that standard, for workboats, by foreign flag states. Thus, it has become increasingly difficult to operate workboats abroad that are certificated under MGN 280, which has restricted trade. Outlined below are a number of issues that underline the rationale for intervention.

#### Safety

Lower safety standards have led to owners/operators of workboats, who had previously worked abroad without any issue, encountering problems winning contracts because other Flag States do not recognise MGN 280 as being an equivalent to the original Brown Code. Furthermore, foreign flag states would refuse UK registered workboats to operate in their waters or require additional safety equipment before allowing them to operate.

The Marine Accident Investigation Branch (MAIB) has also recently made a number of recommendations and observations[[17]](#footnote-18) that need to be addressed. There continues to be an increase in the risk of safety related incidents if safety standards are not raised from MGN 280.

The key threads that come out of the various accident reports are that: the towing equipment needs to be more in line with what would be expected on an international ship (e.g. with a better emergency release system with drilled procedures surrounding its use) and that the testing and signage of the towing equipment should be improved; the training of the relevant crews on board should encompass training in line with the complexity of and fitment of equipment carried (such as a radar and electronic chart systems) and if the vessel is required to have a stability booklet that the relevant crew are trained appropriately to use it; that if a vessel is fitted with a crane that the survey requirements should be clear; that vessels that are fitted with liquid fuelled heaters or cookers should be properly protected from the risks of those appliances; in certain accommodation spaces at risk from machinery exhausts that the crew / passengers should be aware if there is a risk by fitting carbon monoxide alarms; and that each crew and passenger should be allocated an inboard seat where there is a risk of a planning vessel travelling at speed injuring that person either by collision or through spinal injury. Each of these MAIB reports have been addressed in the improvements made to the proposed Workboat Code.

In addition, a number of other area where safety standards on these vessels can be improved have been identified through the MCA’s engagement with industry. This engagement was made during the frequent Working Group meetings convened during the drafting of the proposed Workboat Code and also during the consultation[[18]](#footnote-19) process.

#### Technology

The workboat sector has grown significantly and technology has moved on since both the Brown Code and MGN 280 were first published in 1998 and 2004 respectively. The size and capabilities of workboats has increased to promote operations worldwide and latterly the introduction of high speed windfarm boats. Modern workboats need to be designed and equipped differently to facilitate the new operating parameters and therefore all the standards need updating to maintain appropriate safety and standards and facilitate regulatory activity that protects industry workers and the public at large.

#### ‘One-stop shop’ facility

If MGN 280 remains the equivalent standard to the Brown Code and the original Brown Code is not updated (for new vessels), owners will lose the ‘one-stop shop’ facility. As all vessels need to be built to a standard, the only alternative to an outdated Brown Code / MGN 280 would be to build new workboats to the higher full class[[19]](#footnote-20) standards of construction, leading to higher build costs and consequently a reduction in the long-term earnings of the vessels. With a one-stop shop facility, builders can contact a competent Certifying Authority[[20]](#footnote-21) (CA) surveyor or the MCA for queries, whereas building to the standards of the classification societies using the full class standards can involve numerous departments and sets of complex rules.

#### Loss of competitiveness and tax revenue

There is a risk of existing UK workboats moving to competitor Flag States whose standards are becoming more widely accepted by other administrations which would result in a loss of revenue to HM Treasury through the companies being based abroad and employment of foreign crews. However, there has been strong indications from other foreign operators who would like to register their workboats in the UK under the proposed Workboat Code because their workboats will then be recognised by the main workboat contractors.

#### Growth of infrastructure

There has been a rapid development of the offshore windfarm industry both in the UK and abroad, and other major port constructions such as at Liverpool, Port of London Authority, Crossrail and the new Thames Sewerage Tunnel, for which all spoils will be transported down the Thames by barge. Others include port infrastructure projects such as the wind turbine construction sited on the Humber and at Hartlepool. Whilst the Thames and Humber fall outside of the Codes geographical area (e.g. not seagoing) most of the workboats supporting these operations often voluntarily comply with the Codes which may be above the standard set by the Local Authority (who gain their authority for the vessels in these areas under the Public Health Act) to allow them more flexibility in operations. Those companies will likely benefit by being able to get a suitable boat working on their contract more swiftly.

### Rationale for Intervention

#### Safety Rationale

Safety is the overarching rationale for revising the standards in the proposed Workboat Code, with respect to the safety of crew, passengers and personnel on board the workboat and of all persons in UK waters. The proposed Code of Practice provides for the safe construction and equipping of workboats to meet the challenges of the current busy commercial operations, in line with up-to-date equipment which is already on the market and now being fitted as standard on new build workboats. The changes also reflect changes in other national and international regulations applicable to workboats which need to be taken account of to ensure safe operation.

The NWA has lobbied the MCA since 2010 to update and reissue a revised Workboat Code, applicable to new vessels, as a standalone document again. This is proposed to be called, in short, Workboat Code Edition 2, as allowed for in the statutory legislation. This would re-establish its position as the world-leading, effective standard of construction and operation of small commercial workboats operating both in the UK and further afield.

#### Market Opportunities

It is widely perceived that there is strong global demand for workboats, as economic activity in the seas increases (e.g. building of offshore windfarms, decommissioning of oil fields etc.). The proposed Workboat Code will enable the UK workboat industry to compete with workboats of other flags[[21]](#footnote-22).

The MCA, NWA and members of the Working Group have developed and revised the proposed Workboat Code. All references to yachts have been removed and it is generally felt that the new Code now represents the type and size of vessels classed as workboats. Although an updated version of MGN 280 was used as a start point, where it was agreed by the industry led Working Group that standards had been lowered compared to the Brown Code these standards were re-established within the proposed Workboat Code.

**2.2.3 Economic Rationale**

The economic rationale is centred around issues of asymmetric information between vessel manufactures, owners and operators of workboats about the sea worthiness of vessels and thus the risk posed to industry workers and the public at large. Government intervention through appropriate regulation and codification reduces the risk of externalities such as serious and fatal accidents that might otherwise occur due to a misalignment of social and private costs.

## Policy objective

The objectives of this policy are to improve safety for the fast evolving UK workboat industry and to provide a clear standard that will allow them to remain competitive both in the UK and internationally. This policy objective is equally applicable to the flourishing UK workboat build[[22]](#footnote-23) market as to the owners and operators of these boats, some of which may have been built abroad.

## Description of options considered

### Do nothing

The ‘do nothing’ option is to continue to rely on the Brown Code and MGN 280 as the standards for the design and manufacture of workboats. This is not considered a viable option based on the rationale discussed in section 2. Failure to address the problems will continue to restrict UK workboat industry competitiveness, and could lead to the building of workboats that compromise safety of crew, passengers, bystanders and the environment.

### Option 1: To produce a revised Workboat Code under the existing legislation (preferred option)

Option 1 is to produce a revised version of the Workboat Code, applicable to new vessels, reinstating some of the higher standards of the Brown Code, and provide greater flexibility in the design of workboats to allow for more flexible operations. An opportunity has also been taken to update equipment carried on board and update practice, in line with other UK and international requirements[[23]](#footnote-24).

This is the preferred option and would allow operators to compete more effectively for contracts in the UK and internationally. From an enforcement perspective it is hoped that by “catching-up” with other equivalent standards that it will be possible to ensure that safety is maintained by surveyors and from a port state control perspective it is hoped that the new standards[[24]](#footnote-25) will address concerns of other Administrations when the UK vessels operate abroad. It will also recognise industry best practice and enhanced safety standards due to higher equipment standards and level of crew training which ultimately lead to safer ships and cleaner seas. In addition, the proposed Workboat Code will once again be the consistent national standard in a consolidated ‘one-stop shop’ which may potentially shorten the build time of new vessels by not having to look in numerous regulations.

The preparation of the proposed Workboat Code has been led by industry (Annex 1 provides a list of organisations who participated in the Industry Working Group)[[25]](#footnote-26) in association with the MCA through the NWA and has consequently been supported by the main interested industry bodies and also individual industry interests alike.

The proposed Workboat Code (known as the Industry Working Group Technical Standard) was published in draft at Seawork[[26]](#footnote-27) in June 2014 due to demand from Industry, who are now eagerly waiting for the Code to be formalised.

### Option 2: Voluntary compliance with the Workboat Code

We previously considered whether it was feasible to remove statutory enforcement of the standards, or at least exempting small and micro businesses from mandatory compliance of the Workboat Code. Both have been discarded during discussions with the UK workboat industry on the grounds of safety to workboat crew, passengers and users of coastal waters as discussed in section 2.2.

In addition, a statutory code has enhanced status with industry – UK and foreign – as a result of UK government backing, and ensures a level playing field for business. Foreign contractors prefer to employ vessels built to modern statutory standards and therefore the outdated Brown Code, and MGN 280, now hold little credence with them.

## Costs and benefits

### Introduction

The costs and benefits of the proposed Workboat Code estimated in this impact assessment, are all compared to the base case ‘do nothing’ scenario (Option 0). In line with the Better Regulation Framework and the Treasury’s Green Book, a 10 year appraisal period has been used.

The discussion of the additional costs and benefits under Option 1, the proposed Workboat Code Edition 2, is structured as follows:

* Monetised costs to business
* Monetised benefits to business
* Non-monetised costs and benefits to business
* Summary of net impacts

The costs and benefits have been monetised to the extent that is both proportionate and possible with the evidence available. Some of the identified costs and benefits remain un-monetised mainly due to the limitations of the available evidence base and the extensive costs that would arise for the MCA in trying to identify the scale of impacts for each individual workboat (which are largely bespoke in design and / or equipment fitted). For all non-monetised costs and benefits, a qualitative description of the potential impact has been provided.

The estimates of the additional costs and benefits of the proposed Workboat Code, Option 1, that are presented in the IA are sensitive to the data sources used in this analysis and the assumptions that have been given in this IA. In addition, the costs of having a ship built depend to a large extent on market forces prevalent at any given time in addition to the requirements of the individual order. Consequently, there are a number of uncertainties that have been considered in the estimates presented in this IA.

A number of questions were posed in this consultation IA, including those raised previously by the RPC[[27]](#footnote-28), in order to obtain more information on the costs and benefits identified via consultation. The questions and responses to them are set out in the text of this IA and Annex 7 to this IA. The consultation questions did not directly generate any feedback from consultees. There are some areas however that NWA and MCA have been able to make improvements to those areas of the IA subsequently and where this is the case this is highlighted in Annex 7. Much of this information sought during the consultation process is thought by MCA and NWA to be considered by industry to be of commercial interest to them and they did not want to share this data.

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

The proposed Workboat Code has been co-developed with industry. The whole sector has been engaged throughout the development of the revision to the construction and safety standards, and operational arrangements.

Whilst a lot of the impacts remain un-monetised at the final stage of this impact assessment, it is a reflection of the difficulty in obtaining reasonable estimates of the cost implications of the changes. This is in part due to the commercially sensitive nature of data on build costs and well as the heterogeneous designs of workboats. In particular, it has been difficult to estimate a reasonable cost counterfactual, given many of the changes are to the design of workboats and are therefore subsumed into the overall cost of the vessel. Where this impact assessment does include costings of the proposed changes to the workboat code, they have been provided by industry operators, surveyors and ship builders. Where the scale of the impact has been deemed to be neutral or negligible, this has been confirmed to us by the industry through consultation.

All the evidence in this IA has been obtained via close engagement with representatives of the workboat industry, led by the NWA (whom represent 75 operators in the UK which is a good proportion of the UK operators) as agreed by the Working Group[[28]](#footnote-29). The Working Group included key representative bodies of the workboat industry such as the NWA, the British Marine Federation, the Professional Boatman’s Association, Certifying Authorities including those that are Classification Societies, representing their views as surveyors and those of the owners of the workboats they survey, see Annex 1 for a full list. Together, these organisations represent a broad cross-section of the workboat industry – from designers and manufacturers, operators (both large and small), and surveyors.

### Application and potential number of vessels affected

The proposed Workboat Code will be applicable to all newly built or newly certified (e.g. existing vessels not certified under the existing Brown Code or MGN 280) UK workboats of less than 24 metres. In addition, it will apply to all non-UK workboats of less than 24 metres operating in UK waters. The Code will not be applied retrospectively to existing workboats at this time. As described in the first section of this IA the proposed changes are wide-ranging mostly covering small tweaks and clarifications that have previously caused disputes between Certifying Authorities[[29]](#footnote-30) and the vessels operators, but these changes are also covering such issues as: stability; bringing the electrical standards in line with current practices on vessels of this size; towing guidance; clarifying in what systems plastic pipes can be accepted and how non steel fuel tanks can be accepted; updating the format and content of the lifesaving appliance requirements; introducing more flexibility through a new Area Category 5; introducing a risk assessment process; introducing flexibility by formally documenting the concept of a daughter craft; introducing the use of kill cords to planing boats; air receivers; liquid fuelled heaters and cookers; radio standards; anchor and cable; cranes; vessels operating at speed; manning and training standards; offshore energy workboats; prevention of pollution and carriage of dangerous cargoes requirements. Most of these items listed are addressed directly in the IA below. Some items, however, are not thought to be significant to the overall build cost of a workboat and are listed further in Annex 5 – these are not considered further in the IA below. It is intended, through publishing the new Code, to provide greater flexibility in the design of workboats to allow for more flexible operations.

All UK commercial vessels are registered on the UK Ship Register at the Registry of Shipping and Seamen (RSS) which records the vessel type upon initial registration depending on the certificate of survey. The only time a vessel type may change on the Register is if an amended or new certificate of survey is presented, for example, there is a change of ownership, change to the vessel details or registration renewal. This type of change is not recorded as a unique transaction and an investigation to establish the number of vessels which had been previously registered for use other than a workboat would require a manual search, of over 10,000[[30]](#footnote-31) entries. Some workboats will be recorded on the wrong part of the Register, whereas there will be some that are recorded as workboats, tugs or barges that are not certified under the Workboat Code or MGN 280, they may well be registered under the primary regulations that apply and issued with UK Load Line Exemption Certificates instead.

The UK Certifying Authorities[[31]](#footnote-32) (CAs) conduct the surveys and issue safety certificates for these vessels, this information is collated by the MCA monthly in the Single Vessel Database (SVD). The data used in this IA was provided by the SVD in February 2015 and for changes to the Code as a result of the consultation in May 2016. However, the SVD only records information such as the date of build of a vessel, whether a vessel is built under MGN 280 or the original Brown Code and area of operation. It does not differentiate whether a vessel built under MGN 280 is operating as a workboat or as a small commercial vessel (under one of the other three Codes), nor provides a date when an existing vessel (which may, or may not, have been operated previously in another capacity, such as a fishing vessel) becomes certified as a workboat. The SVD does not currently record what the main hull build material is, what equipment is fitted or what speed the vessel is able to operate at. Most of this information would be kept on a document called the WB2 or SCV2 which is essentially a full Record of Equipment but in order to get this information would entail each Certifying Authority inputting the information from each vessel file manually.

To undertake an extensive search of the 6600 vessels recorded on the SVD that may come within scope of the proposed changes could be disproportionately costly relative to the scale of the impacts and would fall upon the RSS and the CAs. Many of the 6600 vessels recorded are non-workboats and fall under the Small Commercial Vessels for Sport or Pleasure Regulations. Unfortunately, the CA records are held in paper format only on individual files. Based on their knowledge of the industry and undertaking surveys on workboats, the NWA has estimated that an additional 25 per cent on top of the data on current stock will take into account any new workboats built under MGN 280. Based upon 25% of the workboat (Brown Code) population on the SVD, the NWA estimates that 164 workboats were built under the MGN 280 standards. Together with the 650 built under the Brown Code, the total number of workboats built was 814.

Table 1 provides a breakdown of the number of UK workboats on the SVD database certified in the UK over the last 10 years, from 2005 to 2014 inclusive, and shows the 25 per cent increase on the database numbers to allow for workboats built under MGN 280. The data is further broken down to show the number of workboats operating in Sea Categories 0 to 6 (please see Annex 2 for a description of Categories) as some of the revised standards only affect certain operations.

Table 1: Breakdown of UK workboats built by area of operation (2005-2014)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Year of Build | Cat 0 | Cat 1 | Cat 2 | Cat 3 | Cat 3 R | Cat 4 | Cat 4 R | Cat 5 | Cat 6 | Total |
| 2005 |   | 7 | 9 | 7 |   | 3 |   |   | 3 | 29 |
| 2006 | 1 | 3 | 18 | 12 |   | 2 |   | 1 | 1 | 38 |
| 2007 |   | 3 | 28 | 23 | 4 | 7 |   |   | 4 | 69 |
| 2008 |   | 5 | 34 | 16 | 1 | 1 |   |   | 2 | 59 |
| 2009 | 1 | 6 | 43 | 12 | 1 | 3 | 2 | 1 | 5 | 74 |
| 2010 |   | 3 | 38 | 36 | 1 | 5 |   |   | 6 | 89 |
| 2011 |   | 17 | 40 | 15 | 1 | 6 |   |   | 9 | 88 |
| 2012 | 1 | 11 | 37 | 16 |   | 4 |   | 3 |   | 72 |
| 2013 |   | 19 | 30 | 10 | 3 | 7 |   | 1 |   | 70 |
| 2014 |   | 14 | 26 | 10 | 1 | 10 |   | 1 |   | 62 |
| Brown Code Total | 3 | 88 | 303 | 157 | 12 | 48 | 2 | 7 | 30 | 650 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Additional 25% under MGN 280 | 4 | 110 | 379 | 196 | 15 | 60 | 3 | 9 | 38 | 814 |

\* R means restricted operations in a certain category

Source: MCA’s Single Vessel Database.

#### The Workboat Population

For the purposes of demonstrating the potential scale of the population of new build workboats likely to be manufactured under the formalised standards in the workboat code we have presented findings of our consultation with industry below despite the lack of additional costs that will be arise. As would be expected, formalised existing standards will be subsumed within the existing build costs as applicable across the entire range of bespoke and heterogeneous workboat population.

The figures in Table 1 have been used to estimate the number of new build workboats over the 10-year appraisal period and put in Table 2. We assume that the growth in workboats over the next 10 years is line with the previous growth rate for the prior 10 years. In the central estimate, we assume that the rate of new builds[[32]](#footnote-33) will continue at the current rate. The NWA also estimates that the number of workboats will further increase by 25 per cent over the next 10 years, a similar rate of increase as the previous 10 year period (2005-2014) (Table 2), which has been used to inform the central estimate (204). Due to uncertainty around the number of new workboats (demand dependent), we have applied a range of plus or minus 33.3% to the central estimate. This provides a range between 155 and 272 new workboats over the next 10 years.

Table 2: Estimated number of UK workboats to be built per area of operation over 10 years following the introduction of the code.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Cat 0 | Cat 1 | Cat 2 | Cat 3 | Cat 3 R | Cat 4 | Cat 4 R | Cat 5 | Cat 6 | Total |
| LOW ESTIMATE (Central plus 33.3% reduction) | 3 | 83 | 284 | 147 | 11 | 45 | 2 | 7 | 29 | 611 |
| CENTRAL ESTIMATE (Brown Code + MGN280) | 4 | 110 | 379 | 196 | 15 | 60 | 3 | 9 | 38 | 814 |
| HIGH ESTIMATE (Central plus 33.3% increase) | 5 | 147 | 505 | 261 | 20 | 80 | 4 | 12 | 51 | 1085 |

Source: MCA’s Single Vessel Database and NWA estimates

#### Newly certified workboats

We believe there are a small number of existing work boats under the brown code or MGN 280 who may wish to voluntarily adopt the new workboat code. The NWA estimates that a small number, approximately 6-10, of these existing vessels will voluntarily certify under the new workboat code each year. As this is a voluntary decision this is deemed to be an indirect cost.

It should be noted that the actual numbers of workboats built or newly certified each year is demand led and will be highly dependent on the development of the industry, performance of the wider economy, access to finance, etc. Many workboats operate in the offshore oil sector in the North Sea, and therefore the demand for workboats is very closely linked to the growth in North Sea activity. Other vessels operate in the offshore wind farm sector and a change to the government subsidies may well affect the demands and viability of the fleet. Whilst we have used what we believe are to be reasonable assumptions on the growth in the fleet, there is significant uncertainty surrounding the assumptions. We therefore use a range of assumptions and sensitivity analysis to provide for the costs and benefits in this impact assessment.

#### Zero additional build costs

The Workboat Code formalises the building standards that the industry is already adhering to in the construction of new vessels and presents the UK industry’s approach to ensuring UK manufactured and operated workboats uphold high standards of safety. Through formalising the code the MCA is, in collaboration with the industry and it’s representative, such as the NWA, helping to secure work for the UK by being transparent about manufacturing standards harmonising these across the UK industry in a way that would ensure sub standard workboats would not be manufactured. It is therefore assumed that there is no additional cost to industry attributed to the formalisation of current industry manufacturing practice.

For new build workboats some of the revised standards will be incorporated into the total overall cost of building the ship, in contrast to the costs of having to modify or replace existing arrangements or equipment. The practical effect for many of the changes is negligible for two reasons:

* 1. The changes are updated references to standards (e.g. International Organization for Standardization (ISO)) and the cost of equipment under the new standards are similar to the old standards; and
	2. The changes formalises existing industry practice.

The NWA has stressed that the existing Brown Code and MGN 280 have not played a great part in the new building of workboats. Structurally the Brown Code has been taken only as the minimum standard, with many owners insisting on higher standards, and it is more the safety equipment (lifesaving appliances[[33]](#footnote-34), liferafts, fire-fighting equipment etc.) which are specified as per Code requirements. This means that most of these amendments are actually simply bringing the Code up-to-date with what owners are already specifying in new builds.

**5.4.2 Benefit – Impact on Potential earnings for the Workboat Industry**

Earnings are dependent on commercial demands that stem from wider economic conditions and are therefore difficult to monetise. The NWA indicates that in principle owners are likely to achieve £1,000 per £1 million value[[34]](#footnote-35) of their workboat per 12 hour day, i.e. for a £4 million workboat built to the old MGN 280 standard (based on the example standard Damen workboat example provided above) an owner would currently expect to earn an average of £4,000 per day. This principle is the same on whether a workboat is operating near to base or further away from the home port.

Assuming an average workboat value of £4 million as stated above it is estimated on average a workboat is in operation around 245 to 280 days (40 weeks) per year depending on operations, therefore the earning potential can range from £980,000 to £1,120,000 per year for a £4 million workboat. It is considered that anything less than 180 days (26 weeks) would make a workboat commercially unviable.

The NWA considers that the proposed Workboat Code should make UK workboat operators more competitive in some markets[[35]](#footnote-36). It is hoped that the earning potential for a workboat built to the revised standards will achieve slightly higher than the £1,000 per £1 million value of a workboat and again is not possible to quantify at this stage – this will be market led. The NWA anticipate an increase in the order of five per cent is a reasonable assessment. A five per cent[[36]](#footnote-37) increase of earnings for a £4 million workboat would equate to additional £36,000 to £56,000[[37]](#footnote-38) per year (£360,000 to £560,000 (undiscounted) over the 10 year appraisal period). Assuming a population of 814 boats this could be £22 – 60.8 million distributed across a 10 year period (£2.2 – 6.1million pa) additional earnings across the workboat industry. This evidence provides an indication of the potential impact on earnings of the proposed Workboat Code. Due to uncertainty of the scale of benefits and strength of the evidence base to make a prudent estimate of the net present value of the new code we have omitted these benefits from overall NPV calculation.

### Monetised costs of Option 1, the proposed Workboat Code

#### Radar training (Category 0-2 workboats) – on-going cost

In addition to the requirement to carry radar reflectors in the old Code and proposed Code, the proposed Workboat Code introduces the requirement for all Category 0 to 2 workboats to install a radar system in the bridge[[38]](#footnote-39) of the vessel. Costs for this are discussed in section 5.6.1. To support this and to meet recommendations from the MAIB, the Code strongly recommends for any member of the crew likely to operate the radar to undertake appropriate training within a 3 year period (of the proposed Code being published) at which point the strong recommendation becomes mandatory: the Maritime Skills Qualification (MSQ) unit ‘Use of Radar for Safe Navigation and Collision Avoidance on Domestic and Code Vessels’, the Small Ships Navigation and Radar Course or other course subsequently approved by the MCA.

In three years, from publication of the proposed Workboat Code Edition 2, this recommendation for training will become a mandatory requirement therefore a three year period has been given to allow industry sufficient time to get their crew members trained.

The NWA estimate that four crew per workboat (assuming 2 crew per 12-hour shift on a vessel that is operated for periods of 24 hours) would be required to operate radar and approximately 50 per cent of workboat crew are already trained accordingly, which we use as our central assumption. This assumption of 4 crew per boat is likely to be very high as a workboat such as a RIB which may operate more than 20 miles from a safe haven e.g. that would be required to be fitted with a radar, would not necessarily operate 24 hours per day or require as many as 2 crew. It is not known what proportion of those vessels will operate for periods of 24 hours or what proportion need 2 crew to safely operate the bridge – it is thought by MCA and NWA that more vessels will only be doing 12 hour operations per 24 hour period than not and therefore that the majority of vessels will only need to train 2 crews at most. For this reason MCA feel that the below cost estimates will be very high. In the high and low scenario, we assume 25% and 75% of crew respectively will be already trained. Assuming there will be 493 category 0-2 workboats (as assumed in Table 2), a further 986 crew will require radar training (329 per annum if spread across three years).

In the central scenario we assume a 20% turnover rate for seafarers[[39]](#footnote-40), such that 197 new seafarers would require training per year (again, assuming 50% of business would have chosen to train their staff regardless). In the low and high scenario, the assumed turnover rate is assumed to be 10% and 30% respectively.

Specific workboat training has been developed with the NWA and the Maritime Skills Alliance (MSA). The MSQ unit noted above is one such course and the most likely course to be undertaken by workboat crew for this specific training. The NWA has advised that the cost for this course is approximately £600 and if this course and the Electronic Chart System training (see 5.5.2) are completed together this is reduced to £970, see Annex 6 for details. For the purposes of estimating training costs we have assumed that figures provided by MARITAS plus VAT will apply this provides a central estimate of £591 per training session assuming 50% of people undertaking training will do both courses and receive a discount. The upper bound estimate assumes £600 per individual and the lower bound £582 per individual (assuming all undertake both courses).

Where this new training course is not considered to be proportionate, for instance in small workboats under the Light Duty Workboat Certification[[40]](#footnote-41) whose crews are small, but that carry radar in addition to the requirements of the code, the extent of that training course is being investigated by the Professional Boatman’s Association (PBA). PBA intend to establish another new Radar course more suited to these smaller less complex vessels, this would aim to provide a cheaper option for those Light Duty Workboat vessel crew. These crews will still be expected to complete the training in the same timescale.

**The central cost estimate is expected to be £1.4million[[41]](#footnote-42) over the 10 year period. Transition costs are estimated to be £184,000 pa for the first 3 years with ongoing costs thereafter totalling £116,000 pa based upon crew turnover. High and low end estimates total £3.66 million and £366,000 respectively. It assumed that the total population of crew is relative to the total population of workboats, therefore, training required in the first three years will apply to the full proportion of crew that are assumed not to be already trained in the use of radar as prescribed in the new workboat code. Following the first 3 years of transition all training required will be on the basis of turnover of crew in subsequent years assumed to between 10% and 30%.**

**Table 3 Breakdown of the costs associated with crew undertaking the radar training in the proposed Work Boat Code Edition 2.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **Year 1** | **Year 2** | **Year 3** | **Year 4+** | **TOTAL** |
| **Low** | ***Transition*** | £71,800 | £71,800 | £71,800 |  | **£215,300** |
| ***On-going*** |   |   |   | £21,500 | **£150,700** |
|  |  |  |  |  |  | **£366,100** |
|  |  |  |  |  |  |  |
| **Central** | ***Transition*** | £194,200 | £194,200 | £194,200 |  | **£582,700** |
| ***On-going*** |   |   |   | £116,400[[42]](#footnote-43) | **£815,000** |
|  |  |  |  |  |  | **£1,397,800** |
|  |  |  |  |  |  |  |
| **High** | ***Transition*** | £394,200 | £394,200 | £394,200 |  | **£1,182,600** |
| ***On-going*** |   |   |   | £354,600 | **£2,482,200** |
|  |  |  |  |  |  | **£3,364,800** |

Source: MCA’s Single Vessel Database and NWA estimates using training costs provided by MARITAS Ltd

#### Electronic Chart System (ECS) training (Category 0-2 workboats operating at high speeds) – on-going cost

It has been recommended as best practice by the NWA for all Category 0 to 2 workboats operating at high speed[[43]](#footnote-44), especially those operating around windfarms, to carry an ECS (costs for the system are discussed in section 5.6.2). To support this and to meet recommendations from the Marine Accident Investigation Branch (MAIB), see footnote 12 but specifically the Island Panther and Windcat 9 accidents, the Code strongly recommends for any member of the crew likely to operate it to undertake appropriate training: the MSQ unit ‘Operate non-ECDIS marine Electronic Chart Systems’ developed by the NWA and approved by the MCA.

In three years from publication of the proposed Workboat Code Edition 2, this strong recommendation for training will become a mandatory requirement in that Code, therefore a three year lead-has been given to allow industry sufficient time to get their crew members trained.

The NWA estimate that four crew (based on 2 crew per 12 hour shift on a vessel that operates for 24 hour periods) per workboat would be required to operate ECS and approximately 50 per cent of crew are already trained accordingly, which again is used as our central estimate (with 25% and 75% as the high and low estimates respectively). This range reflects uncertainty. This assumption of 4 crew per boat is likely to be very high as a high speed workboats such as a RIB which may operate more than 20 miles from a safe haven, e.g. that would be required to carry electronic chart system, would not necessarily operate 24 hours per day or require 2 trained crew. It is not known what proportion of those vessels will operate for periods of 24 hours or what proportion need 2 crew to safely operate the bridge – it is thought though that more vessels will only be doing 12 hour operations per 24 hour period than not and therefore that the majority of vessels will only need to train 2 crews at most. For this reason MCA feel that the below cost estimates will be very high. Assuming 384[[44]](#footnote-45) workboats will be high speed, it is estimated that 768[[45]](#footnote-46) crew will require training over the three year transition period (384 High Speed Cat 0-2 workboats, four crew per workboat and 50% already trained).

Using the same assumptions around staff turnover rates (see 5.5.1 above), we estimate 154 seafarers a year would require ECS training from year 4 onwards, in the central scenario.

Specific workboat training has been developed with the NWA and the Maritime Skills Alliance (MSA). The MSQ unit noted above is one such course and the most likely course to be undertaken by workboat crew for this specific training. The NWA has advised that the cost for this course is approximately £600, and if this course and the radar training (see 5.5.1) are completed together this is reduced to £970 See Annex 6 for evidence.

Where this new training course is not considered to be proportionate, for instance in small workboats under the Light Duty Workboat Certification whose crews are small, but carry ECS in addition to the requirements of the Code, that extent of that training course is being investigated by the PBA. The PBA intend to establish another new course more suited (proportionate to their needs) to these smaller less complex vessels, this would aim to provide a cheaper option for those Light Duty Workboat vessel crews. These crews will still be expected to complete the training in the same timescale.

Using the central figure of 384 workboats affected, for the high costing a 25% uplift is applied which equates to 480 vessels, and for the low costing a 25% reduction is applied which equates to 288 vessels.

**The total overall cost is expected to be £1,100,000[[46]](#footnote-47) this includes transitional costs extended over three years of £454,000 in total (£151,000 each year) and £91,000 ongoing costs per year thereafter.**

**Table 4 Breakdown of the costs associated with crew undertaking the electronic chart systems training in the proposed Work Boat Code Edition 2.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **Year 1** | **Year 2** | **Year 3** | **Year 4+** | **TOTAL** |
| **Low** | ***Transition*** | £55,900 | £55,900 | £55,900 |  | **£167,600** |
| ***On-going*** |  |  |  | £16,900 | **£118,100** |
|  |  |  |  |  |  | **£285,800** |
|  |  |  |  |  |  |  |
| **Central** | ***Transition*** | £151,000 | £151,000 | £151,000 |  | **£453,900** |
| ***On-going*** |  |  |  | £91,000 | **£637,100** |
|  |  |  |  |  |  | **£1,100,000** |
|  |  |  |  |  |  |  |
| **High** | ***Transition*** | £288,000 | £288,000 | £288,000 |  | **£864,000** |
| ***On-going*** |  |  |  | £259,000 | **£1,800,000** |
|  |  |  |  |  |  | **£2,680,000** |
| Source: MCA’s Single Vessel Database and NWA estimates using MARITAS Ltd training costs |

#### Familiarisation costs

It is possible that some businesses may incur familiarisation costs following the introduction of the proposed Workboat Code Edition 2. However, a draft of the workboat code (see Section 4.2 for details) has been in operation as a voluntary guidance document for new vessels since June 2014 and some areas of the workboat industry have already begun voluntarily building to the revised standards whilst the Code and its impacts are finalised. Nevertheless, we assume that workboat industry will be required to re-familiarise themselves with the finalised Code once it is introduced.

The median wage for a skilled metal, electrical and electronic worker was £13.42 in 2016[[47]](#footnote-48) (from the 2016 Annual Survey of Hours and Earnings). Assuming a 20.1% uplift for overhead costs, the hourly wage is £16.12. For 8 hours training this therefore equals £128.94 for each worker.

As shown in Table 1 there are projected to be 814 new workboats built over the next 10 years. Assuming 81 workboats are built in the first year (one tenth of the total), and that ,based upon typical crew sizes, 5 engineers are required to familiarise themselves with the code per new workboat (taking 8 hours each)[[48]](#footnote-49), the cost to industry would be £52,220 (£128.94 per worker \* 5 engineers \* 81 workboats). It is not expected that engineers would need to re-familiarise themselves with the changes to the Code each year. For the high and low estimates, we assume 16 and 4 hours respectively are needed to familiarise with the code (2 days or half a day).

There may also be a cost to new owners of workboats as their crew familiarises with the revised operational requirements of the new workboat. We assume the incremental time cost of familiarising with the operational requirements is 8 hours per new workboat. Using the same hourly employment cost of £16.12, this is equal to £419,827 (£128.94 per worker \* 4 crew \* 814 workboats).

Finally, we also expect that owners wanting to certify their existing vessels under the new Code will also be required to familiarise themselves with the code. This may affect 8 vessels per year (in Section 5.5.2 a range of 6-10 vessels are quoted, 8 being the central case) and therefore familiarisation costs are £5,158 over the 10 year appraisal period, again assuming 8 hours of familiarisation (£128.94 per worker \* 4 crew \* 8 vessels per year \* 10 years).

It has not been taken in to account here that a significant proportion of the UK designers, builders, operators, Certifying Authorities were represented or present in the Working Group in the drafting of the proposed revised Code or that a draft of the proposed Code has been widely available and used since 2014, hence there will be much familiarisation that has happened already, the MCA therefore consider that these familiarisation costs are likely to be high.

**Overall therefore, the central cost to industry of familiarising with the Code will be £477,205. However, this is likely to be an overestimate given the industry’s keenness to begin building workboats under the new Code. All figures quoted here are undiscounted. The breakdown of these costs are shown in Table 5. Due to uncertainty of the number of vessels over the next 10 years we have applied an assumption of + or – 25% to estimate upper or lower bounds of costs.**

**Table 5 Breakdown of the costs associated with crew, operators, skilled workers and builders familiarising themselves with the proposed Work Boat Code Edition 2.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Familiarisation costs over 10 years** | **Low** | **Central** | **High** |
| *Shipbuilders (new builds)* | £20,953 | £52,220 | £131,518 |
| *Operators* | £167,621 | £419,827 | £1,051,114 |
| *Owners of existing builds* | £3,868 | £5,158 | £6,447 |
|  | **£192,442** | **£477,205** | **£1,189,079** |

### Source: 2016 Annual Survey of Hours and Earnings and fleet statistics from MCA small vessel database and NWA estimate of all vessels under brown code and MGN 280.

### Partially monetised costs of Option 1, the proposed Workboat Code

#### Requirement for Category 0-2 workboats to carry a Radar - Low cost, Direct

In addition to the requirement to carry radar reflectors, the proposed Workboat Code introduces the requirement for all Category 0 to 2 workboats to install a radar system. The average cost of a radar system is £5,000 when retrofitting an existing ship.

Based on the central projected figures shown in Table 2 for category 0 – 2 workboats this change may affect approximately 494[[49]](#footnote-50) workboats over the next 10 years; approximately 49 workboats each year. The NWA has indicated that all operators already specify the installation of radar in their workboats at the design stage and therefore this change formalises existing practice. This is a case of the Code catching up with current practice so the MCA believe that the costs quoted below are too high. Given the operational benefits from having radar installed, it is unlikely there would be many operators who would have opted not to have it in the absence of a requirement in the Code.

Therefore the only additional cost may be incurred for any existing vessels choosing to recertify under the Workboat Code Edition 2, where the vessel does not already have radar installed. The NWA estimates that there could be around 10 vessels (in Section 5.5.2 a range of 6-10 vessels are quoted, 10 being the worst case) choosing to recertify, and therefore the maximum cost to industry would be £50,000. The breakdown of this is shown in Table 6.

**Table 6 Breakdown of the costs associated with retrofitting a radar system to Cat 0, 1 and 2 workboats under the requirements in the proposed Work Boat Code Edition 2.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Radar retrofitting costs** | **Low** | **Central** | **High** |
| *Number of vessels affected* | 6 | 8 | 10 |
| *Cost of retrofit* | £5,000 | £5,000 | £5,000 |
|  | **£30,000** | **£40,000** | **£50,000** |

Source: These figures are nominal figures provided by Mecal (an MCA CA) but based on the cost of supplying a new radar system to the correct standard and estimated cost of fitting and integrating it in to the other navigation systems.

#### Electronic Chart System, ECS (Category 0-2 workboats operating at high speeds only) - Low cost

It has been recommended as best practice by the NWA for all Category 0 to 2 workboats operating at high speed, especially those operating around windfarms, to carry an ECS. The average cost of an ECS is £10,000 when retrofitting an existing vessel. The NWA has indicated that all operators of these high speed workboats already specify the installation of ECS in their workboats at the design stage and therefore the change formalises existing practice. As with radar equipment, given the operational benefits from having ECS, it is unlikely there would be many operators who would have opted not to have it in the absence of a requirement in the Code.

The only additional cost may be incurred for any existing vessels choosing to recertify under the Workboat Code Edition 2, where the vessel does not already have ECS installed. The NWA estimates that there could be around 10 vessels (in Section 5.5.2 a range of 6-10 vessels are quoted, 10 being the worst case) choosing to recertify, and therefore the maximum cost to industry would be £100,000. The breakdown of this is shown in Table 7.

**Table 7 Breakdown of the costs associated with retrofitting an ECS system to Cat 0, 1 and 2 workboats operating at high speed under the requirements in the proposed Work Boat Code Edition 2.**

|  |  |  |  |
| --- | --- | --- | --- |
| **ECS retrofitting costs** | **Low** | **Central** | **High** |
| *Number of vessels affected* | 6 | 8 | 10 |
| *Cost of retrofit* | £10,000 | £10,000 | £10,000 |
|  | **£60,000** | **£80,000** | **£100,000** |

Source: A cost of £10000 has been quoted by NWA to supply and fit an ECS system.

### Non-monetised costs of Option 1, the proposed Workboat Code

#### New cranes – Medium cost, Direct

The Code now includes more detailed requirements and guidance on cranes and their attachments to ensure they are safe, specifying design requirements, testing, and information provision. These requirements and guidance have been included as the result of discussions with the MAIB following an accident investigation on a vessel called Carol Anne (see footnote 12) and also at the direct request of the NWA members who wanted clarification of requirements placed on the vessels by various British Standards and other sources such as the MCA’s Code of Safe Working Practices for Merchant Seafarers and the LOLER[[50]](#footnote-51) and PUWER[[51]](#footnote-52) Regulations – this satisfied their aim of generating a document that is a one stop shop. The contents of the new requirement and guidance have been agreed with both NWA and the Certifying Authorities to ensure that they are realistic and proportionate. Most of the changes within the crane section of the proposed Code are only providing guidance on testing standards that are required by other legislation (known as LOLER and PUWER) that will have been accounted for under separate IA’s.

When vessels covered by this Code change a crane, these requirements will also need to be met, this was an existing Code requirement, but this has been accentuated for the purposes of changing cranes as this accounted for much of the contributory factors in the accident. Many vessels have deck cranes fitted and a crane can include anything from simple hand powered equipment for moving stores around and diver lifts to large hydraulic HIAB type cranes on anything from a small workboat used for harbour and piloting duties, anchor handling vessels and wind farm vessels to vessels used in the fish farm industry. It is not known how many vessels change cranes and how often as there has been no previous need to undertake this work. As a result of there being no data on the number of vessels that operate with cranes, how many change cranes or how often, and there are thought to be too many variables to price up a crane, it is not possible to monetise this aspect. However, for those vessels that are affected, it is expected that many would have complied with the requirements regardless of its inclusion in the Code.

#### Adequate reserves of buoyancy for open boats in Categories 4 to 6 – Medium cost, Direct

In discussions with NWA as part of the consultation process it was identified that there are currently inconsistent rules regarding buoyancy. Vessels that are decked but without a watertight weather deck, were restricted to Area Categories 4 to 6 and required to have adequate reserves of buoyancy, but open boats were not subject to the same requirement. The proposed Workboat Code will require and apply consistent rules for each type of vessel to have adequate reserves of buoyancy to survive swamping when fully loaded.

MCA and CAs do not keep records of whether vessels are open or decked vessels and therefore it is not known how many vessels would be affected, although based on the figures shown in Table 2 this change may affect approximately 138 decked and open workboats.

For existing vessels wanting to newly certify as a workboat there will be an additional cost to change the vessel to the new requirements if the existing vessel construction does not conform to the requirements. The NWA estimate that this may affect around 10 existing vessels (see section 5.5.2, 10 is taken to be the worst case) each year.

#### Large size anchors (category 0-2 workboats) – Low cost, Direct

The proposed Workboat Code introduces the requirement for larger anchors which are more compatible with the size, displacement and the type and nature of the work and environment in which it is likely to place. The NWA has indicated the cost of a larger anchor and a larger windlass can range from £250 to £3,000 dependent on the size of the workboat. There is also a new allowance introduced for Category 0 to 4 vessels with separate engine spaces (e.g. a catamaran) that do not normally anchor as part of their operations to only carry 1 large anchor to class standards, as opposed to 2 anchors. Much of the workboat industry are fitting these larger anchors already.

Based on the figures shown in Table 2 this change may affect approximately 474 workboats over the next 10 years; approximately 47 workboats each year.

### Monetised benefits of Option 1, the proposed Workboat Code

#### Use of ISO liferafts for vessels operating in areas Category 1-6

The original Brown Code required all workboats to carry SOLAS[[52]](#footnote-53) liferafts, the international standard, which are required to be serviced annually. The proposed Workboat Code will now only require workboats operating in Category 0 to carry SOLAS liferafts as this operational area is unrestricted. Workboats operating in Category 1 to 6 areas under the proposed Workboat Code will now be allowed to carry ISO[[53]](#footnote-54) liferafts, which only require servicing every three years.

Workboats built under MGN 280 already carry ISO liferafts, therefore only workboats built under the Brown Code will benefit from the change. Based on the figures provided by the NWA and the SVD in section 5.3, this change will impact 814 workboats in the next 10 years; approximately 81 each year.

The initial cost of a 6 person SOLAS liferaft is £1600, plus an annual service cost of £350. Figures provided by SURVITEC, a lifesaving appliance supplier and servicing specialist.

The cost of an ISO liferaft is £600, plus a service cost of £350 every 3 years. Figures provided by SURVITEC, a lifesaving appliance supplier and servicing specialist.

The ISO raft is significantly smaller and therefore take up less deck space, consequently it is conceivable that the workboat may be able to have additional cargo carrying potential, hence increased earning potential, because of this change.

**As ISO liferafts are £1000 cheaper and require servicing every three years, the overall benefits are estimated to be £1,660,500 over the 10 year period. See Annex 3 for explanation of calculations.**

### Non-monetised neutral impacts of Option 1, the proposed Workboat Code

#### Double the size of petrol fuel tanks (Cat 4-6 and restricted Cat 3 workboats, less than 8 m and total power less than 75kW) - Neutral impact, Direct cost / Indirect benefit

The proposed Workboat Code will increase the allowable size of petrol fuel tanks for workboats operating in certain areas. Currently this is within the bounds that inboard petrol engines are not allowed on small commercial vessels for safety reasons but that outboards are allowed – this is not a change in policy. The use of outboards usually suggests non integral fuel tanks. The increase in the potential amount of petrol fuel carried will allow these vessels to operate at a greater range and increase the potential earnings of a workboat. The increase is being introduced to recognise that this is already happening by default with operators using portable petrol fuel tanks and to address the inherently greater operational risk for carrying these portable tanks – the use of large quantities of spare petrol carried in portable containers would be outlawed on safety grounds. The net effect of this change is expected to be neutral. The population affected, and potential scale of benefits are impossible to quantify as no records are kept of the numbers of fuel tanks fitted. In addition the use of portable fuel tanks is something that has not been regulated effectively to date by the Certifying Authorities. By nature these tanks being portable means manufacturers would have no record of this practice which is user driven. To survey all workboat owners to identify the scale of population would be disproportionately costly and likely to be unfruitful as operators using poor fuel storage practices would not want to identify themselves to the regulator. It is believed that the majority of vessels that would be affected are petrol driven RIBs and certain other general workboats such as those built by Cheetah Marine[[54]](#footnote-55) whom favour petrol driven motors.

#### Updating references for standards (all workboats) – Neutral impact, Direct

The proposed Workboat Code better defines and updates the standards for equipment such as lifesaving appliances, firefighting equipment, radio and navigational equipment and batteries. The cost differential between the old and new standards are for the most part negligible, with certain equipment no longer being manufactured to old standards.

Any additional costs to existing vessels wanting to newly certify as a workboat, estimated to be 10 per year, will only be incurred when the existing equipment needs to be replaced. It is common practice for surveyors to accept existing equipment if it remains fit for purpose and will only be upgraded when the equipment has reached the end of its lifespan since only the latest manufactured items are likely to be available. The NWA considers there would be no increased costs to replace equipment on any well specified vessels and for any other vessels the costs would be negligible as the equipment would be ready to be replaced.

Specifying the standards improves clarity for the owner and also in some cases lowers the standards that would have been applicable under separate legislation[[55]](#footnote-56).

#### Fitting of Rigid Aluminium and Plastic Fuel Tanks – Neutral impact, Direct

The Brown Code and MGN 280 required rigid tanks to be of a suitable standard to minimise the risk of fire, it remained silent on the use of plastic and aluminium tanks. In discussion with the NWA, it was considered that rigid aluminium and plastic fuel tanks presented a risk. The use of these tanks has increased since the last edition of the code, therefore the Code was amended to include standards for the fitting of these tanks to ensure there is not additional fire risk as a result. The Code also previously stated that other materials (compared to an assumed metal tank of steel or stainless steel) can be used provided that they can demonstrate equivalent resistance to fuel and corrosion and fire resistance. On that basis, the requirements set out in the proposed revised Code are to provide further clarification on the standards required to provide equivalent protection to steel. The fitting and use of aluminium or plastic fuel tanks is entirely up to the owner/operator of the vessel and the MCA do not require or suggest that they should be fitted. The guidance included is purely to ensure that fuel tanks, when fitted are fitted correctly and safely.

It is not known how many vessels are likely to be fitted with such tanks and therefore it is not possible to estimate how many vessels would be affected, although the majority of vessels would construct their tanks from steel or other suitable material.

#### Air Receivers – Neutral impact, Direct

In discussions with NWA and certain Certifying Authorities during the consultation on the Code, it was considered that the Code omitted to address Air Receivers, where they are fitted to ships machinery (such as the engine air start system) so any release of air through pressure relief valves is vented to the open air. Air receivers are tanks used for compressed air storage that can be used at peak times of demand for compressed air and are recommended to be in all compressed air systems as they enable the use a smaller horsepower compressor to complete a larger task. It is generally accepted that using air receivers of unsound or questionable construction can be very dangerous. Given the risk to safety by MGN 280 and the Brown Code not addressing standards for the fitment of these tanks, and after discussions with the NWA, MCA consider that the vessel owners would choose to fit Air Receivers appropriately regardless of the inclusion of the requirement in the code. The fitting and use of Air Receivers is entirely up to the owner/operator of the vessel and the MCA do not require or suggest that they should be fitted. The guidance included is purely to help ensure that Air Receivers, when fitted are fitted correctly, in a consistent way and safely, with appropriate oversight from the Certifying Authorities.

### Non-monetised benefits impacts of Option 1, the proposed Workboat Code

#### Multihull[[56]](#footnote-57) workboats with more than one independent engine space will be able to fit an independent power driven engine pump – Small benefit, Indirect

In discussions with NWA during the consultation on the Code, it was considered that the Code should require that new Multihull workboats with more than one independent engine space will be able to have an independent power driven engine pump. It is not thought that there would be a retrofitting consideration for any existing vessels wanting to come under the new proposed Code, this is an option and therefore providing flexibility. The upfront cost of this would be subsumed within the design and build costs of the boat and so it is difficult to monetise this cost (as discussed in section 5.3). Calculating the cost of this to the industry is further complicated as it is not known how many Multi Cats operate (the Multi Cat design is a typical but common multihull workboat design and used here as an indicative example), or are likely to operate, as workboats. Furthermore, it is not known how many vessels would already comply with this requirement. Additionally, because of the variety of vessel sizes and types, not all are likely to fit this pump arrangement. Consequently, it is not possible to monetise the likely cost to the Industry of this requirement. It is thought by MCA that attempting to place a monetary value on the benefits, given that future orders are uncertain and the majority of vessel designs are bespoke, is not proportionate.

However, the NWA have stressed that this addition would be cost-saving. By using pumps already required for each engine, but now in separate engine spaces, there is no more need for a separate portable fire pump, which could save several thousand pounds for each vessel. The precise value of this cost-saving would be difficult to quantify as it is uncertain the number of vessels affected. The net benefit is also not possible to monetise as the costs cannot be monetised (as has been explained).

#### Compass adjustments (all workboats) – Small benefit, Direct

The existing Brown Code required a magnetic compass to be swung (adjusted) every two years by a person that is a certified compass adjustor. The proposed Workboat Code relaxes this requirement when a record of compass errors is kept and therefore only needs to be adjusted when damage has occurred or when excessive deviations are recorded.

Due to improvements in technology etc. there has been a decline in the number of certified compass adjusters available to do this work. This means workboats owners may need to travel further afield to have a compass swung. The NWA estimates that the relaxation of requiring a compass to be swung may save owners approximately £800, on time and travel, per compass every two years. The reason for adjusting the compass or measuring compass errors is to ensure the accuracy of the compass – the ship itself generates a magnetic field that causes variance from the earth’s magnetic field.

It is difficult to monetise the overall saving because the number of workboats keeping records of compass errors will be unknown. In addition, the proposed Workboat Code introduces the option for a workboat to carry a Transmitting Magnetic Heading Device (TMHD) as a recognised acceptable alternative to a magnetic compass, this provides additional flexibility for the operator. A THMD may incorporate the capability to measure magnetic deviation. Again the number of owners who will choose this option is unknown and the NWA and Working Group believe that owners who wish to fit this as an alternative will include this in the design of the workboat.

#### 5.10.3 Maritime Labour Convention (MLC) crew accommodation requirements (Category 0-1 workboats operating internationally) – Medium benefit, Indirect

The International Labour Organization’s Maritime Labour Convention, 2006, has introduced new crew accommodation requirements for ships operating on international voyages. The MLC came in to force internationally in 2013 and at this time the MCA introduced Regulations[[57]](#footnote-58) (including but not specific to these types of vessels) and guidance[[58]](#footnote-59) on what this meant to vessels such as small workboats. Since this time the CA’s have been documenting compliance with that standard and guidance for any vessels abroad or more than 60 miles from the UK. This same guidance has been incorporated in the proposed Code and covers such items as space allowances for sleeping accommodation, recreational facilities, procedural items surrounding minimum age, hours of work and rest, payment, repatriation, manning levels, qualifications of seafarers etc. The IA for these new requirements, DfT00030, considered the costs and benefits for this but did not specifically cover its application to workboats. This is because the international crew accommodation requirements are best suited for larger ships and it is not always practical to build workboats with crew accommodation to these standards. Given the proposed Workboat Code allows for vessels to potentially operate abroad or further from the shore (e.g. greater than 60 miles, or Category 0 to 2 operations, which is when the MLC come into effect), some voyages made by workboats may be in scope of MLC. The proposed Workboat Code offers substantially equivalent standards which are pragmatic to the size of vessel and area of operation. This will minimise any port state difficulties when operating overseas, such as being detained.

These standards will only apply to new build workboats and the NWA anticipate that around 60 per cent of new workboats each year will be affected. Based on the figures in section 5.2 this equates to approximately 92 workboats in the next 10 years: approximately 7 each year. Whilst the MLC crew accommodation standards will impact on the design and construction of a workboat, the NWA has estimated that the incremental cost of building compliant workboats is negligible. The benefits are that the proposed standards will allow workboats to operate further from the shore than they would otherwise have been able to.

The NWA considers it unlikely that any existing vessels choosing to recertify under the proposed Workboat Code would opt to make any substantial changes to the vessel unless there was a significant benefit to be achieved through an increase in earnings. This may affect around 10 vessels per year, see Section 5.3.2.

#### Alternative standard for multihull damage stability (Category 1 and 2 workboats) – Medium benefit, Indirect

An alternative standard for damage stability has been introduced into the proposed Workboat Code to recognise the much increased level of damage stability in the design of multihull vessels since the publication of the Brown Code in 1998. In practice, there is little difference in the build but it effectively means that the same vessel built under the Brown Code would be certified for a lower category than is the case under the new alternative standard.

This vastly increases the earning capacity of a workboat that for example would now be certified as Category 1, operating up to 150 miles at sea, instead of Category 2, up to 60 miles at sea. Most new build multihulls will already be built to this alternative standard however it is the choice of the owner to use this alternative design which would allow them to increase their income by being able to operate at a greater range. The NWA has indicated from their experience that most of the existing multihull workboats are windfarm boats (approximately 200 existing UK owned multihull windfarm boats with a further 10 multihull workboats operating as survey vessels, which equates to approximately half of the 379 category 2 vessels indicated in Table 2) and these are mainly built under MGN 280. As discussed in section 5.3 the SVD does not differentiate vessels built under MGN 280 which are operating as workboats and therefore it is not possible to estimate how many workboats this change may affect over the next 10 years.

The NWA has indicated that it believes the earnings would increase by £150 – 200 per day per vessel – with a potential increase in revenue of £1 million (£200 X 280 days per year (see section 5.4.2) X assumed 20 year life of the vessel) over the life of the vessel. This is the central estimate and equivalent to £500,000 over the typical 10yr appraisal period.

#### Safety – Medium benefit, Direct

It is not possible to quantify the safety benefits of the proposed Workboat Code, due to the lack of available data. However, there will be non-monetised safety benefits resulting from the updates to the Code. For instance, the proposed Workboat Code increases the size of fuel tanks in order to outlaw the use of portable fuel tanks which are an obvious fire hazard.

#### Allowance for crews to be qualified as per the particular voyage as opposed to only the vessels area category – Large benefit, Indirect

There is a new allowance within the code that recognises that a vessel does not always operate to the extent of its area category of operation. This would allow the operator to man the vessel according to the voyage it is undertaking that day as opposed to the vessels category of operation. This may allow the operator to use differently qualified crews and therefore there could be a good ongoing reduction in costs of manning.

#### International recognition of the proposed Workboat Code – Large benefit, Indirect

The number of contracts which have been lost due to the standards in MGN 280 being considered lower is unknown. If a workboat operating under the old standards did not comply with the up-to-date Tenderer or Flag state’s requirements it would simply not get on the tender list.

Separating these specific standards for workboats from the other Codes of Practice will provide clarification of the standards for other Flag States and it is expected that the proposed Workboat Code will once again become the world leading standard. The proposed Workboat Code will facilitate growth overseas and the benefit of this can only be monetised on the additional number of contract won by UK operators. It is difficult to qualify this impact until the proposed Workboat Code has been in operation for some time.

Likewise, the value of any contract would be commercially sensitive and dependent on many external factors such as general economic conditions prevalent at the time, therefore, it will also not possible to monetise the benefit.

Consultees were asked to provide any estimates of the number of contracts lost and profit or revenue lost due to workboats operating under the old Brown Code and MGN 280. No responses were received and therefore this remains an unknown.

### Summary of net impacts of Option 1, the proposed Workboat Code

The Net Present Value of the impacts of Option 1 over the 10-year appraisal period are estimated to be -£0.04 million. For Business the Net Present Value is estimated to be around -£0.04 million over the 10 year appraisal period. The Estimated Annual Net Direct Cost to Business (EANDCB) (based on 2014 prices, 2015 present value) is £0.1

Table 8 shows the tabulated benefits and costs of Option 1 for the central estimate. Table 8a shows the tabulated benefits and costs of Option 1 for the low estimate. Table 8b shows the tabulated benefits and costs of Option 1 for the high estimate.

Table 8: Benefits and Costs of Option 1 - Central Estimate (£000, 2016 prices) (Undiscounted)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 | Y8 | Y9 | Y10 |
| Familiarisation costs (see section 5.5.3 of this IA total 477[[59]](#footnote-60)) | 95 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 42 |
| Radar training costs (see section 5.5.1, total 797) | 194 | 194 | 194 | 116 | 116 | 116 | 116 | 116 | 116 | 116 |
| ECS training costs (see section 5.5.2, total 784) | 151 | 151 | 151 | 91 | 91 | 91 | 91 | 91 | 91 | 91 |
| ECS & radar retrofit cost (see section 5.6.1 and 5.6.2, total 120[[60]](#footnote-61)) | 120 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Liferaft savings (see section 5.8.1, total -1661[[61]](#footnote-62)) | -81 | -100 | -119 | -138 | -157 | -176 | -195 | -214 | -233 | -252 |
| Net impact (total 517) | 479 | 288 | 269 | 112 | 93 | 74 | 55 | 36 | 17 | -2 |

Table 8a: Benefits and Costs of Option 1 - Low Estimate (£000, 2016 prices) (Undiscounted)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 | Y8 | Y9 | Y10 |
| Familiarisation costs (see section 5.5.3 of this IA total 192) | 36 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 |
| Radar training costs (see section 5.5.1, total 299) | 72 | 72 | 72 | 22 | 22 | 22 | 22 | 22 | 22 | 22 |
| ECS training costs (see section 5.5.2, total 415) | 56 | 56 | 56 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| ECS & radar retrofit cost (see section 5.6.1 and 5.6.2, total 90) | 90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Liferaft savings (see section 5.8.1, total -1,335[[62]](#footnote-63)) | -61 | -75 | -90 | -104 | -118 | -132 | -147 | -161 | -175 | -190 |
| Net impact (total -339) | 192 | 71 | 57 | -47 | -61 | -76 | -90 | -104 | -118 | -133 |

Table 8b: Benefits and Costs of Option 1 - High Estimate (£000, 2016 prices) (Undiscounted)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 | Y8 | Y9 | Y10 |
| Familiarisation costs (see section 5.5.3 of this IA total 1189) | 253 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 | 113 |
| Radar training costs (see section 5.5.1, total 1694) | 394 | 394 | 394 | 355 | 355 | 355 | 355 | 355 | 355 | 355 |
| ECS training costs (see section 5.5.2, total 2,074) | 288 | 288 | 288 | 259 | 259 | 259 | 259 | 259 | 259 | 259 |
| ECS & radar retrofit cost (see section 5.6.1 and 5.6.2, total 150) | 150 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Liferaft savings (see section 5.8.1, total -2,075[[63]](#footnote-64)) | -102 | -126 | -150 | -174 | -198 | -222 | -245 | -269 | -293 | -317 |
| Net impact (total 3,032) | 983 | 669 | 645 | 553 | 529 | 505 | 481 | 457 | 433 | 409 |

## Risks and assumptions

### Risks of doing nothing

The harmonised MGN 280 standards is widely viewed in the workboat sector as a lesser standard than the original Brown Code, which is also out of date. By doing nothing Government would be ignoring the needs of industry which in turn would put the industry at risk of losing further contracts both in the UK, the EU and worldwide.

### Risks and assumptions in relation to the monetary analysis

The estimates of the costs and benefits that are presented in this IA are heavily reliant on the information provided by the NWA - both on the costs of the changes to the Workboat Code and the extent to which existing industry practice is reflected in the Code. It has also not been possible to reliably estimate low and high estimates, and therefore only central estimates have been provided.

As stated in section 6, a number of the impacts remain non-monetised, despite attempts to gather better data during consultation. We do not believe that the residual uncertainty surrounding the impacts presented in the IA could be significantly reduced without incurring disproportionate costs. Given the widespread industry support of the Code and anecdotal evidence suggesting many in industry are already building vessels compliant with the new Code, it is not unreasonable to believe that the remaining non-monetised costs are outweighed by the commercial benefits of the Code.

## Direct costs and benefits to business calculations

The Best estimate of the Net Cost to business (Present Value) over the 10 year appraisal period is around -£-0.04 million.

## Wider impacts

### Equality Impact Assessment

The MCA considers that there is no affect, positive or negative, on outcomes for persons in relation to their age, disability, gender assignment, pregnancy and maternity, race, religion or belief, sex and sexual orientation. However, the MCA considers that the very nature of the workboat industry and the practical arrangements of workboats means that the needs of a disabled person may not be readily met and may present physical barriers which would prevent them from working on board.

### Small and Micro Business Assessment

The majority of companies in the UK Workboat industry are micro, small and medium sized businesses. Key representative bodies of the workboat industry the NWA, the British Marine Federation (BMF)) and the Professional Boatman’s Association (PBA)) were active in the Working Group to ensure that the revised standards remain proportionate to industry needs.

There is no reliable data available to give an exact estimate of the number of businesses in the workboat industry. The Single Vessel Database (SVD) information collated by the MCA lists a company name for 467 of the 650 workboats (e.g. that are certificated against the 1998 Workboat Code) that are currently certified and that there are 236 companies in total owning these 467 workboats. However, there are 183 without owner details and, as discussed in section 5.3, the NWA estimates a further 25% of MGN 280 vessels are also operating as workboats.

The SVD data does not show the ownership details of every workboat currently certificated; where the information is available 89% own one to three workboats and, of those, 80% own one workboat. It does not necessarily equate that a single workboat owner will operate a small workboat or work within the smaller areas of operation, nor that only small workboats operate in closer to shore and larger workboats operate further afield. The data shows that whilst it is common for larger workboats to operate in Category 0 – 2 areas they are as likely to work in Category 3 to 6 depending on where the work they are contracted to do requires. Likewise, it can’t be assumed that small and micro businesses, with only one workboat, will not compete for contracts abroad.

The NWA estimate that the three representative bodies (NWA, BMF and PBA) represent around 85% SMEs; the NWA membership alone has a breakdown of 29% - micro business, 37% - small business and 31% - medium enterprises. It is understood that the breakdown of businesses represented by BMF and the PBA is similar to this. It is thought that a relatively small proportion of the fleet are unrepresented by member organisations. Whilst several members of the Working Group are themselves small owner operators or small boat builders, views of the independent micro businesses were also sought through the Certifying Authorities (CAs), the surveyors of workboats. The majority of CAs were present at meetings and presented views from those owners whose boats they surveyed, as well as providing their views as the CAs.

Therefore, although the views of every individual workboat owner may not have been captured, it is considered that the proposed revised standards remain proportionate and the proposed Workboat Code Edition 2 has the overall support of industry.

Voluntary application of the Workboat Code to micro and small businesses was considered but this was not taken further because of the high percentage of businesses in the industry that are micro and small businesses, and on the grounds of safety of both the crew and passengers, and the safety of other craft and installations workboats interact with. For example, the requirement for crew to be trained to use radar and electronic chart systems which ensures workboats can navigate safely through the waters they operate in. It is currently common practice for one crewman to teach another the equipment on the bridge, with no formal training being provided. The MAIB investigation into the Windcat 9 collision in 20135 is only one example where this has been highlighted and a factor in the incident. If the Workboat Code was applied voluntarily there would be no mandatory requirement in place for formal training and the MCA, as the Regulator, and the industry would not be addressing serious concerns to safety.

Given these circumstances, and the reason standards are being revised on the grounds of safety and to reflect up-to-date technology, as discussed in section 2.2, it is difficult to assess the full impact on small and micro business in particular. However, the NWA believes the financial implications to be negligible.

### Competition Assessment

One of the main drivers for revising the standards of construction and operation of Workboats is to allow the UK workboat industry to compete with those from other countries in this fast growing maritime sector, both in the UK and abroad.

Whilst limited evidence is available, workboat owners have found it increasingly difficult to win contracts in foreign markets where the administration no longer readily accepts the UK’s existing standards, as discussed in section 2.1. There has been an indication that the proposed Workboat Code will be recognised by other Flag States and this, alongside the recent introduction of a specific STCW[[64]](#footnote-65) certificate for those working on these vessels, will facilitate UK operators winning such contracts.

## Summary and preferred option with description of implementation plan

Appropriate Regulation of small workboats and pilot boats is considered to reduce the risk of serious and fatal accidents that might otherwise occur. Since publishing the current code for workboats (Brown Code) and its later equivalence (MGN 280) the role and usage of these vessels and their equipment has changed significantly along with the diversity of the fleet. In addition, other associated legislation has been amended and international standards have been updated. There were unforeseen impacts to workboats following the harmonisation of the Brown Code with the other three codes of practice for vessels engaged in sport and pleasure in MGN 280. The workboat sector consider that the high safety standards set by the Brown Code have been compromised to facilitate this consolidation. The consolidation of previous codes into MGN 280 has created difficulties in applying the text to workboats and has hampered the attitude towards the quality of that Code of foreign flag states. Thus, it has become increasingly difficult to operate workboats abroad that are certificated under MGN 280. This has meant that the current codes of practice which cover all safety aspects of the build and operation of these types of boats is no longer robust enough and that operators of these vessels are finding it increasingly difficult to win contracts which has restricted trade. Consequently it is considered by the MCA that Government intervention is required to more appropriately address the design / build and operational risks associated with the current UK fleet of workboats, addressing market failures identified in the impact assessments.

Under the preferred option (Option 1) the Workboat Code will be revised and developed jointly with industry, to facilitate industry growth and improved safety, by introducing a 2nd Edition of an already published standard, applicable to new workboats, through a Merchant Shipping Notice. It is not planned to apply the proposed Code to the existing workboats at this time, consideration of the existing workboat standards will be made under a separate IA. Mandatory standards ensure a level playing field in the sector and maintain safety by providing an adequate enforcement mechanism against operators using unsafe vessels.

The proposed Workboat Code would bring the standards back in line with the progression of the industry and it will again become the world leading standard. Option 1 is very much supported and demanded by the main trade industry association, the NWA, who have already voluntarily adopted many of the standards set out in the code,

The MCA will continue to administer and enforce the proposed Workboat Code and the revision is unlikely to cause any great variation in MCA workload. Industry, CAs and MCA surveyors will have to become familiarised with the new standards although all have been involved in the development of the proposed revised Workboat Code (Edition 2) so this should be minimal.

Regular meetings have been established through the NWA to discuss issues surrounding their specific sector. These meetings will provide a continual review of the revised standards and therefore will be well placed to raise any unforeseen problems which may arise from this revision.

The evidence base for the workboat industry is limited, however through consultation industry presented insight and costs that covered key areas of familiarisation, training and confirmation that the majority of costs will be subsumed in the initial vessel build costs.

Net present value of the benefits will be £ -1.34 million.

## Post-Implementation Review Plan

**Review status:** Informal commitment **Review date:** August 2022 **PIR Approach:** Low evidence

**Rationale for PIR approach:** As these proposals have widespread support of industry and have been developed jointly with industry, we believe a low evidence PIR is most appropriate.

**Key objectives / research questions:** The key question of interest in the review, is whether the intended benefits of the proposed Workboat Code have been realised. Given the difficulties in identifying the specific impact of the Code on the cost of building and operating workboats, we do not propose using the review to revisit the estimates of these costs. Any ex-post estimate of the costs would be highly uncertain and would not give any meaningful indication on whether the standards in Code are disproportionately burdensome. Instead, we would like to continue engagement with industry between now and the review to understand how the Code is working in practise.

## Annex 1: Industry Working Group

The following organisations participated in the Industry Working Group that drafted this Code, under the co-ordination of the UK National Workboat Association:

BMT Nigel Gee

British Marine

British Sub-Aqua Club

Bureau Veritas

Canals and Rivers Trust

DNV-GL

International Institute of Marine Surveyors

International Jack-Up Barge Owners Association

Lloyd’s Register

Maritime and Coastguard Agency

Mecal

National Workboat Association

Port of London Authority

Professional Boatman’s Association

Royal Yachting Association

Society of Consulting Marine Engineers and Ship Surveyors

UK Maritime Pilot’s Association

Yacht Designers and Surveyors Association

## Annex 2: Areas of Operation

**Area Category 6** - to sea, within 3 miles of a nominated departure point(s) named in the certificate and never more than 3 miles from land, in favourable weather and daylight;

**Area Category 5** – within 3 miles of land and not more than 3 miles radius from either the point of departure to sea or the seaward boundary of protected waters (see definition of “protected waters”) in favourable weather;

**Area Category 4** - Up to 20 miles from a safe haven, in favourable weather and in daylight;

**Area Category 3** - Up to 20 miles from a safe haven;

**Area Category 2** - Up to 60 miles from a safe haven;

**Area Category 1** - Up to 150 miles from a safe haven;

**Area Category 0** – Unrestricted service.

Depending on the nature of the vessel and its use, a vessel may be restricted to less than the above specified limits. Such a restriction should be recorded on the Small Work Boat Certificate for the vessel and should be limited to operations within Area Categories 3, 4, 5 and 6 only.

## Annex 3: Calculation of annual benefits

This saving is divided into two parts:

1) The liferaft costs (SOLAS standard vs ISO standard liferafts)

2) The savings costs (Annually vs 3 years)

**1) Liferaft costs**

Cost of ISO: £600
Cost of SOLAS: £1600

The difference equates to a £1000 saving. Section 5.6.2 states the measure will benefit 81 new build boats p/year. Thus, £1000 \* 81 = **£81,000 saving per year, and £810,000 over the 10 year appraisal period.**

**2) Service Costs**

ISO liferafts require servicing every 3 years, whereas SOLAS require annual servicing. A service costs £350.

The annualised cost of a service is as follows:

ISO service: (£350/3) = £117
SOLAS service: £350

As more new build workboats come into operation, more vessels benefit from the reduced servicing costs (from 81 in Year 2 to 729 in Year 10 in the central estimate). The benefit in terms of lower servicing costs totals **£850,500 over the 10 year period. Additional 81 vessels per year (10% of the 814 new vessesls estimated in table 1). Saving £350-£117 = £233 per year x total of vessels per year. Total number of services benefitting from reduced costs is therefore 3,645 (cumulative total over the appraisal period, starting from 81 in yr. 2 rising by 81 per year and peaking at 729 in year 10). 3,645 x £233 = £850,000 undiscounted.**

Source: SURVITEC provided costings for supply of different types of liferaft and also the servicing costs of those liferafts.

## Annex 4: Glossary of Terms / Acronyms

CA Certifying Authority

EANCB Estimated Annual Net Cost to Business

ECS Electronic Chart System

EPIRB Emergency Position Indicating Radio Beacon

IMO International Maritime Organizations

ISO International Organization for Standardization

MAIB Marine Accident Investigation Branch

MGN Marine Guidance Notice

MSA Maritime Skills Alliance

MSQ Maritime Skills Qualification

NWA National Workboat Association

RIB Rigid Inflatable, this is a type of vessel hullform which typically is small and fast through the water

SOLAS International Convention for the Safety of Life at Sea

STCW International Convention for the Standards of Training, Certification and Watchkeeping

TMHD Transmitting Magnetic Heading Device

Annex 5: Workboat Code requirements relating to Build Costs, see Section 5.3 and included within Costings of a Vessel Build

Numbering below relates directly to the section numbering within the proposed code:

4.2.1 Clarifies the intention of MGN 280 that the vessel design and construction should be to recognised standards. The design and construction stage will take this into account;

4.5.2 Clarification of the original Code that inflatable boats or open boats are not intended for operation in certain areas unless they meet specified design criteria;

4.6 Clarification that vessels launched and recovered from other vessels are to be treated as Code vessels. This was MCA policy in relation to MGN 280 and this Code clarifies that;

5.4.4 Clarifies MGN 280 by stating that blanks (items that cover windows to protect them) should be of suitable materials and strength;

5.5.2 States Portlights below the weather deck of a vessel should not be provided. Previously this was allowed under certain circumstances. This will be incorporated into design and construction;

5.9.2 and 5.9.4 Clarifies the Standards for plastic or flexible piping, which will be included in design and construction costs;

5.9.3 Requires that materials rendered ineffective by heat should not be used for fire mains, hydrants, valves or cock. This is new and would be incorporated into the costs of design and construction;

6.9 Requires that independent self-contained wheelhouses should drain quickly. This will be incorporated into the costs of the design and construction;

7.1.5 Requires vessels with twin or multiple engine rooms should have separate fuel, electrical and control systems. This will be incorporated into the costs of design and construction;

7.4.2 Requires special consideration to the design and installation of high pressure fuel pipe systems for diesel machinery, and provides guidance on mitigations to improve safety. This is in line with the standards required for other small vessels such as passenger vessels, a provision which has been developed since the Brown Code and MGN 280 were published. This will be incorporated into the costs of design and construction;

7.4.3 Requires material for fuel pipes to be stainless steel or equivalent. This will be incorporated into the costs of design and construction;

7.4.9 Requires that where conductive materials are used in pipework, consideration is given to electrical arrangements. This is a clarification of the hazards referred to in MGN 280 and will be incorporated into the costs of design and construction;

7.4.11 Requires that fuel filling and ventilation pipes should be arranged to prevent overpressure and sets the standards for this. This will be incorporated into the design and construction costs;

7.5.1 Requires that petrol tanks or containers should be secured to the weather deck. This would be incorporated into the design and construction costs;

7.6.3 Requires that for air start engines, there should be 2 air receivers to allow 6 consecutive cold starts of the engine. This will be incorporated into the design and construction costs;

7.6.4 Requires ventilation fans, oil transfer pipes and centrifuges should have means of remote stopping. This will be incorporated into the design and construction costs;

7.6.5 Requires a spare kill cord or the kill system be capable of override to help a person who has gone overboard. This will be incorporated into the design and construction costs;

7.9 Requires Cargo, venting and filling pipes carrying flammable liquids should not pass through accommodation spaces, and if this is unavoidable, sets out the conditions which should be complied with. This will be incorporated into the design and construction costs;

7.10 Requires that air receivers in machinery spaces and high fire risk areas vent to the open air. This will be incorporated into the design and construction costs;

8.1 Clarifies the standards to be used for electrical arrangements. This will be incorporated into the design and construction costs;

8.4.3.1 Requires that hydrogen from batteries should be exhausted from the highest point of the space directly to open air. This will be incorporated into the design and construction costs;

8.4.3.2 Clarifies the standards required for installation and ventilation arrangements. This will be incorporated into the design and construction costs;

8.5.5 Clarifies the standards required for cables. This will be incorporated into the design and construction costs;

8.8.1 Requires emergency lighting to be able to be powered by an alternative source of energy from the main source. This will be incorporated into the design and construction costs;

8.8.3 Requires the emergency power to be able to power navigation lights and equipment for three hours. This will be incorporated into the design and construction costs;

8.8.4 Requires Emergency batteries to supply essential services (lighting, steering, navigation and communications) should be located in a position not likely to flood. This will be incorporated into the design and construction costs;

8.8.5 Requires that Earthing and Bonding of Electrics should be undertaken to set standards. This will be incorporated into the design and construction costs;

14.1.5 Requires linkages which are part of the operating flaps, cut offs and other similar devices in an emergency do not fail. This will be incorporated into the design and construction costs;

14.2.2 Requires hull, bulkhead and deck boundaries in aluminium vessels are constructed and insulated to specified fire protection standards. This will be incorporated into the design and construction costs;

14.2.3.8 Requires that Fibre Reinforced Plastic (FRP) vessels unable to meet the fire protection standards have to meet alternative standards set out in the Code. This will be incorporated into the design and construction costs;

14.2.4 Requires that wood vessels meet the fire protection standards of (FRP) vessels. This will be incorporated into the design and construction costs;

14.2.5 Requires that multi hull vessels with separate engine spaces treat each space separately and any connecting service ducts have structural fire protection. This will be incorporated into the design and construction costs;

14.3.2 Clarifies the standards for thermal or acoustic insulation. This will be incorporated into the design and construction costs;

14.6 Clarifies the requirements for liquid fuelled cookers and heating appliances, including fitting, locations, protection, exhausting and supply thereof. These systems may previously have been fitted however no standards were specified. This will be incorporated into the design and construction costs;

21.1.3 Requires materials for internal bulkheads on vessels not required to meet Maritime Labour Convention standards should be of a suitable material. This will be incorporated into the design and construction costs;

21.1.4 Requires that excessive noise and vibration is limited in accommodation spaces in vessels not required to meet the standards of the Maritime Labour Convention. This will be incorporated into the design and construction costs;

Chapter 24. This refers to Tender and Daughter Craft. These vessels have always been treated as vessels that should be Coded. This chapter clarifies that requirement.

25.7 Sets out the construction and stability requirements for vessels that are to be fitted with Diver lifts. This is formalising guidance previously issued and will be incorporated into the design and construction costs.

25.8 Sets out the construction and seating requirements for vessels operating at speed or in a Planing mode. This will be incorporated into the design and construction costs;

25.9.2 Sets out the bow construction requirements for vessels intended to have bow contact for personnel or cargo transfer. This will be incorporated into the design and construction costs;

25.9.3 Sets out the structural arrangements in way of machinery for vessels intended for push up operations. This will be incorporated into the design and construction costs;

Annex 6: Joint Radar and Electronic Chart Systems Training Costs

Below is a copy of the text in an advertising leaflet from an established training provider called MARITAS who has been offering the Radar and Electronic Chart Systems training as a joint 5 day package for 3 years.

**Radar and Electronic Chart Systems Training**

* 5 day attendance course
* **Covering the content “strongly recommended” in the Workboat Code**
* **SQA** Award in Maritime Studies: “Use of Radar and Electronic Chart Systems in Code Vessels” –

It is a largely practical course undertaken on our mobile radar & ECS simulator, which can be taken to an appropriate location to suit the customer.

There are 6 delegates per course, with the aim of each having their own workstation to maximize time operating the equipment.

Courses can be run on demand by mutual agreement.

On successful completion of the course attendees receive a MARITAS and SQA certificate.

Cost: held for the third year running at £875 + VAT per delegate including a 10% NWA member discount (Full price is £970 + VAT).

For further information or to book a course place please contact MARITAS; Email dc@maritas.co.uk Telephone 01524 702395

Annex 7: Questions raised by the RPC and directly asked of the consultees in the covering letter during consultation.

Below is a copy of extract of the text of the covering letter dated 7/9/15 that accompanied the consultation process.

“**Actions requested from Consultees**

You are invited to comment on the Code of Practice, Annex A, and the Impact Assessment (IA), Annex B.  A list of the consultation questions is attached at Appendix 1.”

**“Appendix 1**

**Questions for the Consultation included in the Impact Assessment**

**Q1**. Does Table 1 provide a good representation of the scale of new build workboats, and newly certified workboats, which will be impacted by these new standards? Please submit any further evidence to substantiate these figures. – **P8 Section 5.2**

**Q2.** Do the above costs present a good indication of the additional costs to design and build under the proposed Workboat Code? Please submit any further evidence to indicate the cost to build a new workboat under the proposed Workboat Code compared to the Brown Code and/or MGN 280.  Please state the size of workboat and area of operation where possible. – **P9 Section 5.3.1**

**Q3**. Please provide any further information on indicative potential earnings from the introduction of the Workboat Code?  Please submit any further evidence to substantiate these assumptions. – **P10 Section 5.3**

**Q4**. Are the assumptions made in this IA a sound basis for estimating the costs and benefits of the proposed Workboat Code?  Please submit any further evidence to substantiate these assumptions. – **P10 Section 5.4**

**Q5**. Are the estimated costs identified an accurate assessment of the costs and benefits of the proposed Workboat code?  Please submit any further evidence to substantiate these figures. – **P12 Section 5.6**

**Q6**. Please provide any evidence to establish the individual costs of the additional requirements for larger fuel tanks, updating of references, radar, ECS, anchors, MLC-equivalent crew accommodation requirements and familiarisation costs, as discussed in sections 5.7.1 to 5.7.7. – **P14 Section 5.7.7**

**Q7**. Please provide any evidence, or your anticipated monetary estimates, of the individual benefits of the additional advantages of larger fuel tanks, alternative standards for multihull damage stability and compass adjustments as discussed in sections 5.7.8 to 5.7.10. – **P15 Section 5.7.10**

**Q8**. Please provide an estimate of the number of contracts lost, and profit or revenue lost due to workboats operating under the old Brown Code and MGN 280? – **P15 Section 5.7.11**

**Q9**. Is the information provided in the Small and Micro Business Assessment an accurate reflection of the workboat industry? Please submit any further evidence to substantiate this assessment. - **P 18 Section 9.2**

**Q10**. How does the proposed Workboat Code impact you as a small business? Please provide any further evidence to substantiate the impact to your business, noting the size of business, the number of employees and the number of workboats you operate. **P 18 Section 9.2”**

The reader should please note that the references quoted as part of each of the questions above in “Appendix 1” relate to old references and not the RIA in its current form. Those references are translated into the current IA in the below section. Below is an answer to each of the above that was received in response to these questions raised and how or whether the section of the RIA has now been able to be bolstered to address the concerns raised by the RPC, in direct response to those consultees responses. These questions were also repeated in the appropriate place within the consultation version of the RIA itself.

Q1. Page 14, Table 1. No response was received to the consultation question.

Q2. Page 16, 5.4.1. No response was received to the consultation question.

Q3. Page 16, 5.4.2. No response was received to the consultation question.

Q4. Page 16, 5.3 (25% estimate of MGN 280 vessels are Workboats, 25% assumed increase in the next 10 years to match the previous 10 years, 20% of workboats were estimated by NWA to be fast workboats), No responses were received to the consultation question. Page 19, 5.5.2 (assumption that 20% of new workboats are fast workboats) No response was received during consultation however subsequently to this the Certifying Authorities were directly asked how many vessels operating at speed that they thought they were coding as workboats – Figures were obtained from the Certifying Authorities but considered by MCA to be higher than the actual figure due to: the speed of vessels not being recorded in the SVD, by Registry or on the vessels Workboat Certificate of Compliance; the influence of MGN 280 vessels being wrongly recorded as workboats, the effect of light duty workboats being recorded in these workboat numbers and that the usage of a vessel is not recorded by the Certifying Authorities. It is still thought by the MCA that the 20% figure is closer to the actual number of workboats operating at speed. Page 15, 5.3.2 (assumption that 6-10 existing vessels certify to operate as workboats each year). No response was received to the consultation question.

Q5. Page 22, 5.8.1. No response was received to the consultation question.

Q6. Page 20, 5.5.3. No response was received to the consultation question. However subsequently to this the NWA have assisted by provided some figures relating to median wages of various skilled workers and other costs to owners, builders, designers etc.

Q7. 5.9.1, 5.10.3, 5.10.2. No response was received to the consultation question, however on the compass adjustment the NWA subsequently estimated £800 per compass every 2 years. This has not been taken into account in the overall calculation.

Q8. Page 26, 5.10.6. No responses were received and therefore this remains an unknown.

Q9. Page 29, 8.2. No responses were received during consultation.

Q10. Page 29, 8.2. No responses were received during consultation.

1. The Safety of Small Workboats and Pilot Boats – A Code of Practice which is brought in to force by S.I. 1998 No. 1609 The Merchant Shipping (Small Workboats and Pilot Boats) Regulations 1998 [↑](#footnote-ref-2)
2. MGN 280 Small Vessels in Commercial Use for Sport or Pleasure, Workboats and Pilot Boats – Alternative Construction Standards [↑](#footnote-ref-3)
3. MCA have delegated survey work on workboats and other small commercial vessels to Certifying Authorities, see Marine Information Notice MIN 538 – Codes of Practice – Authorisation of Certifying Authorities [↑](#footnote-ref-4)
4. The Merchant Shipping (Vessels in Commercial Use for Sport and Pleasure) Regulations 1998, SI 1998 No. 2771 [↑](#footnote-ref-5)
5. The National Workboat Association is the Trade association for approximately 75 workboat owners and operators. The NWA seeks to improve the operation of Workboats in two main areas: through close dialogue with the MCA an effective regulatory framework for the Safe Operation of Workboats, and through relevant, appropriate qualifications for crew members operating these vessels. The Association also give a forum for members to exchange views and concerns on a wide range of issues and a conduit to express those concerns as appropriate, to the MCA as the main regulator and other representative bodies, such as IMCA and the Maritime Skills Alliance. [↑](#footnote-ref-6)
6. The four Codes of Practice were for a) Small Commercial Motor Vessels; b) Small Commercial Sailing Vessels; c) Small Workboats and Pilot Boats; and d) Small Vessels in Commercial Use for Sport or Pleasure. [↑](#footnote-ref-7)
7. Small workboats are considered to be any vessel of a size that the Workboat Code applies to and that is not a pleasure vessel or a vessel used for sport or pleasure such as sea angling. For example a workboat transports workers, goods and supplies to offshore windfarms. [↑](#footnote-ref-8)
8. This process is fully described in S.I. 1998 No. 1609, as amended, The Merchant Shipping (Small Workboats and Pilot Boats) Regulations 1998 including Schedule 1 [↑](#footnote-ref-9)
9. SI 1998 No. 2241, as amended, The Merchant Shipping (Load Line) Regulations 1998 [↑](#footnote-ref-10)
10. SI 1998 No. 2721, as amended, The Merchant Shipping (Life-Saving Appliances for Ships Other Than Ships of Classes III to VI(A)) Regulations 1999 [↑](#footnote-ref-11)
11. SI 1998 No. 1011, as amended, The Merchant Shipping (Fire Protection: Small Ships) Regulations 1998 [↑](#footnote-ref-12)
12. STCW is the standard of training and certification for seafarers working on ships operating internationally. [↑](#footnote-ref-13)
13. Boatmasters is a phrase used to describe the qualification mostly of the skipper. A Boatmasters Licence is an MCA qualification specific to a skippers local area that is limited to coastal areas no more than 5 nautical miles from land and 15 nautical miles from the point of departure or arrival. [↑](#footnote-ref-14)
14. This decision was reached between MCA and a wider small commercial vessel industry which would have included workboat interests. [↑](#footnote-ref-15)
15. This is a process called duel certification. For instance a vessel that does dive boat charters for sport or pleasure purposes would need to be “duel certified” to enable it to also undertake work taking out professional divers which would need to be a workboat. By consolidating the 4 codes there was no need for duel certificates. [↑](#footnote-ref-16)
16. Individual small requirements of the Workboat Code were changed in the process of writing MGN 280 bringing individual standards into line with a standard more suited to a yacht or other such small commercial vessel used for sport or pleasure purposes. One example of this is that the need for a radio survey was taken away – there are estimated to be 100 examples of these reductions. Individually this was ok but the net affect was a reduction in the overall safety envelope of the workboats. It was decided by the small commercial vessel industry as a whole and the MCA that developing MGN 280 and including the workboats in this was the most positive outcome. [↑](#footnote-ref-17)
17. Chiefton report (towing gear, section 25) <http://www.maib.gov.uk/publications/investigation_reports/2012/chiefton.cfm>;

Endurance report (towing gear, Section 25.2, structural strength 4.2.1.4) <https://assets.publishing.service.gov.uk/media/547c6f3ced915d4c0d00001f/Endurance.pdf> ;

Island Panther/Windcat 9 report (training, navigation) <http://www.maib.gov.uk/publications/investigation_reports/2013/windcat_9_and_island_panther_combined_report.cfm>;

Carol Anne report (crane standards and testing, 25.4, modification Appendix 15) <https://www.gov.uk/maib-reports/collapse-of-crane-on-workboat-carol-anne-with-loss-of-1-life>;

ECC Topaz report (liquid fuel heating 14.6, fire detection 14.8) <https://www.gov.uk/maib-reports/fire-and-sinking-of-passenger-transfer-catamaran-ecc-topaz-during-engine-trials>.

Love for Lydia report (CO alarms 14.8) <https://www.gov.uk/maib-reports/carbon-monoxide-poisoning-on-board-the-motor-cruiser-love-for-lydia-with-the-loss-of-2-lives>

Osprey / Osprey 2 report (seating 25.8) <https://www.gov.uk/maib-reports/collision-between-rigid-inflatable-boats-osprey-and-osprey-ii-resulting-in-serious-injuries-to-1-passenger> [↑](#footnote-ref-18)
18. A table of comments and responses made to the consultation can be seen at https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/639783/CONSULTATION\_COMMENTS\_Work\_Boat\_Code\_Published.pdf [↑](#footnote-ref-19)
19. Full Class standards are those standards set for such items are structure and machinery instillation by a Classification Society and are applicable to vessels operating in international waters. Class standards are necessarily expensive because of the higher fees structure of the classification societies. [↑](#footnote-ref-20)
20. A Certifying Authority is a group of competent surveyors whom have been authorised by the MCA to undertake surveys and examinations on behalf of the MCA in accordance with the requirements of the Codes and in accordance with their individual Certifying Authority Agreements. MIN 538 (Codes of Practice - Authorisation of Certifying Authorities) refers. [↑](#footnote-ref-21)
21. An illustration of growth in the sector and the relative importance of the UK can be shown by the growth of Seawork International, an Annual Exhibition of the sector in Southampton. In 2004 there were 370 contributors (not sure from how many countries), this year there were over 700 from over 70 countries and it is the largest exhibition of its kind in Europe, demonstrating the strength of the UK in this sector. The National Workboat Association has members operating in the North Sea Basin, Mediterranean, Persian Gulf and Australasia. [↑](#footnote-ref-22)
22. It is not known exactly how many vessels are built in the UK each year. There is a large but fluctuating number of builders in the industry each whom may or may not be sold within the UK and have their own specialisations, for instance: Cheetah Marine is in the smaller end of the market building also building sea fishing vessels; South Boats, Aluminium Marine Consultants and Alicat typically build steel or aluminium hulls; while CTruk typically build fibre reinforced plastic hull in the windfarm industry. [↑](#footnote-ref-23)
23. The international standards that MCA refers to here are Marine Pollution Convention (MARPOL), Sewage Prevention, antifouling paints, air emissions. Some of the standards such as the Convention on the Carriage of Dangerous Goods (IMDG Code) are not applicable to these size and types of boats but where they carry dangerous goods and travel abroad and while in UK waters MCA are asking them to follow the principle for the international requirements in the convention which MCA have slightly scaled down to account for the risk and the size of the boat. This makes it demonstrate-able to MCA that the owner is operating its boats properly and following certain practices whereas when they are abroad it is doing this but also assuring foreign flag states that UK workboats are operated to a high standard and that they do not need to interfere. The carriage of dangerous goods example is a good example because this is an area where practices (much larger quantities and a wider variety of classes of dangerous goods are needed to be carried now) have changed substantially since MGN 280 was published and the standards laid out in MGN 280 are no longer fit for purpose. [↑](#footnote-ref-24)
24. An example of this is that standard allowable for the fitment of plastic pipes on MGN 280 vessels has been criticised in Denmark which lead to multiple vessels being detained and unable to work until the pipes were replaced. The UK industry decided that they wanted to update the standard not from something that they necessarily thought was unsafe but to make the systems more palatable abroad that would allow the vessels to operate unimpeded by port state control inspections. [↑](#footnote-ref-25)
25. The Industry led Working Group is an industry working group that was managed primarily by the NWA, its members include the MCA, representatives of interested Class Societies (Lloyds, Bureau Veritas and American Bureau of Shipping), SCMS, the Royal Yachting Association, the Yacht Brokers, Designers and Surveyors Association and the Professional Boatman’s Association. [↑](#footnote-ref-26)
26. Seawork International is the largest and fastest growing international commercial marine and workboat exhibition and conference held each year in the port of Southampton, UK. [↑](#footnote-ref-27)
27. Some specific questions were raised in the consultation that were listed in the letter details of which can be seen at Annex 7 and at https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/458972/Consultation\_Letter\_-\_Workboat\_\_Code\_of\_Practice\_\_Regulations\_07.09.2015.pdf [↑](#footnote-ref-28)
28. A Working Group was convened on a number of occasions during the drafting of the proposed code. Further details can be found in 4.2, 5.2 and Annex 1 of this IA. [↑](#footnote-ref-29)
29. MCA have delegated survey work on workboats and other small commercial vessels to Certifying Authorities, see Marine Information Notice MIN 538 – Codes of Practice – Authorisation of Certifying Authorities [↑](#footnote-ref-30)
30. This was advised by MCA Registry. [↑](#footnote-ref-31)
31. Certifying Authorities are the Secretary of State or any other person authorised by him to survey and issue certificates for these vessels. This authorisation in described in MCA’s Marine Information Note (MIN) 538 (M) Codes of Practice - Authorisation of Certifying Authorities

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 [↑](#footnote-ref-32)
32. This was an assumption advised by NWA. [↑](#footnote-ref-33)
33. Live saving appliances are items such as liferafts, lifebuoys, pyrotechnics, EPIRBs, lifejackets etc and are specified within the Codes. They are not typically a Class item - they are usually only specified in Statutory Requirements. [↑](#footnote-ref-34)
34. This information was gained from NWA members and supplied to MCA. A smaller £2m vessel has the potential to earn less at about £2000 per 12 hour day. [↑](#footnote-ref-35)
35. It is understood in the industry that companies such as Dong Energy and Siemens, whom operate the wind farms, in the future will only accept vessels built to the latest proposed Work Boat Code Edition 2. There are many other sectors of the workboat industry where this will not be the case. The NWA and its members are also of the opinion that the potential for gaining contracts abroad (that goes smoothly with no detentions from another port state) will be increased by building to the proposed Workboat Code Edition 2. [↑](#footnote-ref-36)
36. This is projected by the NWA and its members. [↑](#footnote-ref-37)
37. This is based on a £4 million workboat earning an extra £200 per day due to it being certificated to the proposed Workboat Code Edition 2 rather than the old MGN 280 (e.g. 5% of the £4000 earning potential) for 245 to 280 days. This is assuming the worst case of only working one 12 hour shift. [↑](#footnote-ref-38)
38. The bridge (or wheelhouse) of the vessel is the area where the master / skipper and its crew control the navigation and steering from. [↑](#footnote-ref-39)
39. Analysis of the Chamber of Shipping Manpower survey - Central estimate is median leaving rate for officers, with highest 30% and lowest 9%. This survey however is aimed at a very different area of the marine industry including the cruise ship industry and its entertainment and hotel crews which is mostly irrelevant to the workboat sector.

NWA estimate 10% annual turnover of their members staff. [↑](#footnote-ref-40)
40. Light Duty Workboat is a relaxation from the full workboat code requirements that is introduced in section 25.10 of the proposed Workboat Code Edition 2 - previously under MGN 280 certification this was not required and for Brown Code vessels this was called “Duel Certification”. It allows a vessel that typically does operations under the 1998 Vessels in Commercial Use for Sport and Pleasure Regulations to operate infrequently as a workboat but assumes certain criteria such as no cranes, no carriage of dangerous goods, no towing operations etc. [↑](#footnote-ref-41)
41. This is calculated by multiplying the number of vessels (204) x number of crew (4) x cost (£600 or £970 for both courses completed together) over 10 years= total. This calculation is shown as the central estimate in the Table 3 below. [↑](#footnote-ref-42)
42. Representing 50 crew members each year given the 20% turnover rate (20% of the 124 vessels X 4 crew X 50% already trained) [↑](#footnote-ref-43)
43. In this case 20 knots is defined in the proposed workboat code as being high speed. This will typically encompass the offshore windfarm personnel transfer vessels and any RIB type hullforms that are certificated for Category 0, 1 or 2 operations. A RIB is a rigid inflatable hullform. [↑](#footnote-ref-44)
44. Figure obtained from the Certifying Authorities but considered by MCA to be higher than the actual figure due to: the speed of vessels not being recorded in the SVD, by Registry or on the vessels Workboat Certificate of Compliance; the influence of MGN 280 vessels being wrongly recorded as workboats, the effect of light duty workboats being recorded in these workboat numbers and that the usage of a vessel is not recorded by the Certifying Authorities. [↑](#footnote-ref-45)
45. This is calculated by multiplying the number of high speed workboats (384) by the number of crew (4 crew in two 12-hour shifts) and assuming 50% are already trained then this is divided by 2. [↑](#footnote-ref-46)
46. This is calculated by multiplying the number of vessels (384) x number of crew (4) x cost (£600 or £975 for both courses completed together) over 10 years reduced by 50% to account for those already assumed to be trained= total. This calculation is shown as the central estimate in the Table 3 below. The 4th year onwards the figure is representing 77 new crew at £600 training cost each [↑](#footnote-ref-47)
47. Whilst a 4 digit SOC code was available for ship and boat builders, the coefficient of variation was too large for the estimate to be considered reliable. [↑](#footnote-ref-48)
48. Assumptions from NWA [↑](#footnote-ref-49)
49. Using the sum of figures in Table 1 for Category 0, 1 and 2 vessels [↑](#footnote-ref-50)
50. SI 2006 No. 2184. The Merchant Shipping and Fishing Vessels (Lifting Operations and Lifting Equipment) Regulations 2006 [↑](#footnote-ref-51)
51. PUWER is implemented by The Merchant Shipping and Fishing Vessels (Provisions and Use of Work Equipment) Regulations 2006, SI 2006 No 2183, see also MGN 332 [↑](#footnote-ref-52)
52. SOLAS refers to the requirements for liferafts under the International Convention for the Safety of Life at Sea. [↑](#footnote-ref-53)
53. Standards as stated under the International Organization for Standardization. [↑](#footnote-ref-54)
54. See <http://www.cheetahmarine.co.uk/en/ranges/> for examples [↑](#footnote-ref-55)
55. SI 1999 No. 1957, as amended, The Merchant Shipping (Marine Equipment) Regulations 1999 [↑](#footnote-ref-56)
56. A multi hull is a type of hull form that may be usually a catamaran or trimaran but it would not describe a monohull (single hull design). Each of these multihull hullforms may have many different variants which produce totally different seakeeping performance, internal or deck space, or speed characteristics [↑](#footnote-ref-57)
57. Merchant Shipping (Maritime Labour Convention) (Minimum Requirements for Seafarers Etc.) Regulations 2014 (Si 2014 / 1613)

MSN 1844(M), Maritime Labour Convention 2006: Crew Accommodation [↑](#footnote-ref-58)
58. MGN 490 Maritime Labour Convention: Application to Small Vessels of Less than 200GT that are ordinarily engaged in commercial activities; and MGN 491 Maritime Labour Convention: Application to Workboats of 200GT to less than 500GT. [↑](#footnote-ref-59)
59. This calculation is based in all the engineers costs being applied in the first year and the crew familiarisation costs and owners of existing builds costs being spread equally over the 10-year period. [↑](#footnote-ref-60)
60. This calculation has assumed that all the vessels wishing to upgrade to a Workboat Edition 2 Certificate of Safety were retrofitted with ECS and radar in the first year. [↑](#footnote-ref-61)
61. This calculation has assumed that all the new liferafts are bought in the first year and that the savings of 3 year servicing compared to the SOLAS liferaft annual servicing is spread out over each year equally rather than every 3 years. [↑](#footnote-ref-62)
62. This calculation assumes 25% less vessels than the central estimate and 25% less servicing cost per year. [↑](#footnote-ref-63)
63. This calculation assumes 25% more vessels than the central estimate and 25% more servicing cost per year. [↑](#footnote-ref-64)
64. International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (International Maritime Organization) [↑](#footnote-ref-65)