NAO
NATIONAL AUDIT OFFICE

Ship Surveys and Inspections

REPORT BY THE COMPTROLLER AND AUDITOR GENERAL
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This report has been prepared under Section 6 of the National Audit Act 1983 for presentation to the House of Commons in accordance with Section 9 of the Act.

John Bourn
Comptroller and Auditor General

National Audit Office
16 March 2001

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For further information about the National Audit Office please contact:

National Audit Office
Press Office
157-197 Buckingham Palace Road
Victoria
London
SW1W 9SP

Tel: 020 7798 7400

Email: enquiries@nao.gsi.gov.uk
Website address: www.nao.gov.uk

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1 In 1989 the passenger vessel *Marchioness* and the dredger *Bowbelle* collided on the River Thames. The *Marchioness* sank and 51 people lost their lives. In September 1999 the Deputy Prime Minister appointed Lord Justice Clarke to carry out a wide-ranging public inquiry into safety on the Thames and the circumstances surrounding the *Marchioness* disaster. In his interim report in December 1999, Lord Justice Clarke commented on the substantial changes that had occurred more generally in the field of ship safety over recent years, particularly developments in the ship surveys and inspections regime. He noted that no comprehensive external audit or assessment had been carried out of the regime since 1994 and recommended that the National Audit Office or some other suitable body should carry out such an audit. He suggested that this should encompass the survey and inspection of Class V passenger vessels and also extend to survey and inspection procedures in general. He did not make this recommendation because of concerns about the performance of the Maritime and Coastguard Agency - since April 1998, the principal body for enforcing ship safety standards in the UK. Rather, he recognised the importance that the public attached to the safety of transport systems, including shipping, and considered that every organisation should have its systems independently audited from time to time. This report is our response to Lord Justice Clarke's recommendation.

2 Our report focuses on the Maritime and Coastguard Agency (the Agency), an executive agency of the Department of the Environment, Transport and the Regions (the Department). The Agency is responsible for developing, promoting and enforcing high standards of marine safety in the UK; in particular, for surveying and inspecting UK-registered vessels and inspecting foreign vessels visiting UK ports. Surveys are carried out when vessels are built or when they transfer to the UK register, and periodically thereafter when safety certificates expire; inspections are spot checks targeted on particular ships and are selective in the safety aspects that they cover.

3 The Agency spends around £9 million a year carrying out its surveys and inspections and receives survey fees of some £5 million from vessel operators. This work is carried out by around 100 surveyors working in 16 marine offices around the UK; a further 60 surveyors are based in the Agency's Southampton headquarters. In addition, the Agency delegates 80 per cent of statutory survey work on UK vessels to classification societies, which verify compliance with international conventions in order for maritime authorities to issue statutory certification.

The UK has one of the best safety records in the world, to which the Maritime and Coastguard Agency makes a major contribution

4 The safety record of British-registered vessels is one of the best in the world. Very few British vessels have been lost over the last ten years and deaths have been rare, except in the fishing industry. The Maritime and Coastguard Agency is one of the world's leading maritime authorities with a world-wide reputation for its professionalism and for the significant contribution that it makes towards improving ship safety. The Agency's international standing is particularly evident from the senior posts that its staff hold in international maritime bodies and from the training and technical assistance that the Agency provides to other maritime authorities around the world. The Agency's surveyors advise vessels' officers and crew on safety-related issues during their surveys and inspections. The Agency makes the results of its work available to other maritime authorities and classification societies around the world, while publicity also helps to deter unsafe shipping in UK waters.

5 The Agency also leads most other maritime authorities in prosecuting significant breaches of maritime legislation that have caused, or threatened, loss of life, serious injury, significant pollution or damage to property or the environment. It has its own Enforcement Unit to investigate reports of significant breaches and take legal action where appropriate. We looked at how other maritime authorities handled prosecutions. Few had enforcement units comparable to the Agency's. Industry representatives commended the Agency's policy on prosecutions, which helped to maintain the credibility of the UK's maritime legislation and presented a real deterrent against unsafe shipping.

The Agency could nonetheless make a greater contribution by focusing more of its work where there is the greatest risk

6 The Agency has met its targets for the volume of inspections it carries out. Over 12,000 UK vessels are subject to the survey and inspection regime. The Agency agrees with the Department an annual target for the number of inspections of UK vessels, together with inspection targets for six categories of UK vessel and a seventh target for dangerous goods. In 1999-00, the Agency carried out 3,711 inspections, exceeding its target of 3,354. The Agency is also expected to meet an international target, set under the 1980 Paris Memorandum of Understanding (Paris MOU), of inspecting the equivalent of 25 per cent of the foreign ships that visit UK ports each year. It has exceeded this target in each of the past five years, inspecting over a quarter of the 7,000 foreign vessels visiting UK ports each year. It inspects more foreign vessels than all but one of the other 17 maritime authorities bound by the Memorandum.

7 However, the Agency has not been able to complete the development of a model to assess the risks posed by different types of UK vessel and to help it set its annual inspection targets. Nor does the Agency set out the other factors that influence its inspection targets. And, by setting targets for six broad categories of UK vessel, the Agency does not distinguish the riskiest types of vessel within those categories. The Agency has now applied the risk-based approach outlined in this report in its target setting process for 2001-02. It has also sub-divided its target categories for UK vessel inspections in order to distinguish the riskiest types of vessel, including a separate category for Class V passenger vessels.

8 In addition, there is scope to improve the targeting of inspections on individual vessels posing the greatest safety risk:

- the Agency uses an internationally adopted system to assess the risks posed by individual foreign vessels using UK ports. The Agency is good at targeting the riskier vessels and better than many other maritime authorities. However, over half of its foreign vessel inspections are of the lowest risk vessels, while very few are of high risk vessels; and
- surveyors select UK vessels for inspection based on local knowledge about vessels in their areas. The Agency is better at selecting the riskiest UK vessels than at selecting the riskiest foreign vessels. However, with a quarter of UK vessel inspections identifying no deficiencies, there is scope to improve the selection of UK vessels for inspection. In particular, the Agency should adopt a risk assessment system for selecting all UK vessels for inspection, along the lines of the one it uses for selecting foreign vessels that use UK ports.

9 Although Class V passenger vessels in particular now have one of the best safety records amongst the main types of vessels using UK waters, the number of unannounced inspections of such vessels has declined significantly over recent years. In 1999-00 the Agency made unannounced inspections of 39 per cent of the Class V fleet, appreciably less than the inspection rate of once a year reported by Lord Justice Clarke. In 1999-00 around half of the Agency's inspections of Class V vessels were carried out as part of the vessels' pre-arranged annual surveys. Although these inspections are still worth carrying out, they are not as valuable as unannounced inspections. And, with eight of the 16 marine offices inspecting less than half of the Class V passenger vessels in their areas, many such vessels are unlikely to be subject to an unannounced inspection.

10 Marine offices cover wide geographic areas and many ports are in remote parts of the country. Although the Agency does well in visiting some 185 ports and other locations around the country, some ports receive disproportionately high coverage while others are seldom visited despite their handling large volumes of traffic. Furthermore, surveyors rarely inspect vessels at weekends even though the shipping and fishing industries operate seven days a week. There is therefore a risk that unsafe vessels could minimise the chance of being inspected by using more remote ports and harbours, and by timing their arrivals and departures at weekends.

Recommendations

11 The Agency should therefore:

a) use a more risk-based approach to establish the number of inspections for different categories of vessel necessary to achieve the Agency's marine safety objectives, drawing as appropriate on its risk assessment model once this is completed;

b) adopt a risk assessment system for selecting UK vessels for inspection, similar to the one it uses for selecting foreign vessels that use UK ports;

c) whilst maintaining a credible level of deterrence at all times, shift more of its inspection work towards the riskier UK and foreign vessels and, where the additional costs are justified by vessels' potential risks, do more of its inspections at remote ports and at weekends; and

d) clarify its policy on the number of Class V passenger vessel inspections each year and ensure that, as far as possible, such inspections are unannounced, rather than carried out as part of the vessels' pre-arranged annual surveys and that such vessels have a reasonable chance of being inspected wherever they are located.

The Agency should give greater attention to human factors in ship safety

12 It is widely accepted that the vast majority of shipping accidents are attributable to human error and that the human element plays a part in virtually all accidents. Since the early 1990s, the Agency has been checking on the operational aspects of vessels, such as emergency preparedness, bridge procedures and cargo operations. The Agency now also applies an international standard - the International Safety Management (ISM) Code - which is being phased in to ensure the safe management and operation of all large merchant and passenger vessels using foreign ports. In addition, the Government has decided to introduce a domestic safety management system for all UK

passenger vessels from June 2001; over a third of the UK merchant fleet will then be covered by a statutory safety management system. The ISM Code will become mandatory from July 2002 for the 314 other large cargo vessels trading internationally, and the Agency anticipates that around half of the UK merchant fleet will then be covered. The Department and the Agency also aim to have in place by January 2002 a system by which a vessel's officers or crew may report safety deficiencies in confidence.

13 Despite the importance attached to introducing the ISM Code, the Agency could not demonstrate that enough of its inspection work looked at the human factors affecting the safe management and operation of vessels, rather than at vessels' equipment, appliances and structure. The vast majority of surveys and inspections take place while vessels are in port; very few are carried out while vessels are at sea. There are practical difficulties and additional costs associated with carrying out inspections while vessels are at sea; such inspections require surveyors to remain on board vessels until the next port of call and not all of their time is therefore productive. However, these inspections might bring extra benefits in ensuring the safe management and operation of vessels. Although some marine offices carry out incognito checks on vessels, the Agency does not have sufficient staff to carry out such checks on a routine basis and has no other means of gathering first hand intelligence, for example through surveillance of officers and crew when vessels are in port, about shortcomings in the management and operation of vessels. The Agency also needs to ensure that it has sufficient surveyors in each of its marine offices with the right skills and experience to undertake ISM surveys and inspections. And, the Agency's policy of requiring surveyors to ask the owners of vessels being surveyed overseas to arrange and pay for surveyors' travel and accommodation leaves surveyors' professional judgements open to question.

Recommendations

14 The Agency should therefore:

a) assess whether it is giving sufficient attention to operational and management issues on board vessels and ensure that there are a sufficient number of fully qualified ISM surveyors in each of its marine offices;

b) consider the case for carrying out a proportion of its inspections while vessels are at sea rather than in port, so that the management and operation of vessels can be observed and checked more directly;

c) consider the case for gathering first hand intelligence about shortcomings in the management and operation of vessels through, for example, more incognito checks on board vessels and surveillance of officers and crew when vessels are in port; and

d) discontinue its policy of asking owners to pay for the travel and accommodation costs associated with overseas surveys, and instead require Agency staff to arrange surveyors' travel and accommodation and recharge the costs to vessel owners as it does for survey fees.

The Agency needs to modernise its information systems and improve the way that it manages knowledge within the organisation

15 There is scope for the Agency to improve the information that it gathers and to make better use of the knowledge at its disposal to ensure its inspections are well-targeted:

- the Agency does not have central databases containing details about all UK vessels and their certificates that can be accessed by surveyors in marine offices. Information is held on local databases in the 16 marine offices, but this is incomplete and inaccurate and the databases are not linked so information cannot be shared between offices;
- the Agency needs to improve the guidance and advice that it provides to surveyors through its computer systems, particularly on aspects of maritime legislation that are open to interpretation. It has not issued its surveyors with aides memoir to help them focus their work on the right issues. Nor does it require surveyors to record the areas of the vessel that they have checked and found to be satisfactory; only deficiencies are recorded. Surveyors record findings in their own hand-written notebooks, so a great deal of useful information and knowledge is not shared or made best use of by the Agency; and
- the Agency also needs to upgrade its resource management system so that management can readily analyse how resources are being used nationally and in individual marine offices.

16 The Agency has recognised that it needs to improve its management information systems and is developing an information management strategy intended to rationalise its disparate computer systems and provide better information. However, it is likely to be two to three years before new systems are fully in place.

17 The Agency also needs to establish systematic arrangements for ensuring that port authorities and harbour pilots provide its surveyors with complete and timely information about vessels arriving at and departing from their ports. Only one of the marine offices we visited had a system for ensuring that all of its ports provided the information required. The quality and scope of information available to surveyors therefore varied considerably across the offices. Nor did any offices retain information to show all of the vessels that had visited their ports and how they had assessed their risks. There was therefore no direct means of verifying that surveyors had selected vessels for inspection based on evidence about the risks that they posed.

Recommendations

18 To improve its information systems and knowledge management the Agency should:

a) provide surveyors in its marine offices with access to better information and support (for example, by establishing a central database of information on UK vessels and their certificates and by reviewing and clarifying its policy advice on the areas of marine legislation with which surveyors have most difficulty);

b) maintain better records of inspection checks and outcomes (for example, through aides memoir), to ensure surveyors focus on the right issues and record the reasons why they selected a vessel for inspection and all of the areas checked, whether found to be satisfactory or deficient;

c) regularly obtain data from marine offices (for example, on the average time taken for different survey types and on the risk profile of vessels inspected), to enable the Agency to benchmark the relative efficiency and effectiveness of offices, and to identify and disseminate good practice through the investigation of significant variations; and

d) obtain at each marine office complete, timely and consistent information from port authorities on vessels entering ports, and review periodically the basis on which each office has selected vessels for inspection to satisfy itself that inspections are well-targeted.

Links to relevant Internet websites

19 For further information about this report, the Agency and maritime safety more generally, the following Internet websites might be of interest:

Organisation	Internet website
National Audit Office	www.nao.gov.uk
Maritime and Coastguard Agency	www.mcga.gov.uk
Department of Environment, Transport and the Regions	
- Shipping	www.shipping.detr.gov.uk
- Maritime Statistics	www.transtat.detr.gov.uk/shipping
Marine Accident Investigation Branch	www.maib.detr.gov.uk
European Commission - Maritime Transport	www.europa.eu.int/comm/transport/themes/maritime/english/mt_en.html
International Maritime Organization	www.imo.org
Paris MOU	www.minvenw.nl/extdomein/parismou

Part 1

Introduction

Background

1.1 This report focuses on the ship survey and inspection regime of the Maritime and Coastguard Agency (the Agency), an executive agency of the Department of the Environment, Transport and the Regions (the Department). The Agency is responsible for developing, promoting and enforcing high standards of marine safety in the UK. In particular, it is responsible for surveying and inspecting UK-registered vessels and inspecting foreign vessels visiting UK ports. The Agency was created in 1998 when the Marine Safety Agency, responsible for ship surveys and inspections, merged with HM Coastguard, responsible for search and rescue operations.

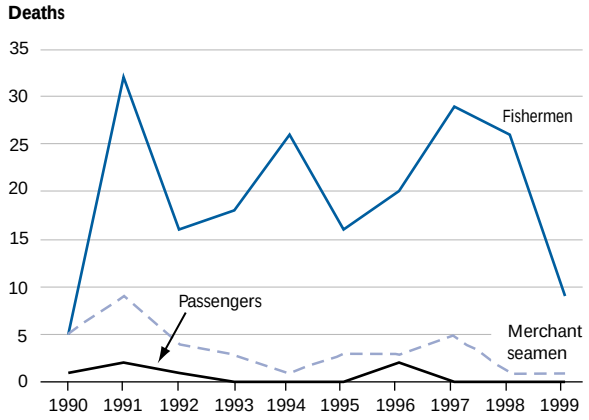
1.2 Shipping is an international business and for a long time it has operated within a framework of international law and agreements. The sinking of the Titanic in 1912 led to the first Safety of Life at Sea (SOLAS) Convention, which required signatory states to enforce safety standards on ships on their own register. SOLAS remains in force today. Nowadays, global regulations and standards are set by the International Maritime Organization (IMO), an agency of the United Nations, and through directives issued by the European Union. The Agency must also operate within the 1980 Paris Memorandum of Understanding (Paris MOU), under which European states and Canada agree to work together to co-ordinate inspections of foreign ships visiting their ports with the aim of targeting and driving out sub-standard ships and owners. Appendix 1 provides a summary of the main international requirements affecting UK shipping and other shipping in UK waters.

1.3 For most of the twentieth century, attention focused on vessels' construction and equipment. More recently, however, international organisations and maritime authorities have become concerned about poor management standards in the shipping industry. Since the early 1990s, the Agency has been checking on the operational aspects of vessels, such as emergency preparedness, bridge procedures and cargo operations. And, since May 1994, the SOLAS Convention has included the International Safety Management (ISM) Code, which provides an international standard for the safe management of ships. The Code requires the owners or operators of a vessel to establish a safety management system covering operations both on shore and on board the vessel. It emphasises the importance of training of personnel, maintenance and regular checks and audits by owners and operators to ensure that their safety systems are being followed. Where a company's fleet is predominantly UK-registered, the Agency will insist on undertaking the certification itself and will usually inspect each UK vessel. Where a company's fleet is mostly foreign-registered, the Agency accepts certification by other maritime authorities if it is satisfied with the standard of the certification work done.

1.4 The ISM Code has been mandatory since July 1998 for large (500 gross tonnage or more) oil and chemical tankers, bulk carriers, high-speed cargo craft and passenger vessels that use foreign ports, although the owners of other merchant vessels have obtained ISM certification on a voluntary basis. Other vessels, including the 8,500 fishing vessels in the UK fleet, are not covered by the Code. By January 2001, the Agency had certified 44 owners and operators and accepted certification of a further 13 by other maritime authorities. And, it had issued ISM certificates to some 180 UK vessels. In addition, the Government has decided to introduce a domestic safety management system for all UK passenger vessels from June 2001; over a third of the UK merchant fleet will then be covered by a statutory safety management system. The ISM Code will become mandatory from July 2002 for the 314 other large cargo vessels trading internationally, and the Agency anticipates that around half of the UK merchant fleet will then be covered.

1 Deaths on UK-registered vessels 1990-1999

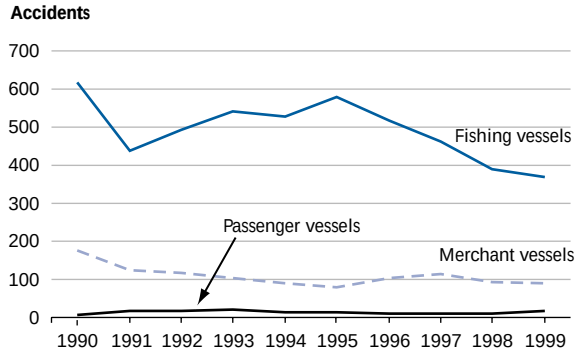
Deaths on UK vessels are rare, except in the sea fishing industry.



Source: *Maritime and Coastguard Agency*

2 Accidents involving UK-registered vessels, by vessel type, 1990-1999

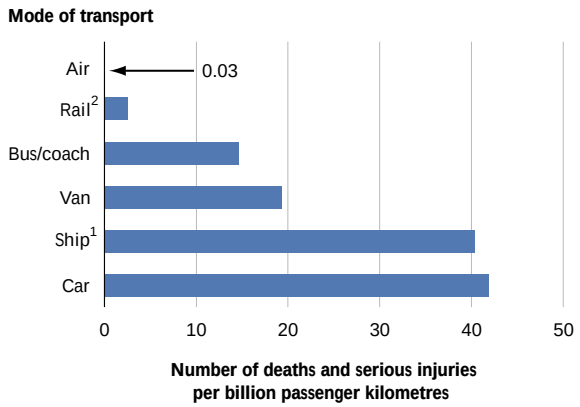
Although accidents have been declining since 1990, fishing vessels still account for 80 per cent of them.



Source: *Maritime and Coastguard Agency*

3 Passenger casualty rates by mode of transport, 1990-1999

Travelling by ship is riskier than travelling by most other forms of transport.



Notes: 1. " Ship" includes domestic and international passenger services of UK-registered vessels.

2. Rail covers the period 1990 to 1995 only, as statistics are not available for serious injuries since then.

Source: *Transport Statistics for Great Britain 2000, Department of the Environment, Transport and the Regions*

The UK's maritime safety record

1.5 The safety record of British-registered vessels, also known as the Red Ensign fleet*, is one of the best in the world; very few vessels have been lost from the fleet during the last ten years and the fleet's record, in terms of losses related to fleet size, is equally favourable. Similarly, deaths on UK vessels have been rare in the last 10 years, except in the fishing industry, and there have been no passenger deaths since 1996 (**Figure 1**).

1.6 The number of accidents involving UK vessels has also fallen since 1990 (**Figure 2**). However, sea fishing remains one of the UK's most dangerous occupations and accounts for 80 per cent of accidents involving UK vessels.

1.7 The relative safety of UK vessels is also borne out by the results of inspections by maritime authorities around the world. In 1999, there were 185 inspections of UK vessels in Paris MOU ports overseas and 37 per cent found deficiencies (that is, breaches of maritime regulations), compared with an average of 55 per cent for all vessels inspected by members of the Paris MOU. And, only 3 per cent of UK vessel inspections within the Paris MOU resulted in detention (that is, deemed to be unsafe to proceed), compared with the average of 15 per cent for inspections of all vessels.

1.8 However, travelling by ship in the UK is still riskier than travelling by other modes of transport except car (**Figure 3**). The Agency's work on ship safety is therefore of continuing importance to passengers and crews, who have a right to expect that vessels are well designed, constructed, maintained and operated. This report focuses on the role that surveys and inspections have in ensuring that this is so.

The Agency's surveys and inspections

1.9 The Agency had operating costs of £98 million in 1999-00. The greater proportion of this cost and of the Agency's staff of 1,045 was concerned with the Agency's coastguard service. Surveys and inspections account for annual expenditure of around £9 million and fees for surveys, charged to vessel owners, totalled some £5 million. Since our last report on *Ship Safety* (HC 186, 1991-92) in 1992, there has been a steady decline in the number of surveyors involved in survey and inspection work, from 194 in 1992 to 159 in 2000. In 2000-01, there were 99 marine surveyors working in 16 marine offices around the UK, with another 60 surveyors based in the Agency's Southampton headquarters. **Figure 4** shows the Agency's structure and the location of its marine offices in the UK. The Agency delegates 80 per cent of statutory survey work

**The Red Ensign Fleet ("British vessels") consists of UK-registered vessels and other British vessels registered in Crown Dependency and UK Overseas Territory Shipping registers, principal of which are the Isle of Man, Bermuda, Cayman Islands and Gibraltar.*

on UK vessels to classification societies, such as Lloyd's Register of Shipping, which verify compliance with international conventions in order for maritime authorities to issue statutory certification. The classification societies also establish rules for the construction and essential engineering systems of ships, and survey and inspect on behalf of owners to verify compliance with those rules. The Agency also delegates surveys and inspections of radio equipment to Marconi Mobile Ltd. However, its own surveyors are responsible for carrying out surveys and inspections under the ISM Code, given the importance of high management standards in the safe operation of vessels.

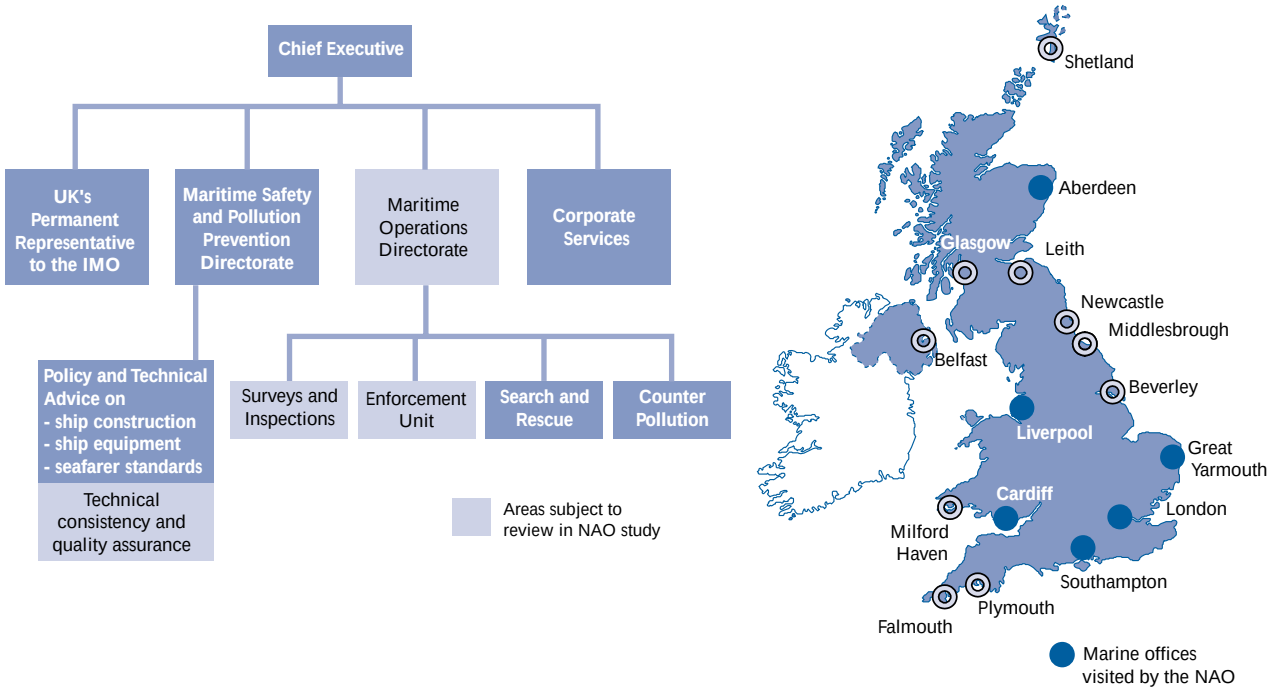
1.10 A number of the Agency's activities contribute to marine safety - ship surveys and inspections, the certification of seafarers, advice and approval of equipment, and search and rescue operations. This report focuses on the Agency's surveys and inspections of vessels, including the work delegated to classification societies:

- **Surveys**: under international maritime law all vessels must hold relevant, up-to-date safety certificates. The Agency, as the UK maritime authority, requires that a survey be undertaken prior to issuing or renewing certificates for UK-registered vessels. Certificates are valid for between one and five years, and most require intermediate surveys at set intervals during the lifetime of the certificate. The certificates required by a vessel depend on its type and usage, and some vessels need only one certificate while others, such as gas or chemical carriers, require ten or more certificates. Surveys cover vessels' structures, equipment and operation and are used to ensure that vessels comply with the requirements of the relevant regulations. The Agency requires surveys to be undertaken for new UK vessels before they enter service, as it also does for all foreign vessels wishing to join the UK register. It also requires surveys of vessels on the UK register when certificates expire or when there are major changes in vessels' structure or use.
- **Inspections**: whereas surveys are periodic and mandatory, inspections are selective and targeted. The Agency carries out inspections of selected UK vessels to check that the conditions under which the certificates were issued still hold and to check vessels that are not subject to a mandatory survey regime. It also carries out unannounced "Port State Control" inspections of a targeted sample of foreign vessels visiting UK ports. The scope and depth of an inspection are chiefly determined by the surveyor, but inspections are generally not as comprehensive as surveys.

Appendix 2 describes the Agency's survey and inspection regime in more detail, including the type of certificates required and the frequency of the related surveys and inspections for different vessel types.

4 Organisation of the Maritime and Coastguard Agency, 1999-00

Surveys and inspections are carried out by surveyors in 16 marine offices located around the UK, supported by headquarters staff.



Note: The Agency has recently set up marine offices in Dover and Harwich. It has also located surveyors in Newlyn and Brixham.

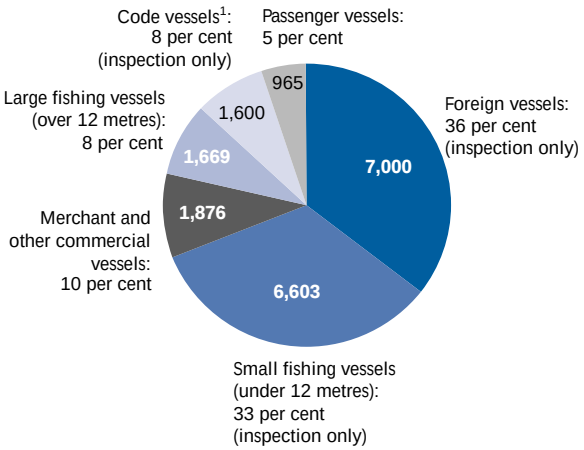
Source: National Audit Office

1.11 The Agency's surveyors require any deficiencies in a vessel's structure, equipment, manning or procedures to be rectified as soon as possible. Serious or numerous deficiencies may result in the vessel being detained by the surveyor until the problems are resolved. In certain cases the Agency may prosecute the owners, operators, masters or crew of a vessel.

1.12 Some 12,700 UK-registered vessels are subject to the Agency's surveys and inspections and the Agency also inspects around a quarter of the 7,000 foreign vessels that use UK ports each year (**Figure 5**). Over the last two years there has been an increase in the number of vessels joining the UK register, reversing a long-term decline due to world-wide competition and the costs associated with meeting UK maritime legislation requirements. The UK Government is seeking to encourage owners to register their ships in the UK, in part through the introduction of a new tonnage based corporation tax in 2000, which is expected to lighten the tax burden on much of the UK shipping industry. The Agency is contributing to the Government's objectives by changing its working practices so that it can better meet the needs of its customers and by marketing the benefits of UK registration to ship owners. This work, together with the increase in the number of UK-registered vessels, is placing additional demands on the Agency's resources. The Agency will need to keep its resources under review to ensure that it has sufficient staff to meet its responsibilities.

5 The vessels subject to the Maritime and Coastguard Agency's survey and inspection regime

Some 12,700 UK-registered vessels are subject to the Agency's survey and inspection regime and the Agency also inspects around a quarter of the 7,000 foreign vessels that use UK ports each year.



Note 1: Code vessels are small commercial vessels that are covered by the Agency's codes of practice.

Source: Maritime and Coastguard Agency, National Audit Office

National Audit Office scope and methodology

1.13 We examined whether the Agency ensures that:

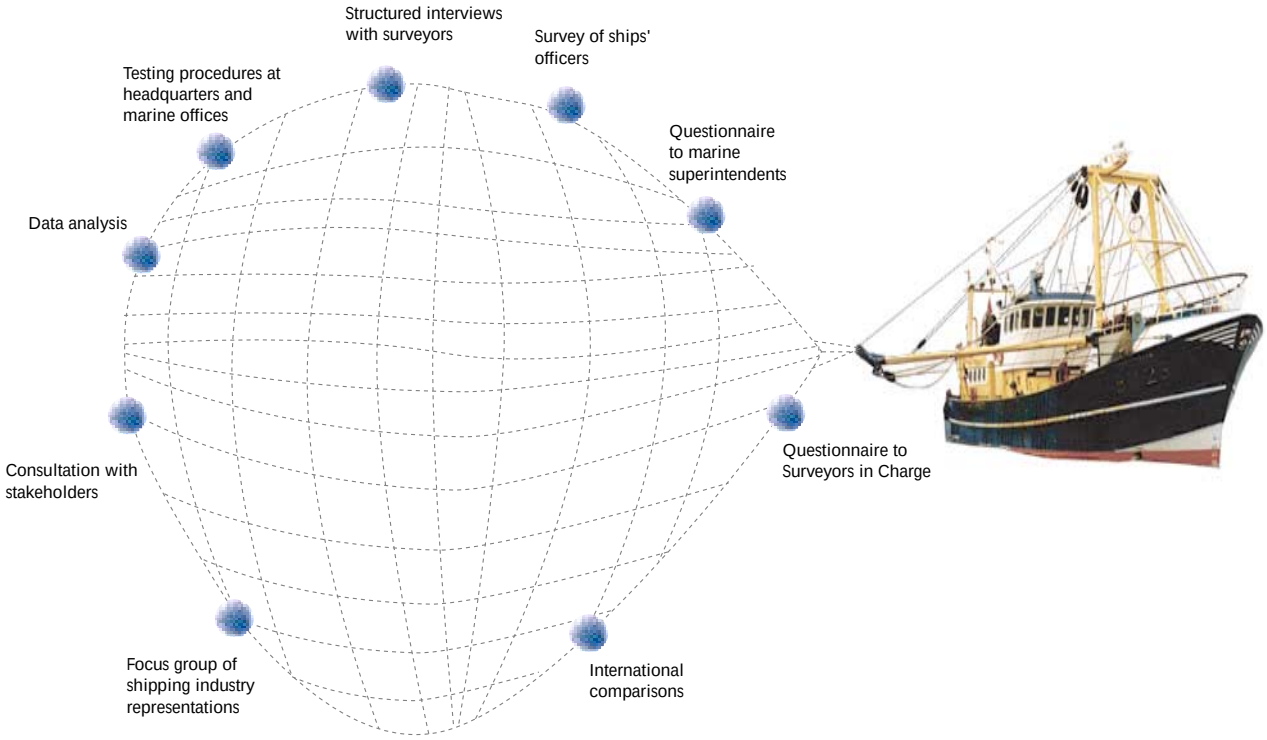
- **the right vessels are checked at the right time (Part 2 of our report)**: surveys must be carried out on all eligible vessels and at set points in time; inspections are selective and the Agency needs to meet or better international standards for the number of inspections whilst targeting those vessels most at risk;
- **survey and inspection work is done well (Part 3)**: the Agency needs to employ staff with the right skills, equip them to carry out their work well, and be able to evaluate the standard and quality of the work done, including the work delegated to others; and
- **appropriate action is taken on the results (Part 4)**: unsafe vessels need to be made safe and the Agency needs to use its powers to take sanctions against offenders and deter others.

In carrying out our investigation we paid particular attention to surveys and inspections of UK passenger vessels including Class V vessels in view of the recommendation from Lord Justice Clarke, fishing vessels and foreign vessels visiting UK ports.

1.14 We used a variety of methods to obtain evidence for our report (**Figure 6**). Our methods are set out in detail in Appendix 3. We also reviewed progress made since the Committee of Public Accounts last reported on ship safety in 1992 (Appendix 4).

6 Methods used to address the main issues in our report

We used a variety of methods to obtain evidence needed for our report.



Part 2

Checking the right vessels at the right time

2.1 This Part examines whether the Agency checks the right vessels at the right times. In particular, it examines whether the Agency:

- ensures that all UK vessels are submitted for survey, and that the work is carried out, on a timely basis (paragraphs 2.2 to 2.7);
- inspects enough vessels (paragraphs 2.8 to 2.24); and
- inspects the riskiest vessels (paragraphs 2.25 to 2.50).

Does the Agency ensure that all UK vessels are surveyed on time?

2.2 Vessel operators are required to submit their vessels for survey on time. The Agency considers that its unannounced inspections deter operators from using vessels without the appropriate certificates; it has not assessed the level of evasion but considers that it is insignificant. Our analysis of the results of the Agency's unannounced inspections of UK passenger vessels and fishing vessels in 1999-00 showed that around one per cent of inspections (17 out of 1,568) identified vessels without valid certificates. These inspections are not random but targeted, and some vessels may be able to avoid inspection, so it is possible that the true level of evasion is higher or lower than this figure.

2.3 The Agency relies on the operators of UK vessels to arrange the necessary surveys and maintain the validity of their certificates where their vessels are in service. The Agency can identify on its central databases UK passenger vessels and fishing vessels whose certificates have expired. However, it does not have a central database of all UK vessels and their certificates and surveyors in marine offices cannot access the central databases through their computer systems. Marine offices therefore maintain their own databases of some types of vessels based in their areas, which can be used to identify vessels that are due for a survey. However, the information on the local databases is incomplete and inaccurate; many vessels operate, and are surveyed, in more than one marine office area and the results put onto databases that are not linked so the information is not available in every marine office. We selected 113 vessels across six marine offices to check whether they had valid certificates. Inadequate information meant that the marine offices were only able to confirm that 88 (78 per cent) of the vessels had valid certificates.

Without statutory surveys, many ships would be in an unsafe condition.

Ship's officer

2.4 The Agency has recognised that it needs to improve its management information systems and, since April 2000, it has been developing an information management strategy intended to rationalise its disparate computer systems and provide its surveyors with better information. However, the strategy will not be completed until March 2001 and it is likely to be two to three years before new systems are fully in place. The Agency is assessing whether there is scope to implement some more immediate improvements whilst the full strategy is being developed.

2.5 Headquarters staff use the central databases to send reminders to the owners of large fishing vessels (over 12 metres) due for survey. The Agency does this because in the past there has been a problem with some fishing vessels not being submitted for survey. If the owners do not respond, marine offices chase them up. As at October 2000, the central databases showed that 43 (3 per cent) of the 1,669 large fishing vessels in the UK fleet did not have certificates and that their owners had not responded to the reminder letter. The Agency is hoping to achieve a link between either registration or the Ministry of Agriculture, Fisheries and Food fishing license and a fishing vessel's safety certificate that will make it better able to ensure that all vessels are submitted for survey.

2.6 Small fishing vessels (under 12 metres) are not required to undergo surveys. However, the Government plans to introduce in April 2001 a new Code of Practice for Small Fishing Vessels (otherwise known as the *Under 12 Metre Code*). This will require owners to self-certify that the safety equipment on board their vessels is in compliance with the Code.

2.7 One of the Agency's priorities is to carry out survey work promptly to avoid causing undue delays to operators and it aims to start surveys within three working days of the date applied for by vessels' operators. The Agency reported that, in 1999-00, it achieved its target in 97.5 per cent of cases (98.4 per cent in 1998-99).

We recommend that the Agency:

- give high priority to completing its information management strategy and assess the scope for accelerating its implementation so that surveyors in its marine offices have access to better information as soon as possible, including information on vessels whose certificates have expired.

Does the Agency inspect enough vessels?

2.8 Whereas surveys are mandatory, inspections are selective. There are some 8,300 fishing vessels, 3,500 merchant and other commercial vessels and 1,000 passenger vessels on the UK register, while some 7,000 foreign vessels visit UK ports each year. The Agency must inspect enough of these vessels to ensure that they are being operated safely and to provide a credible deterrent to operators who might consider using unsafe ships in UK waters.

Does the Agency inspect enough UK vessels?

2.9 There are no international requirements concerning the number or proportion of domestic vessels that maritime authorities should inspect each year. Indeed, the number of inspections in different countries varies significantly. We examined whether the Agency:

- sets the right targets for inspections of UK vessels; and
- meets its targets.

Does the Agency set the right targets for inspections of UK vessels?

2.10 The Agency agrees an annual programme of inspections of UK vessels with the Department, which includes targets for six categories of vessel, covering most of the UK fleet, and a seventh target for dangerous goods (**Figure 7**). In 1999-00, the Agency set a target of inspecting some 3,250 UK vessels, equivalent to 30 per cent of the UK fleet. The targets for small fishing vessels and commercial river and inland waterway vessels were low (15 per cent and 17 per cent of the respective fleets), while the target for roll-on/roll-off ferries represented two inspections per vessel.

7 The Agency's inspection targets for UK vessels, 1999-00

The Agency's inspection target for 1999-00 covered 30 per cent of the UK fleet. Targets for individual types of vessel ranged from 15 per cent of the fleet of small fishing vessels to 202 per cent of the fleet of roll-on/roll-off ferries.

Target category	Size of fleet (estimate)	Inspection target	Target as percentage of fleet
Large fishing vessels (over 12 metres)	1,669	600	36
Small fishing vessels (under 12 metres)	6,603	1,000	15
Small passenger vessels	877	640	73
Seagoing ships/tankers	1,319	823	62
Commercial river/inland waterway vessels	600	100	17
Roll-on/roll-off ferries	45	91	202
Packaged dangerous goods	*Note 1*	100	*Note 1*
TOTALS	**11,113**	**3,354**	**30**

Note: 1. Inspections of packaged dangerous goods usually take place ashore and are not related to particular vessels.

2. The Agency did not have an inspection target for the estimated 1,600 other small commercial vessels, known as code vessels. Instead it carried out brief checks on some of these vessels.

Source: Maritime and Coastguard Agency, Maritime Statistics 1999

2.11 The results of our survey of ships' officers showed that 70 per cent of respondents considered that the number of inspections of UK vessels was about right, although a quarter considered that there should be more. **Figure 8** shows that most of the 28 surveyors that we consulted in the marine offices also considered that the number of inspections of different types of UK vessels was about right except for fishing vessels, where 22 surveyors considered that there were not enough inspections. Around a third of surveyors considered that the Agency should also carry out more unannounced inspections of Class V passenger vessels and cargo ships. In view of the high rate of accidents and deaths in the fishing industry, the Agency had originally increased its inspection target for small fishing vessels from 900 in 1998-99 to 2,380 in 1999-00 (which would have increased inspection coverage to 36 per cent of the fleet). To help it do this, it had proposed training local coastguard sector managers to inspect the vessels' safety equipment. However, in February 1999 the Environment and Transport Select Committee recommended against using coastguards in this way. The Agency suspended its training programme and reduced its target to 1,000 inspections while the Government considered its response. The Government supported the Agency's proposals and the Agency's training programme is now almost complete. The Agency has set a target of inspecting 1,600 small fishing vessels in 2000-01, equivalent to a quarter of the fleet.

8 **Surveyors' views on the number of inspections of different types of UK vessels**

Most of the Agency's surveyors considered that there were enough inspections of all types of UK vessels, except fishing vessels. A significant minority considered that there should also be more inspections of Class V passenger vessels and cargo ships.

Do you think that the number of inspections of this type of UK vessel is:	Too many	About right	Not enough
Class V passenger vessels	1	19	**8**
Other passenger vessels	3	23	2
Cargo ships	0	19	**9**
Tankers	2	22	3
Fishing vessels	0	5	**22**

Note: The number of responses does not sum to 28 for each type of vessel because some surveyors did not answer all of the questions.

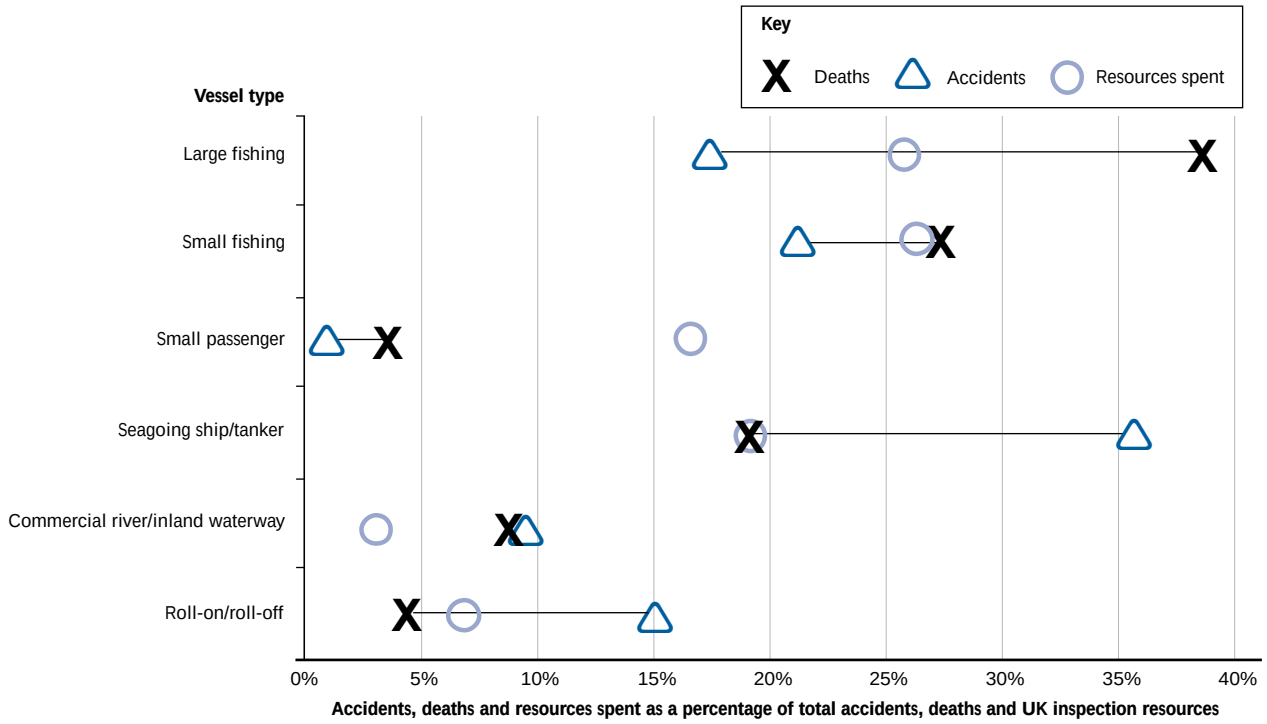
Source: National Audit Office structured interviews of marine surveyors.

2.12 Individual targets reflect the Agency's views about risks and the resources available in marine offices. To focus more on risk, the Agency developed a prototype computer model to guide its allocation of resources across all of its activities, including surveys and inspections. The model, containing data about accidents and their consequences, such as deaths of passengers and crew, supported the Agency's decision in 1998 to increase significantly the number of inspections of small fishing vessels. However, owing to a lack of staff resources, the model's development has been delayed and the Agency is currently not using the model to help set its annual inspection targets.

2.13 We looked to see whether the Agency's resources were deployed in areas of greatest risk. It might be expected that the resources spent on inspecting particular types of vessel would be related to risk, measured principally by the vessels' accident and death rates of passengers and crew. However, **Figure 9** shows that there was no strong or consistent relationship. The resources devoted - and therefore inspection activity - appeared to be too high for small passenger vessels and too low for commercial river/ inland waterway vessels. However, other factors, such as Department, industry and public expectations need to be taken into account before setting inspection targets for different types of vessel. These factors might justify setting higher or lower targets for each type of vessel. However, the Agency does not set out the factors that influence its inspection targets for different types of vessel. The Agency has now applied the risk-based approach outlined in this report in its target setting process for 2001-02.

9 **Resources spent inspecting each category of UK vessel in 1999-00 compared with vessels' accident and death rates in 1996-98**

In 1999-00, inspection resources spent - and therefore the Agency's inspection targets - appeared to be too low for commercial river/inland waterway vessels and too high for small passenger vessels.



Notes: 1. Accident and death data cover both UK and foreign vessels. This materially affects only the data for seagoing ships/tankers, which are less risky than shown above (because UK vessels have lower rates of accidents).

2. Resources allocated are based on average time recorded for inspections of each vessel type.

Source: Marine Accident Investigation Branch, the Maritime and Coastguard Agency

2.14 The six categories of UK vessel for which the Agency sets inspection targets include a wide range of craft, presenting different levels of risk:

- "seagoing ships/tankers" includes vessels carrying highly dangerous goods, such as the six vessels that carry irradiated nuclear fuel for British Nuclear Fuels Limited. These vessels present acute risks given the nature of their cargo, so we would expect the Agency to inspect the vessels regularly. In 1999-00, the Agency surveyed two of the six vessels, but it did not carry out general inspections on any of the vessels; and
- the two fishing vessel categories include beam trawlers, which the Agency regards as being particularly risky because they are prone to capsizing.

The Agency's categorisation of vessels therefore does not distinguish the riskiest types of vessel within each category. The Agency has now sub-divided its target categories for UK vessel inspections in order to distinguish the riskiest types of vessel, including a separate category for Class V passenger vessels.

Does the Agency meet its targets for inspections of UK vessels?

2.15 The Agency is expected to carry out 95 per cent of its agreed planned programme of inspections. In 1999-00, the Agency exceeded its overall target for the number of inspections of UK vessels (**Figure 10**). However, it inspected 11 per cent fewer small fishing vessels than targeted, while at the same time exceeding four other targets by a wide margin. The Agency told us that surveyors can have difficulty finding enough fishing vessels that warrant inspection. The Department gives the Agency the flexibility to compensate for not achieving targets for some individual categories of vessel by exceeding its targets for others. The Agency told us that it had not been able to inspect as many small fishing vessels as it had targeted because of delays in training its local coastguard sector managers to inspect fishing vessels' safety equipment, while the Government considered concerns expressed by the Environment and Transport Select Committee.

10 The number of inspections carried out by the Agency compared with targets, 1999-00

The Agency exceeded its overall target for UK inspections in 1999-00, but failed to meet two of its seven specific inspection targets whilst also significantly exceeding four other targets.

Target category	Inspection target	Actual inspections	Over/(under)	%
Large fishing vessels	600	602	2	-
Small fishing vessels	1,000	892	(108)	(11)
Small passenger vessels	640	823	183	29
Seagoing ships/tankers	823	1,011	188	23
Commercial river/inland waterway vessels	100	134	34	34
Roll-on/roll-off ferries	91	154	63	69
Packaged dangerous goods	100	95	(5)	(5)
TOTALS	**3,354**	**3,711**	**357**	**11**

Source: Maritime and Coastguard Agency, Maritime Statistics 1999

2.16 There are five different types of inspection that the Agency may carry out on UK vessels (see Appendix 2). Each type of inspection takes a different length of time to complete, depending on the type, size and condition of the vessel, and what surveyors decide to check and in what detail. Four of them involve a separate, usually unannounced, visit to a vessel. The exception is the "inspection in conjunction with a survey". It is sensible and efficient for a surveyor to carry out an inspection when already on board a vessel, although such an inspection is less likely to find serious deficiencies than an unannounced inspection because it carries no element of surprise and tends to be less wide ranging. The Agency counts each type of inspection equally towards the achievement of its targets; it does not set targets for different types of inspection to reflect the value of the work and the time required to carry it out. The Agency's targets therefore do not provide its marine offices with an incentive to carry out a higher proportion of unannounced inspections.

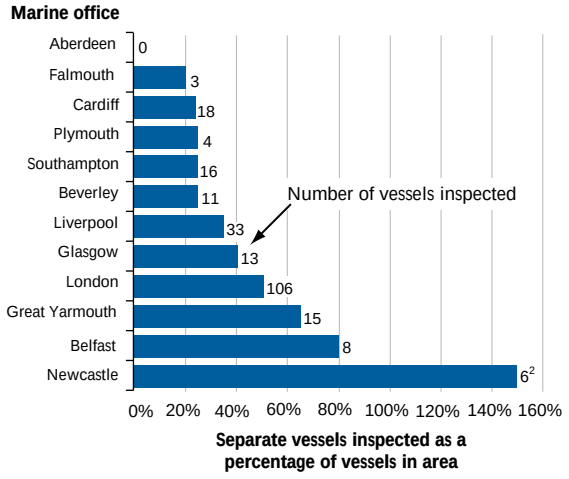
2.17 The Agency carried out 1,547 inspections (42 per cent of the total) in conjunction with a survey in 1999-00. Surveys of small passenger vessels and fishing vessels generally involve checking the whole of the vessel. The Agency's instructions for surveyors note that a distinct inspection is not appropriate in such cases. However, we identified 719 inspections in conjunction with surveys of such vessels that had been counted towards the Agency's 1999-00 inspection targets. Five surveyors we interviewed told us that they recorded these inspections to help meet the Agency's inspection targets or to reduce the survey fees they charged vessel operators (where some of the survey time could be booked to an inspection which is carried out free of charge). If these 719 inspections had not counted towards its target, the Agency would not have achieved its overall target for inspections of UK vessels in 1999-00. The Agency told us that in future it will clearly define the type of inspections in conjunction with a survey that it will count towards its targets.

2.18 The Agency has not set an annual target for inspections of Class V passenger vessels, although these vessels are covered by the target for inspections of small passenger vessels, which is broadly equivalent to the number of such vessels on the UK register. And, in his interim report for the Thames Safety Inquiry, Lord Justice Clarke reported that the Agency carried out an unannounced inspection of every Class V passenger vessel each year. The Agency has now set a separate target for inspections of Class V passenger vessels in 2001-02.

2.19 There were 597 Class V vessels recorded on the Agency's databases as at July 2000. We found that in 1999-00 the Agency had carried out unannounced inspections on only 233 (39 per cent) of them. There were also large variations between marine offices in the percentage of unannounced inspections that they carried out of Class V vessels (**Figure 11**). For example, the London marine office, with by far the most Class V vessels in its area, inspected 51 per cent of the Class V vessels in its area, while seven other marine offices inspected 25 per cent or less. The Agency told us that it was considering introducing new regulations for small passenger vessels that would involve carrying out annual inspections of all Class V vessels, separate from their surveys.

11 Unannounced inspections of Class V passenger vessels by marine offices, 1999-00

Eight marine offices inspected less than half of the Class V passenger vessels in their areas in 1999-00.



Notes:
1. There were no Class V vessels based in the Leith, Milford Haven or Shetland marine office areas, and only one in the Middlesbrough marine office area.
2. Newcastle marine office's inspections included two vessels that were operating in its area but were allocated to other marine offices.

Source: National Audit Office analysis of the Maritime and Coastguard Agency's databases

2.20 Two of the six marine offices we visited used their administrative staff to carry out inspection work. In Southampton marine office, administrative staff went unaccompanied to carry out basic safety checks on small passenger vessels. Although the checks were relatively straightforward, for example observing passenger counting systems, the staff carrying them out had no maritime qualifications or formal training on ship inspections. Whilst useful, this work should not have been recorded as full inspections without any other work being done on the vessels. In 1999-00, administrative staff in the office carried out 14 of the 16 recorded inspections of Class V passenger vessels; only two of the 64 Class V vessels in the area had an unannounced inspection by a qualified surveyor.

We recommend that the Agency:

- use a more risk-based approach to establish the number of inspections for different categories of vessel necessary to achieve the Agency's marine safety objectives, drawing as appropriate on its risk assessment model once this is completed;
- set out the other factors, such as the resources needed to inspect different types of vessels and Department, industry and public expectations, that the Agency takes into account when setting its inspection targets;
- break down its six categories of UK vessels into more specific types of vessels so that it may set targets for vessels presenting the greatest risks;
- consider restructuring the time codes used by surveyors so that the information from the time recording system aligns with the Agency's inspection targets and the type of inspections that it carries out;
- ensure that its marine offices apply their resources in proportion to the targets set for different types of ships, so that it does not greatly exceed its targets for some vessels while failing to meet its targets for others;
- consider introducing targets for different types of inspection, reflecting that some types of inspection require more resources and add more value than others;
- clarify its policy on the number of Class V passenger vessel inspections each year, clearly setting out the basis on which it sets its inspection target;
- ensure that, as far as possible, its inspections of Class V vessels are unannounced;
- ensure that all Class V vessels have a reasonable chance of being inspected wherever they are located; and
- ensure that only inspections carried out by qualified surveyors are counted towards inspection targets.

Does the Agency inspect enough foreign vessels?

2.21 Under an EU Directive on Port State Control, EU maritime authorities in the Paris MOU are required to inspect, each calendar year, the equivalent of 25 per cent of the foreign vessels that visit their ports. This is a higher target than that of the seven other maritime MOUs around the world. In 1999-00, the Agency set a target of inspecting the equivalent of 27.5 per cent of the foreign vessels that visited UK ports, to demonstrate the UK's commitment to the Port State Control regime.

2.22 The Agency met the Paris MOU target in 1999, while six other members of the Paris MOU failed to do so (**Figure 12**). In each of the last five years, 1996 to 2000, the Agency has exceeded the target and, in 1999, inspected more foreign ships than any other maritime authority in the Paris MOU, except Italy.

12 Foreign vessel inspections and targets within the Paris MOU, 1999

Within the Paris MOU, the UK has the second highest target for inspections of foreign vessels and inspected more vessels in 1999 than other members with the exception of Italy.

Source: Paris MOU Annual Report 1999

2.23 There are seven other maritime Memoranda of Understanding around the world. Most have targets of 10 to 15 per cent. The Australian Maritime Safety Agency, a member of the Tokyo MOU, aims to inspect half of the foreign vessels that visit its ports each year and it carried out 2,753 inspections in 1999-00. And the United States Coastguard carried out 11,540 inspections in 1999 (equivalent to inspecting all foreign vessels that visited its ports and some more than once).

2.24 The results of our survey of ships' officers showed that 78 per cent of the respondents who had recently served on a foreign vessel considered that the Agency did not carry out enough inspections of foreign vessels. Only 19 per cent of respondents considered that the number of foreign vessels inspected was about right, while two per cent considered that too many foreign vessels were inspected. Ships' officers generally felt that the riskiest vessels tended to be foreign-registered. However, we consider that the number inspected is reasonable.

Does the Agency inspect the riskiest vessels?

2.25 With just 99 surveyors, the Agency cannot inspect all of the 19,700 commercial vessels that use UK ports each year. It carried out 5,500 inspections in 1999-00. They vary significantly in the time that they take to complete depending on, for example, the type, condition and location of the vessel, and the type of inspection. So far as possible, the Agency needs to target its unannounced inspections on vessels that present the greatest risk to safety. If the Agency is to carry out well-targeted inspections, it needs to ensure that:

- its marine offices have access to complete, reliable and timely information on vessels in, or approaching, UK ports; and
- surveyors select the riskiest UK and foreign vessels for unannounced inspection, wherever they are located and whenever they require inspection.

Does the Agency have access to complete, reliable and timely information on individual vessels?

2.26 Having set its annual targets for inspections of different types of UK vessels, the Agency then relies on the surveyors in its marine offices to select the riskiest vessels using UK ports, within each vessel type. Marine offices rely on port authorities and pilots to provide them with most of their routine information about the movements of vessels into and out of their ports. However, port authorities, pilots and other people, such as crew members of vessels, union representatives and members of the public may also report any vessels that they think have serious deficiencies and are potentially dangerous.

2.27 The Harbours Act 1964 requires port authorities to provide the Agency with any information it considers necessary concerning harbour operations. However, whilst the six marine offices that we visited had good working relations with the port authorities in their areas, only Cardiff had established systematic arrangements for ensuring that all the authorities provided complete and timely information on ship arrivals and departures (**Figure 13**). The Agency told us that port authorities would charge it for providing such information.

13 **Information on ship movements received from major ports by six marine offices**

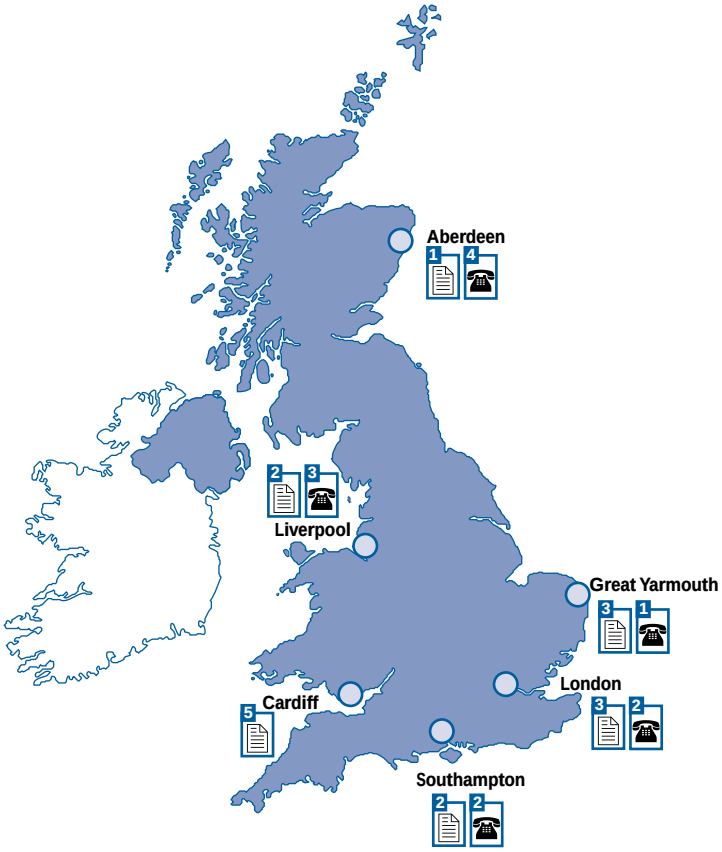
Only one of the six marine offices visited had arrangements for all the major ports in its area to provide it with regular information on ship arrivals and departures.

Number of major ports with arrangements to send regular written information on ship arrivals (fax or e-mail) directly to local marine offices.

Number of major ports with no arrangements to send regular written information on ship arrivals to local marine offices, but surveyors may telephone ports for information.

Number of major ports in the six marine office areas visited by the National Audit Office

Aberdeen	5
Great Yarmouth	4
London	5
Southampton	4
Cardiff	5
Liverpool	5



Note: Major ports are defined by the Department as those handling over two million tonnes of cargo each year.

Source: National Audit Office

2.28 The quality and scope of the information provided by port authorities also varied considerably across the offices. Reports from some authorities contained useful information on the estimated times of ship arrivals and departures and the nationalities of vessels, without which it can be difficult for surveyors to identify vessels, especially those with common names. Some offices had good information because they had specified precisely what they required from the authorities; other offices had poorer information because they had left it to the discretion of the ports to decide on what information should be provided. We also found that some offices paid some of the port authorities for this service.

2.29 In selecting ships for inspection, all of the marine offices visited gave top priority to vessels reported as potentially dangerous by external sources including port authorities, pilots, unions and crews. The Agency's policy is that these reports should be followed up with an inspection unless there are clear and valid reasons for not doing so. Only one of the six marine offices visited recorded the details of these reports. The other five marine offices could not identify how many external reports they had received, so they could not demonstrate that they had acted on all of them.

Case example

Early one morning in 2000, a port authority faxed the Agency's local marine office that one of its pilots aboard a foreign registered cargo ship had found that the vessel's radar and compass were defective. The Agency inspected the vessel later that day and, finding six deficiencies including the reported problems, detained the vessel until repairs were made.

2.30 Two of the Agency's marine offices used administrative staff to carry out incognito checks on, for example, safety announcements, gangways and exits on small passenger vessels. However, over recent years the number of administrative support staff in marine offices has declined, with a drive for efficiency savings, so the Agency does not have sufficient staff to carry out such checks on a routine basis throughout the country. Other than a limited number of incognito checks and its formal inspections, the Agency has no means of gathering through, for example, surveillance of officers and crew, first hand intelligence about shortcomings in the management and operation of vessels.

2.31 In light of the *Marchioness* disaster and Lord Justice Clarke's Thames Safety Inquiry, the Department of the Environment, Transport and the Regions has recognised that the shipping industry could benefit from a confidential reporting mechanism similar to the one that currently operates in the aviation industry. This is known as the Confidential Human Factors Incident Reporting Programme (CHIRP) and acts as an early warning system, providing management and regulators with information that would otherwise not be available. Such a system would allow anyone at sea, regardless of position or rank, to report a safety deficiency without fear of reprisal or disciplinary action. The Department is in discussion with the Agency and the charitable trust that runs CHIRP for the aviation industry, and aims to have a maritime version of the system in operation from January 2002.

Do surveyors select the right vessels for inspection?

2.32 Surveyors use a variety of information to select individual vessels for inspection, depending on whether they are foreign or UK vessels. The 18 maritime authorities within the Paris MOU have established a system (SIRENAC) for allocating a risk score or "target factor" to every vessel that uses ports outside the country in which it is registered. These target factors are based on generic factors, such as a vessel's country of registration, and the date and results of its most recent inspection in the region; and they indicate whether a vessel is nil, low, medium or high priority for inspection (**Figure 14**). The Agency expects its surveyors to use these target factors to help select foreign vessels for inspection and to take account of them in selecting UK vessels that have been inspected by other Paris MOU members.

14 The calculation of target factors and inspection priority of vessels, 1999-00

While a vessel's generic factors can make it likely to be inspected, the date and outcome of the previous inspection can have a much greater influence.

All foreign vessels and UK vessels trading to other Paris MOU member states

Generic factors (up to 23 points)

Vessel type
Age
Flag and ratifications of conventions
Classification society
Whether withdrawn from class

Most recent inspection by another member of Paris MOU

Previous inspection (up to 80 or more points)

Time since last inspection
Whether detained
Number of deficiencies found
Number of deficiencies to be rectified

Points	Priority
0	Nil
1-17	Low
18-37	Medium
38+	High

Source: Maritime and Coastguard Agency

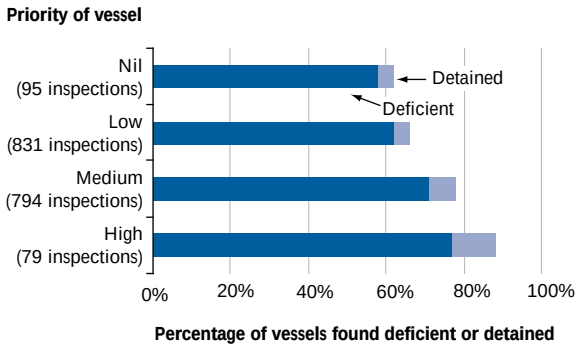
Do surveyors select the right foreign vessels for inspection?

2.33 All 27 surveyors that we interviewed told us that they used the target factors to help them select foreign vessels; most of them placed particular emphasis on certain aspects underpinning the target factors or took account of other information before they made their selections. We analysed the Agency's database of 1999-00 surveys and inspections and found that most inspections were of low or medium priority vessels. We also found that the priorities ascribed to vessels were in line with the likelihood that deficiencies would be found on the vessels or that the vessels would need to be detained (**Figure 15**). The data suggested that the Agency was good at targeting the riskier foreign vessels.

2.34 Overall, 72 per cent of the Agency's 1,799 foreign vessel inspections in 1999-00 identified deficiencies, compared with an average of 56 per cent for all Paris MOU foreign vessel inspections in 1999 and an average of 64 per cent for Tokyo MOU inspections in 1999. These data suggest that the Agency's targeting of foreign vessels is better than that of many other maritime authorities.

15 **Outcomes of inspections of different priority foreign vessels, 1999-00**

Around 90 per cent of inspections of foreign vessels in 1999-00 were of low or medium priority vessels and the priority ascribed to vessels reflected the likelihood that deficiencies would be found or that detention would be required.



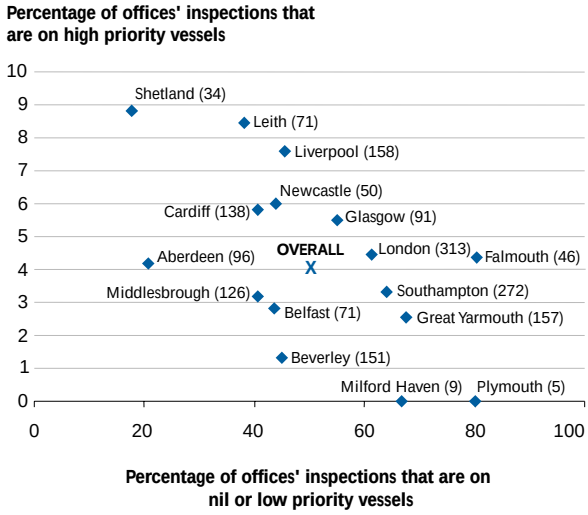
Source: NAO analysis of Maritime and Coastguard Agency database

2.35 However, only four per cent of the 1999-00 inspections were of high priority vessels where the chances of identifying deficiencies, and particularly the more serious deficiencies warranting detention, are greatest. The Agency told us that it inspected so few high priority vessels because there were not many opportunities to do so. Two-thirds of the 926 inspections of nil or low priority vessels identified deficiencies and the Agency detained 41 (four per cent) of them. These data suggest that inspections of nil or low priority vessels were still worth carrying out. However, with 313 (over a third) of the inspections of nil or low priority vessels finding no deficiencies, there is scope for the Agency to achieve more added value from its inspections in terms of improvements in ship safety by shifting more of its inspection work onto medium priority foreign vessels. The Agency pointed out that this would involve inspecting fewer vessels.

2.36 When we visited the marine offices, we sought to examine the documentation on foreign vessels' arrivals in the previous week in order to assess whether surveyors had selected the riskiest vessels for inspection. However, none of the offices retained information to show all of the foreign vessels that had visited their ports and how they had assessed their risks. They could not therefore demonstrate that they had selected the riskiest vessels for inspection. In the absence of this information, we analysed the extent to which the marine offices focused on the different priorities of vessels. **Figure 16** shows that there was considerable variation between marine offices in the percentages of inspections they carried out on high and nil or low priority vessels in 1999-00.

16 **Inspection coverage of high priority and low priority foreign vessels by marine offices, 1999-00**

The percentage of inspections carried out on high priority vessels in 1999-00 ranged from nil to 9 per cent, while the percentage of inspections of low or nil priority vessels ranged from 18 per cent to as much as 80 per cent.



Note: Figures in brackets are numbers of inspections.

Source: NAO analysis of the Maritime and Coastguard Agency's databases

2.37 The data show that:

- inspections of low or nil priority vessels represented between 18 per cent and 80 per cent of the inspections carried out by the marine offices;
- inspections of high priority vessels represented between 0 per cent and 9 per cent of the inspections carried out by the marine offices; and
- a high percentage of inspections carried out by marine offices in Plymouth, Falmouth, Milford Haven, Great Yarmouth and Southampton were of low or nil priority vessels, while only a small percentage was of high priority vessels.

2.38 We asked the Agency whether the preponderance of inspections of low priority foreign vessels in some offices reflected the profile of the vessels available for inspection or poor selection. The Agency told us that the risk profiles for some offices, such as Belfast, were high while the ports covered by other offices, such as Southampton, tended to be visited by more low priority vessels. However, the Agency had not evaluated the risk profiles to confirm that they varied from office to office.

2.39 We sought the views of stakeholders on whether the Agency generally targeted the right foreign ships for inspection. The results of our survey of ships' officers showed that 36 respondents (55 per cent) agreed that the Agency targeted the right foreign vessels for inspection. However, 29 respondents (45 per cent) disagreed. Some members of our shipping industry focus group told us that the Agency's surveyors sometimes appeared to avoid selecting the high risk foreign ships, where there could, for example, be a language barrier complicating the surveyors' work. Instead, surveyors seemed to select for inspection less risky foreign ships where problems were less likely and where inspections would therefore be more straightforward. Five out of thirteen surveyors we interviewed told us that they sometimes selected foreign ships simply to meet their marine offices' targets.

I've been told to just pick the easy ones.

Surveyor

I feel that the Agency is looking for an easy job by inspecting ships with little or no failings.

Ship's officer

Do surveyors select the riskiest UK vessels for inspection?

2.40 The Agency expects its surveyors to refer to its surveys and inspections database and, where appropriate, the target factors on the SIRENAC database to help them select UK vessels for inspection. In our survey of 16 Surveyors-in-Charge, only one said that his office used SIRENAC to help them select UK vessels for inspection. This was because it contained details only of those inspections of UK vessels carried out by other Paris MOU member states; the Agency's inspections of such vessels were not recorded on SIRENAC. The surveyors told us that they did not use any formal criteria to select UK vessels but based their selections on "local knowledge" about particular vessels and their recent inspection histories.

It's a numbers game - to hit the target we can't be that choosy.

Surveyor

2.41 At the marine offices visited, we examined the documentation on the arrival of UK vessels in the ports covered by the offices to assess whether surveyors had selected the riskiest vessels for inspection. However, as for foreign vessels, none of the offices retained information to show all of the UK vessels that had visited their ports and how they had assessed their risks. Again, therefore, they could not demonstrate that they had selected the riskiest vessels for inspection.

2.42 In the absence of such information, we analysed the Agency's surveys and inspections database and found that the Agency was good at targeting the riskiest UK vessels: 77 per cent of the 1,696 unannounced inspections of UK vessels other than Class V passenger vessels carried out in 1999-00 identified deficiencies. Targeting is not relevant to Class V vessels because the Agency aims to inspect every one. Our survey of ships' officers asked whether the Agency generally targeted the right UK ships for inspection. Eighty-nine respondents (71 per cent) considered that the Agency selected the right ships. However, 36 respondents (29 per cent) disagreed. And, a third of the surveyors we interviewed considered that their own marine offices did not generally target the highest risk UK vessels. These findings suggest that the Agency is even better at selecting the riskiest UK vessels than at selecting the riskiest foreign vessels. However, in the absence of documentary evidence to explain why particular UK vessels are selected for inspection and with a quarter of UK vessel inspections identifying no deficiencies, the data also suggest that there is scope for further improvement in the selection of UK vessels for inspection. In particular, there is scope for the Agency to adopt, as part of its information management strategy, a system similar to SIRENAC, for selecting UK domestic vessels. This would ensure that such vessels were selected on the basis of a transparent risk assessment, common to all marine offices, supplemented by surveyors' own local knowledge about the riskiest vessels in their areas.

Do surveyors inspect the riskiest vessels wherever they are located and whenever they require inspection?

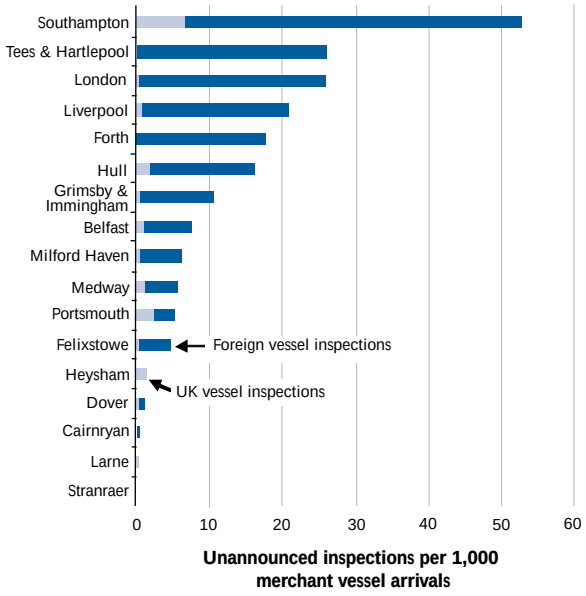
2.43 In 1999-00, the Agency carried out its inspections in at least 185 UK ports and other locations and in 23 other countries. Many of the UK locations are in remote parts of the country and some are on islands that are considerable distances from the mainland, such as the Orkney Islands which are used by the oil industry. The Agency therefore faces a considerable physical and logistical challenge in seeking to inspect the riskiest vessels on a timely basis, wherever they are in the UK.

2.44 Marine offices tend to be located near a main port but also cover wide geographic areas. For example, Liverpool marine office covers the coastline from Silloth in Cumbria to Aberystwyth in Dyfed. The Agency has a policy that 80 per cent of its inspections of foreign vessels should be carried out at major ports, 15 per cent at medium-sized ports and 5 per cent at minor ports. In 1999-00, the Agency achieved a ratio of 72 per cent - 17 per cent - 11 per cent respectively.

2.45 We analysed inspection coverage of UK and foreign merchant vessels in 1999-00 at the 17 busiest ports (those with more than 3,000 merchant vessel arrivals each year) and found that, as a proportion of the vessels arriving, the Agency carried out far more inspections at some ports, such as Southampton, Tees & Hartlepool and London, than at others, such as Heysham and Felixstowe (**Figure 17**). Indicators of the level of risk associated with the vessels inspected, such as SIRENAC target factors and deficiencies found, did not justify these variations. The Agency has recently opened new marine offices in Harwich and in Dover to increase its coverage of the Ports of Felixstowe, Harwich, Dover and other ports nearby. It has also located fishing vessel surveyors in Newlyn and Brixham.

17 **Coverage of UK and foreign merchant vessels at major ports, 1999-00**

There is considerable variation in the Agency's inspection coverage of vessels using the busiest UK ports.



Notes: 1. Data exclude vessels under 100 gross tonnage, fishing and pleasure craft and vessels moving within port.
2. Only a small proportion of vessels arriving in Stranraer, Larne, Cairnryan and Dover were inspected because most arrivals were the same small number of ferries sailing regularly to and from these ports.

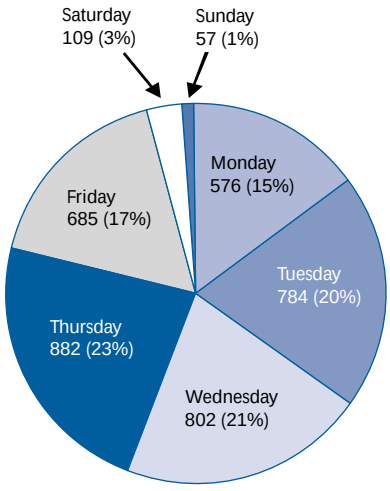
Source: NAO analysis of the Maritime and Coastguard Agency's database, Maritime Statistics 1999

2.46 Our focus group of industry representatives told us that some operators tried to avoid inspection in the UK by using remote ports, where the likelihood of inspection was low. We analysed the Agency's inspection coverage of all ports in 1999-00 and found that surveyors seldom visited some ports, such as Harwich, Newhaven and Ramsgate, despite their handling of large volumes of traffic. Surveyors told us that they were discouraged from visiting remote ports because of the costs of travel and subsistence and the travelling time required, which might mean that it was possible to inspect only one vessel in a day.

2.47 The shipping and fishing industries operate seven days a week and vessels may depart from ports within a few hours of arrival. The Agency therefore needs to have surveyors available to inspect vessels whenever the need arises. However, surveyors' normal work patterns follow typical working hours from Monday to Friday. Whilst they work outside these hours, either on evenings or at weekends, if for example there are matters to attend to on a detained ship, they rarely inspect ships on a Saturday or Sunday (**Figure 18**). The Agency pointed out that there is also a surveyor on standby in each of the four Regions every weekend to respond to any serious problems that might arise. The Agency told us that there tend to be fewer arrivals of vessels at weekends, but it did not have any data to show this. We were therefore unable to determine whether the paucity of weekend inspections was due to few Saturday and Sunday arrivals. The Agency also told us that more inspections at weekends would increase its staff costs and that this had to be balanced against the risk that some sub-standard ships might schedule their arrivals and departures in UK ports for weekends to minimise the chance of an inspection. However, in the absence of data on weekend arrivals, this assessment cannot be made.

18 **Inspections of vessels by day of the week, 1999-00**

While the Agency carries out some inspections of vessels at weekends, such inspections are infrequent, particularly on Sundays.



Note: Figure includes all inspections of foreign vessels and unannounced safety inspections of UK vessels.

Source: NAO analysis of the Maritime and Coastguard Agency's database.

2.48 The Agency's responsibility for enforcing high standards of marine safety covers all UK-registered vessels wherever they are based. Its activities therefore include surveying and inspecting the UK vessels that trade in other parts of the world, rarely or never visiting the UK, and these vessels are estimated to be around 30 per cent of the UK fleet of large vessels (over 500 gross tonnage). The Agency restricts the need for overseas visits by using the overseas offices of the recognised classification societies to carry out some of the survey work not normally delegated to them.

2.49 The Agency's policy is for its surveyors to see each of these vessels once every five years. This is because it considers that it cannot rely entirely on surveys and inspections by other parties, such as the classification societies and foreign maritime authorities carrying out Port State Control inspections. The Agency also has a policy of carrying out a follow-up inspection when a UK vessel is detained abroad or when there are other reports of serious deficiencies. In 1999-00, the Agency carried out 154 survey visits - of which 125 also incorporated an inspection - and 17 unannounced inspections overseas.

2.50 Rather than arranging travel and accommodation themselves and recharging the costs to owners of vessels being surveyed overseas, it is Agency policy for surveyors to ask the owners to arrange and pay for their travel and accommodation. This is done to reduce costs incurred by the Agency because it has to surrender to the Treasury any travel costs it has paid and subsequently recovered from owners. Whilst there has been no suggestion that surveyors' judgements have been compromised, there is a risk that under these arrangements surveyors' professional judgements will be open to question.

We recommend that the Agency:

- establish formal procedures by which its marine offices may obtain complete, timely and consistent information from port authorities to improve their ability to target the riskiest vessels;
- consider the case for gathering first hand intelligence about shortcomings in the management and operation of vessels through, for example, more incognito checks on board vessels and surveillance of officers and crew when vessels are in port;
- ensure that its marine offices record all of the vessels that have visited their ports, for example, over the course of a week, and how they have assessed their risks. Offices should retain the information for at least a week so that they may demonstrate at any point in time during management, peer or audit review that their previous week's selection was based on evidence about the risks that the vessels posed;
- adopt a risk assessment system for selecting UK vessels for inspection, similar to the one it uses for selecting foreign vessels that use UK ports;
- whilst maintaining a credible level of deterrence at all times, shift more of its inspection work towards the riskier UK and foreign vessels and, where the additional costs are justified by vessels' potential risks, do more of its inspections at remote ports and at weekends; and
- discontinue its policy of asking owners to pay for the travel and accommodation costs associated with overseas surveys, and instead require Agency staff to arrange surveyors' travel and accommodation and recharge the costs to vessel owners as it does for survey fees.

Part 3

Doing the job well

3.1 This Part of the report examines how well surveys and inspections are carried out and how well the quality of work is assured. In particular, it examines whether:

- the work is done by people with the requisite skills (paragraphs 3.2 to 3.10);
- the work covers the right safety issues in sufficient detail (paragraphs 3.11 to 3.18); and
- the Agency assures the quality of the work done (paragraphs 3.19 to 3.32).

Is the work done by people with the requisite skills?

3.2 The Agency needs to ensure that its surveyors have appropriate academic or professional qualifications, and relevant experience, to carry out their survey and inspection work to the standards required. Surveyors should be properly trained for the job and receive appropriate guidance and advice, as part of a programme of continuing professional development. The Agency also needs to ensure that it delegates work only to classification societies that have the right skills and experience.

Do the Agency's surveyors have the right skills and experience?

3.3 Industry representatives told us that the Agency's surveyors had a high reputation in the UK and abroad. The Agency's international standing is evident from the senior posts that its staff hold in international maritime bodies, including Chairman of the IMO's Maritime Safety Committee and Chairman of the Paris MOU Committee. Maritime authorities from other countries, such as Russia, Israel, Cyprus and Iceland, have also sent their staff to the Agency to be trained, while others have requested technical assistance from the Agency.

3.4 Most of the respondents to our survey of ships' officers considered that the Agency's surveyors generally had the right skills for survey and inspection work. The IMO has set minimum requirements for the skills and experience of surveyors of all types of commercial vessel except fishing vessels. The Agency has set its own requirements above these levels and has extended them to cover fishing vessel surveyors. Its surveyors are mostly former deck officers, engineers or naval architects. They are required to have minimum professional or academic qualifications and a minimum of three to five years' relevant maritime experience, depending on their qualifications. Industry representatives and ships' officers told us that, in their view, surveyors should have spent some time at sea. The Agency, however, does not require this. Deck officers and chief engineers will have spent time at sea but most naval architects will not have such experience. Of the 99 surveyors in the Agency's marine offices, 77 have experience of working at sea. The Agency expects that it will find it increasingly difficult to recruit experienced officers due to the declining numbers of British ships' officers.

NAO survey of ships' officers

Do the Agency's surveyors generally have the right skills to carry out:

	Yes	No
statutory surveys?	146 (82%)	25 (15%)
inspections of UK vessels?	134 (88%)	18 (12%)
inspections of foreign vessels?	65 (86%)	11(14%)

3.5 The Agency's surveyors have traditionally specialised in areas of survey and inspection work. However, for several years the Agency has increasingly expected surveyors to be able to undertake any aspect of survey and inspection work that they would come across in their day-to-day work, to improve the Agency's ability to meet the needs of its customers and its own survey and inspection targets. The Agency's own staff survey in October 1999 showed that almost half of the surveyors who responded considered that they had not received enough training for their jobs. The introduction of the ISM Code has required surveyors to develop new skills to examine the operational and management systems at owners' premises and on board vessels. The Agency has trained 73 of its staff to undertake ISM surveys and inspections. However, it requires its surveyors to have a minimal level of practical experience of such work before it deems them fully qualified. With the limited number of UK vessels currently covered by the Code, there are not many opportunities for surveyors to become fully qualified. As of January 2001, 31 surveyors in 12 marine offices were fully qualified. There were no surveyors fully qualified for ISM work in Shetland, Great Yarmouth, Leith and Middlesbrough marine offices, while Cardiff, Falmouth and Newcastle marine offices each had only one ISM qualified surveyor. The Agency told us that in practice this was not a problem because fully qualified ISM surveyors travelled to carry out their work. The Agency is currently developing a new approach to training, through which surveyors would be expected to be trained to a basic or higher level of competency in particular types of work, including ISM surveys and inspections, depending on the complexity of their daily work. The Agency expects to complete phasing in its new training arrangements in April 2001. In the meantime, surveyors can still receive relevant training where they lack the necessary knowledge or expertise.

MCA Staff Survey

	Yes	No
Have you received adequate training to do your current job?	43%	43%

3.6 The Agency has progressed its training of coastguard sector managers to inspect the safety equipment of small fishing vessels. Other aspects, such as testing the vessels' stability, continue to be the responsibility of qualified surveyors. Coastguard sector managers are not qualified surveyors but are given one day's formal training, after which they are assigned to a fishing vessel surveyor for on-the-job training until the surveyor is satisfied that the coastguard sector manager is competent in such inspection work. Representatives of the fishing industry told us that they supported this development. By November 2000, the Agency had trained 62 of its 64 coastguard sector managers.

Does the Agency provide its surveyors with appropriate guidance and advice?

3.7 The Agency issues a range of guidance to surveyors, covering the different types of surveys and inspections that need to be done, amendments to regulations and other issues that need to be brought to their attention. All of the guidance is available on paper and some, such as details about technical publications, maritime legislation and latest advice to seafarers, are available on the Agency's own Internet website. However, the Agency's own staff survey in October 1999 showed that 38 per cent of surveyors who responded considered that up-to-date guidance was not available on paper and 63 per cent considered that it was not readily available electronically. One of the marine offices visited did not have access to the Agency's Internet website.

MCA Staff Survey

	Yes	No
Are up-to-date guidelines and amended regulations etc. available:		
on paper?	39 (39%)	38 (38%)
electronically?	19 (19%)	65 (65%)

3.8 We asked surveyors in the six marine offices visited how they ensured that they were able to cover all aspects of a survey or inspection, including those outside their own discipline. Surveyors in the larger offices told us that, before visiting a vessel, they discussed any questions that they had about areas that were outside their discipline with an experienced surveyor. They also told us that they would call from the vessel to ask for any further advice if necessary. Surveyors in the smaller offices, however, told us that there was less scope for them to consult with more experienced colleagues before visiting a vessel. For example, there are no ship surveyors in Cardiff or Great Yarmouth, two of the smallest marine offices. Although they could telephone neighbouring offices for advice, four surveyors told us that they were hesitant to call as they had not built up strong working relationships with surveyors in other offices.

3.9 Surveyors may telephone the Agency's headquarters to ask for advice but only one surveyor mentioned that he would do this as a matter of course. Ten of the 17 surveyors we interviewed were dissatisfied with the availability and quality of advice offered from headquarters, because they considered that the relevant staff were difficult to contact and advice given was often inconsistent and showed a lack of knowledge or experience. Only three of the 17 surveyors interviewed told us that they were satisfied with the service provided by headquarters. The Agency told us that it had recently suffered from a significant turnover of experienced surveyors in its headquarters.

Does the Agency ensure that it delegates work only to classification societies that have the right skills and experience?

3.10 The six classification societies recognised by the Agency are members of the International Association of Classification Societies (IACS). IACS requires its members to employ qualified staff and provide a programme for continuing professional development. A European Union directive requires the Agency to carry out, as a minimum, a biennial monitoring visit of each of the six societies that carry out work on its behalf, to assure the quality of their work. As part of these visits, the Agency checks that the qualifications and experience of society surveyors are generally satisfactory and that societies have sufficient arrangements for monitoring surveyors' reliability and expertise. In particular, it checks that statutory surveys on UK vessels are undertaken by properly qualified and full time employees of the society. We examined 12 of the visits that the Agency had undertaken between July 1997 and March 2000, covering all six of the recognised societies. In each case, the Agency concluded that the societies' surveyors were professional and technically competent to carry out the delegated work. Our survey of ships' officers showed that 87 per cent of respondents considered that classification society surveyors had the right skills to carry out surveys on behalf of the Agency.

NAO survey of ships' officers

	Yes	No
Do classification societies have the right skills to carry out surveys for the Agency	151 (87%)	23 (13%)

We recommend that the Agency:

- implement its new training programme as soon as possible to ensure that its surveyors have the necessary skills and knowledge to carry out survey and inspection work outside their traditional disciplines, including ISM surveys and inspections. The Agency should also carefully monitor the progress of the programme and evaluate its impact;
- ensure that there are a sufficient number of fully qualified ISM surveyors in each of its marine offices; and
- improve the availability of guidance and advice for surveyors by, for example, ensuring that all surveyors have access to up-to-date information on their computer systems and by establishing a technical advisory group, consisting of a network of surveyors in its marine offices and at headquarters appointed for their expertise in particular aspects of survey and inspection work, whom other surveyors could contact for guidance and advice.

Does the work cover the right safety issues in sufficient detail?

3.11 A surveyor cannot reasonably be expected to check in depth, in a single survey or inspection, all aspects that have a bearing on ship safety or even that a vessel meets all relevant maritime regulations. The IMO has estimated, for example, that a full survey of a very large oil tanker would involve the surveyor climbing 8,000 metres to inspect 2,000 kilometres of welding across an area equivalent to 1,500 tennis courts. Doing this and covering other aspects such as a vessel's operations and the certification of its officers would clearly be impractical on an inspection and would disrupt the operation of vessels, which often work to tight schedules in a competitive industry. Surveyors therefore select areas of the vessel to be checked. The results of our survey of ships' officers showed that most respondents considered that surveys and inspections generally looked at the right things in sufficient detail. However, almost a third of respondents who had served on board a foreign vessel considered that inspections of foreign vessels did not examine each aspect of ship safety in sufficient detail.

3.12 Except for gas carriers, which surveyors rarely come across, the Agency has not issued its surveyors with aides memoir to ensure that they do not omit any important safety aspects from their surveys and inspections or to focus attention on key safety aspects for different types of vessel. At the six marine offices visited, surveyors used their own individual aides memoir which they developed using a variety of material, such as vessels' previous certificates and guidance notes. It is inefficient to have many surveyors compiling their own aides memoir. It also brings with it the risk that surveyors omit key aspects from their work, use out-of-date information and apply an inconsistent approach to their work.

NAO survey of ships' officers

	Yes	No
Do statutory surveys generally cover all the things that affect ship safety?	166 (93%)	12 (7%)
Do statutory surveys generally examine each aspect of ship safety in sufficient detail?	151 (85%)	27 (15%)
Do the Agency's inspections of foreign vessels generally cover all of the most important things that affect ship safety?	68 (88%)	9 (11%)
Do the Agency's inspections of foreign vessels generally examine each aspect of ship safety in sufficient detail?	50 (68%)	24 (32%)
Do the Agency's inspections of UK vessels generally cover all of the most important things that affect ship safety?	137 (88%)	19 (12%)
Do the Agency's inspections of UK vessels generally examine each aspect of ship safety in sufficient detail?	132 (80%)	33 (20%)

3.13 Surveyors use a standard form to record basic details about the vessels that they have surveyed or inspected, such as the expiry dates of the vessels' certificates; the only other information that they record is any deficiencies found. They do not record the reasons why they selected a vessel for inspection. Nor does the Agency require surveyors to record the areas or operations of the vessel that they have checked and found to be satisfactory. Surveyors are therefore unable to demonstrate what they have checked during their surveys and inspections. If they did record all of this information, the Agency would have a permanent record of why particular vessels were chosen and would then be able to inform future decisions based on whether concerns about particular vessels were borne out by the results of their inspections.

3.14 Sixteen of the 17 surveyors interviewed used notebooks to record aspects of their work. We reviewed the notebooks and found that the information recorded varied and included, for example, deficiencies identified, issues that surveyors wanted to raise with the vessels' officers and figures, diagrams and calculations. Such information can provide a broader picture of the state of the vessel at the time of the inspection or survey and notebooks have been used in the past as evidence in prosecution cases brought to court. However, six of the surveyors we interviewed were unaware that their notebooks could be used as evidence in court.

3.15 The Agency has recognised that traditional methods of memorising procedures and storing information in notebooks are no longer appropriate. It has an opportunity, in the information management strategy that it is currently developing, to address the need for aides memoir and for recording the areas of the vessel that surveyors have checked and found to be satisfactory or deficient.

3.16 Despite the importance that has been attached over recent years to ensuring the safe operation and management of vessels, the Agency does not know how many of its inspections check on these aspects of vessels, particularly in accordance with the ISM Code. The Agency could not therefore demonstrate that enough of its inspection work was devoted to checking on the human factors affecting ship safety, as opposed to checking equipment, appliances and engineering issues. In addition, there have been no reports to the Agency's senior management on the implementation and impact of the Code.

3.17 The vast majority of surveys and inspections take place while vessels are in port; very few are carried out while vessels are at sea. A vessel is still working whilst in port and surveyors may observe, for example, an emergency drill, cargo handling and maintenance work. However, ships' officers who responded to our survey commented that operational procedures on board ship should be checked while the vessels are at sea. There are practical difficulties associated with carrying out inspections while vessels are at sea; such inspections require surveyors to remain on board vessels until the next port of call and not all of their time is therefore productive. However, these would need to be considered alongside the benefits that such practices would bring in ensuring the safe management and operation of vessels.

3.18 The ISM Code does not cover fishing vessels. However, health and safety regulations require safe working conditions on board such vessels. The Agency has also worked closely with the fishing industry and in September 1999 issued best practice guidance to 3,500 fishing vessel owners on assessing risks on board their vessels. And, in April 2001 the Government will be introducing a new Code of Practice for Small Fishing Vessels (the *Under 12 Metre Code*). However, the risk assessment guidance only covers owners who employ fishermen; it does not cover owner-operators. And, although surveyors may ask during the course of their inspections whether owners have undertaken a risk assessment, the guidance is not mandatory and the Agency does not know how many vessels have been risk assessed by their owners.

We recommend that the Agency:

- prepare and issue aides memoir to help surveyors focus on the right issues for surveys and inspections of different types of vessel and record the reasons why they selected the vessel for inspection and all of the areas and operations that they have checked and found to be satisfactory or deficient;
- assess whether its surveyors are giving sufficient attention to operational and management issues on board vessels;
- consider the case for carrying out a proportion of its inspections while vessels are at sea, so that the management and operation of vessels can be observed and checked during the actual running of the vessels rather than only while vessels are in port; and
- monitor the take up of the fishing vessel risk assessment guidance and the *Under 12 Metre Code* and assess their impact on the operation and management of fishing vessels.

Does the Agency assure the quality of the work done?

3.19 The Agency needs to have in place quality assurance mechanisms while the work is being done and after it has been completed. The Agency's survey and inspection processes are certified to ISO 9001. Classification societies hold similar quality assurance certification. This provides a framework that is intended to ensure that the work is carried out to a consistent standard. In addition, the Agency needs to ensure the quality of the work undertaken by its own surveyors and those of the classification societies. Most ships' officers told us that they considered that the standard of work of the Agency and classification societies was good and that the quality of the Agency's inspections was at least as good as that of other maritime authorities in the European Union. Shipping industry representatives were of the same view.

NAO survey of ships' officers

	Yes	No
Is the overall standard of statutory surveys carried out by the Agency good?	164 (94%)	10 (6%)
Is the overall standard of statutory surveys carried out by the Classification Societies good?	153 (90%)	17(10%)
Is the overall standard of the Agency's inspections of UK vessels good?	140 (92%)	12 (8%)
Is the standard of the Agency's inspections of foreign vessels either as good as or better than that of other European Union countries?	56 (88%)	8 (12%)

Does the Agency supervise and monitor its own surveys and inspections as they are being done?

3.20 Surveyors undertake most surveys and inspections on their own; Surveyors in Charge at each marine office rarely accompany surveyors on board vessels. In our previous report in 1992, we recommended the introduction of peer review to provide assurance on the quality of the work carried out on board ship. However, the Agency has not introduced peer review, or any other approach, for monitoring surveyors' work. Surveyors told us that they would welcome such a review. The Agency told us that it is now drawing up the standards to be used in peer review.

3.21 Marine offices have adopted their own approaches for reviewing the quality of the work done. Three Surveyors in Charge told us that they took part in surveys or inspections as part of a team whenever possible. Three others told us that they either did not have the time to accompany surveyors on visits or did not have any method of evaluating the performance of the surveyors while they were on board vessels.

3.22 Seven Surveyors in Charge told us that they reviewed the forms and paperwork of surveyors and discussed their work with them before and after surveys and inspections had been completed. All 16 Surveyors in Charge told us that they also sought the opinions of colleagues in their own and other marine offices and the operators and officers of vessels to assess the quality of the work done. Four Surveyors in Charge told us that they adopted a job rotation system whereby different surveyors visited the same vessel over a period of time in order that any deficiencies that had gone unnoticed were picked up. However, these are not part of standard Agency procedure. Nor does the Agency have any system for obtaining regular feedback from ships' officers and operators on the quality of surveys and inspections or for reporting concerns about marine offices' work.

Does the Agency review the consistency and cost of the work carried out by marine offices?

3.23 The Agency's surveyors often have to interpret aspects of maritime legislation during the course of their work and decide on whether vessels meet legislative requirements. In 1994, the Surveyor General's Organisation (SGO) - one of the Agency's predecessor bodies - carried out a customer satisfaction survey of a wide range of its customers and stakeholders. Out of nine factors associated with the quality of surveys, the SGO was judged to be weakest on the consistency of its work. Since its formation in April 1998, the Agency has not carried out any reviews of the consistency of its work.

The Agency's rules are interpreted differently in different ports around the UK.

Ship's officer

Decisions appear to depend on individual surveyors' interpretation of the rules.

Ship's officer

3.24 Ships' officers and industry representatives expressed concern that marine offices were still inconsistent in the standards that they applied and in the time that they took and the fees that they charged for surveys. Five of the surveyors that we interviewed told us that, although written guidance on legislation was adequate in most circumstances, in some areas the legislation needed to be interpreted and that in these areas the Agency had not provided clear and consistent advice.

The problem is that when you phone [headquarters] you get personal opinion, not Agency policy.

Surveyor

The law is not being laid down by headquarters - if it is, it is not being disseminated to marine offices. Different advice is being given to seafarers from marine offices and headquarters.

Surveyor in Charge

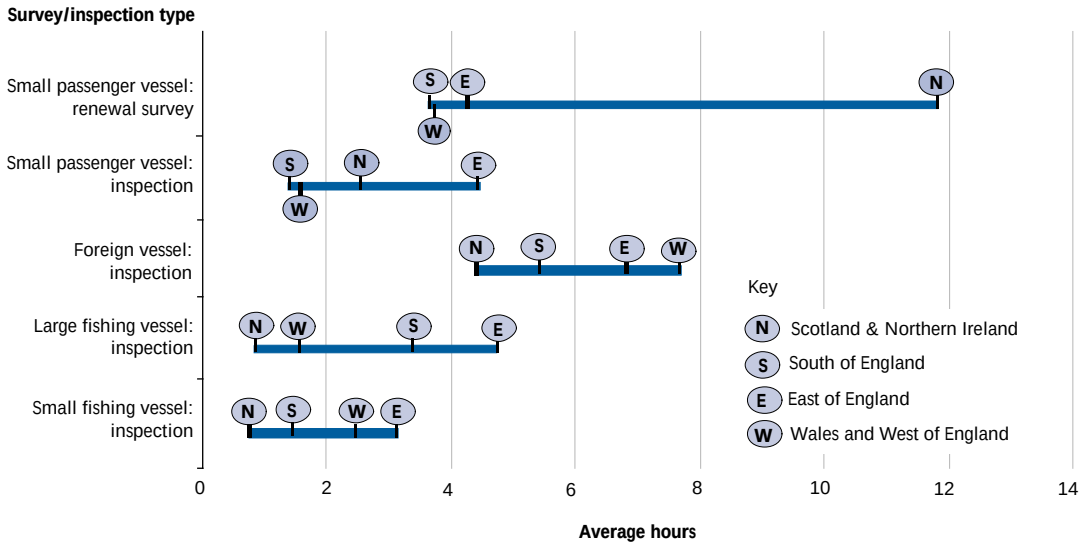
3.25 The Agency has started using its time recording system to benchmark its activities between marine offices, although this type of analysis is still in its infancy and there is no breakdown of how time is spent, for example on travel, within particular types of inspections. Data taken from the Agency's system showed that there was significant variation in the average time taken to complete surveys and inspections across the four geographical regions in which the Agency's marine offices are grouped (**Figure 19**). For example, the average time taken to carry out a renewal survey of a passenger vessel ranged from four hours in the East of England Region to 14 hours in the Scotland & Northern Ireland Region. On average, inspections of large fishing vessels in the East of England Region took five times as long as in the Scotland & Northern Ireland Region. These data suggest that some marine offices might be conducting similar tasks in much more or less detail than other offices. The Agency has not investigated the reasons for these regional variations.

Does the Agency assure the quality of the work delegated to other organisations?

3.26 An EU Directive requires biennial monitoring visits to be undertaken of each classification society that carries out work on behalf of a national maritime authority. In order to avoid over-monitoring, national maritime authorities may also rely on the monitoring work undertaken by other authorities. However, there are no formal guidelines, set by the EU or by the Agency, on how much time should be spent monitoring societies. Over the last full biennium, 1998-99 and 1999-00, the Agency visited five of its six recognised societies once and the sixth society twice. From our analysis of the monitoring visit reports, we estimated that the Agency spent some 46 days on the visits during this period. The Agency told us that five days of this time related to on-the-job training, so the amount of direct monitoring time spent was 41 days. **Figure 20** shows that, over the last biennium and after allowing for training, the Agency spent between three and 13 days visiting each society. One society, Lloyd's Register of Shipping, covers some two-thirds of the UK fleet in its class, yet the Agency spent less time visiting this society than it did visiting three of the others. Industry representatives told us that the quality of the work varied between societies and between the societies' offices around the world. These factors suggest that the Agency should put more resources into visiting some societies than into others. However, in planning its monitoring work, the Agency does not set out the basis on which it apportions its resources between individual societies, which should reflect the amount of work done by each society and the risks that they pose.

19 Time taken by the regional groups of marine offices to carry out surveys and inspections, 1999-00

There were large variations in the time taken to carry out similar survey and inspection work.



Notes: 1. The time period for surveys is April 1999 to June 2000, and includes part-finished surveys.
2. Average time includes office-based aspects of the survey or inspection. For inspections, it may also include some travel time.
3. Small passenger vessels includes Class V vessels.

Source: Maritime and Coastguard Agency

20 **Resources used in visiting individual classification societies compared with the proportion of work undertaken by the societies on behalf of the Agency, 1998-99 to 1999-00**

Over the last full biennium, the amount of time that the Agency spent visiting each society was not commensurate with the amount of survey work that individual societies carried out on the Agency's behalf.

Classification society	Percentage of UK vessels in class	Number of visit days, 1998-99 to 1999-00	Percentage of visit effort, 1998-99 to 1999-00
Lloyd's Register of Shipping, UK	68	5	12
Det Norske Veritas, Norway	12	4	10
Germanischer Lloyd, Germany	12	10	24
American Bureau of Shipping	4	6	15
Bureau Veritas, France	3	3	7
Registro Italiano Navale	1	13	32
TOTALS	**100**	**41**	**100**

Source: NAO review of the Maritime & Coastguard Agency's records

3.27 As part of its monitoring, the Agency visits societies' headquarters and regional offices to interview managers, review societies' systems of control and examine documentation in support of one or two of the surveys carried out. From our examination of the 12 visits that the Agency carried out between July 1997 and March 2000, we found that the Agency had concluded that all of the societies met the standards required. Although the Agency met the EU requirement for biennial monitoring visits of each society, its visits were brief, normally taking around two days to complete, and usually did not involve accompanying a surveyor to a UK ship or assessing customer opinion. In seven of the visits, the Agency was unable to demonstrate that recommendations that it had made in previous visits had been taken up by the societies concerned. We identified several areas where there was scope for improving the monitoring visits (**Figure 21**).

3.28 Marconi Mobile Ltd carries out all surveys and unannounced inspections of radio equipment on UK vessels on behalf of the Agency. The Agency sets targets for the number of such inspections each year. Marconi surveyors will also attend Port State Control inspections at the request of the Agency's surveyors. The Agency carries out annual monitoring visits of the company, visiting Marconi headquarters and local offices around the country. The visits include accompanying Marconi surveyors on board vessels to assess their work, and the Agency follows up recommendations during the next visit. The Agency's monitoring visits to date have found the work carried out to be satisfactory, that the appointed surveyors are adequately trained and qualified and that all requests for surveys were dealt with within 24 hours. Marconi also met its annual inspection targets.

21 **NAO best practice guide for carrying out monitoring visits of classification societies**

There are several areas in which the Agency could improve its monitoring of classification societies.

In determining the level of resources to be spent on visiting individual societies, the Agency should take account of:

- the volume of survey work that each society undertakes on the Agency's behalf; and
- the risks posed by each society, based on cases where inspections of UK vessels have identified deficiencies in areas that are the responsibility of a society and the results of previous monitoring visits undertaken by the Agency and other maritime authorities.

In undertaking its monitoring visits, the Agency should:

- focus more of its monitoring work on societies' regional offices than on their headquarters;
- select more surveys for review;
- accompany society surveyors on more surveys;
- follow up recommendations made in previous monitoring visit reports; and
- obtain the views of the operators of vessels surveyed by the recognised classification societies.

Source: NAO review of the Maritime & Coastguard Agency's records

Does the Agency assess customer satisfaction?

3.29 The Agency has adopted a set of service standards to evaluate its performance in dealing with issues that affect its customers. However, none of the standards relate directly to the quality of survey and inspection work carried out by Agency, classification society or Marconi surveyors.

3.30 The Agency wishes to encourage feedback from its customers and has a customer complaints' procedure, which it publicises through its Internet website, a 24-hour telephone information service and leaflets at its marine offices. Where complainants are not satisfied, the Agency provides for an independent adjudicator to assess the case. We reviewed the 24 complaints that the Agency received in 1999. The Agency had investigated and resolved all 24 cases. Nine complaints related to surveys and inspections, although there were no significant implications for the way in which the Agency conducts its work.

3.31 The Agency has also appointed customer service managers to act as the main contact point for vessel operators, particularly those operators wishing to bring their vessels onto the UK register. Industry representatives told us that they welcomed this development and that it was working well and improving the Agency's customer service and focus.

3.32 However, the Agency has no arrangements for gauging customer satisfaction on a more regular and systematic basis. Many of the ships' officers and industry representatives that we consulted welcomed the opportunity to give their views and were willing to take time to give detailed comments on the issues addressed in this report. A set of measures is therefore needed, along the lines of our own survey of ships' officers, to ensure that the key issues associated with the quality of surveys and inspections are properly and regularly monitored.

We recommend that the Agency:

- introduce a peer review system to assure the quality of survey and inspection work as it is being done;
- adopt a job rotation system as standard practice across all of its marine offices to ensure that different surveyors visit the same vessel over a period of time in order that any deficiencies that have gone unnoticed are picked up;
- identify the areas of maritime legislation that surveyors have most difficulty in interpreting consistently and review its policy advice to ensure that it is clear on how surveyors should apply the legislation;
- regularly benchmark the number of hours that its marine offices charge to undertake surveys and identify the reasons for any significant variations;
- improve its time recording system by ensuring that recording is consistent and in sufficient detail to enable it to monitor effectively how surveyors' time is spent;
- strengthen its monitoring visits of the recognised classification societies along the lines suggested in this report; and
- periodically obtain feedback from ships' officers and the operators of vessels on the quality of surveys and inspections, along the lines of our own survey of ships' officers.

Part 4

Acting on the results

4.1 To maximise its contribution to ship safety, the Agency needs to ensure that its surveyors, vessel operators and classification societies act upon the results of surveys and inspections. This Part therefore examines whether the Agency ensures that effective action is taken on completion of surveys and inspections by:

- prosecuting offenders for significant breaches of maritime legislation (paragraphs 4.2 to 4.11);
- preventing the use of vessels until deficiencies are rectified (paragraphs 4.12 to 4.18);
- following up on deficiencies found (paragraph 4.19); and
- publicising and providing feedback on the results of survey and inspection work, to help deter sub-standard shipping and improve regulation and ship safety (paragraphs 4.20 to 4.26).

Does the Agency take effective action on significant breaches of maritime legislation?

Does the Agency have a policy of seeking prosecutions for significant breaches?

4.2 A "significant breach" is a contravention of merchant shipping or marine pollution legislation that could, or has caused, loss of life, serious injury, significant pollution or damage to property or the environment. Significant breaches relate to three areas: unsafe ships; unsafe operations; and, pollution. The Agency is responsible for enforcing maritime legislation by investigating reports of significant breaches. It aims to identify offenders - ship operators, officers or crew - and prosecute them where appropriate.

4.3 In 1998, the Agency set up an Enforcement Unit to investigate reports of significant breaches and take legal action where appropriate. There had previously been no central facility for preparing prosecutions; marine offices had to do the preparatory work themselves and then engage lawyers. There were fewer prosecutions before 1998, and the Agency considers that the Unit's work has raised the Agency's profile as an enforcement organisation, helping to maintain the credibility of the UK's maritime legislation and deter sub-standard shipping. Our focus group of shipping industry representatives praised the Agency's policy on prosecutions, which they considered made a significant contribution to improving maritime safety.

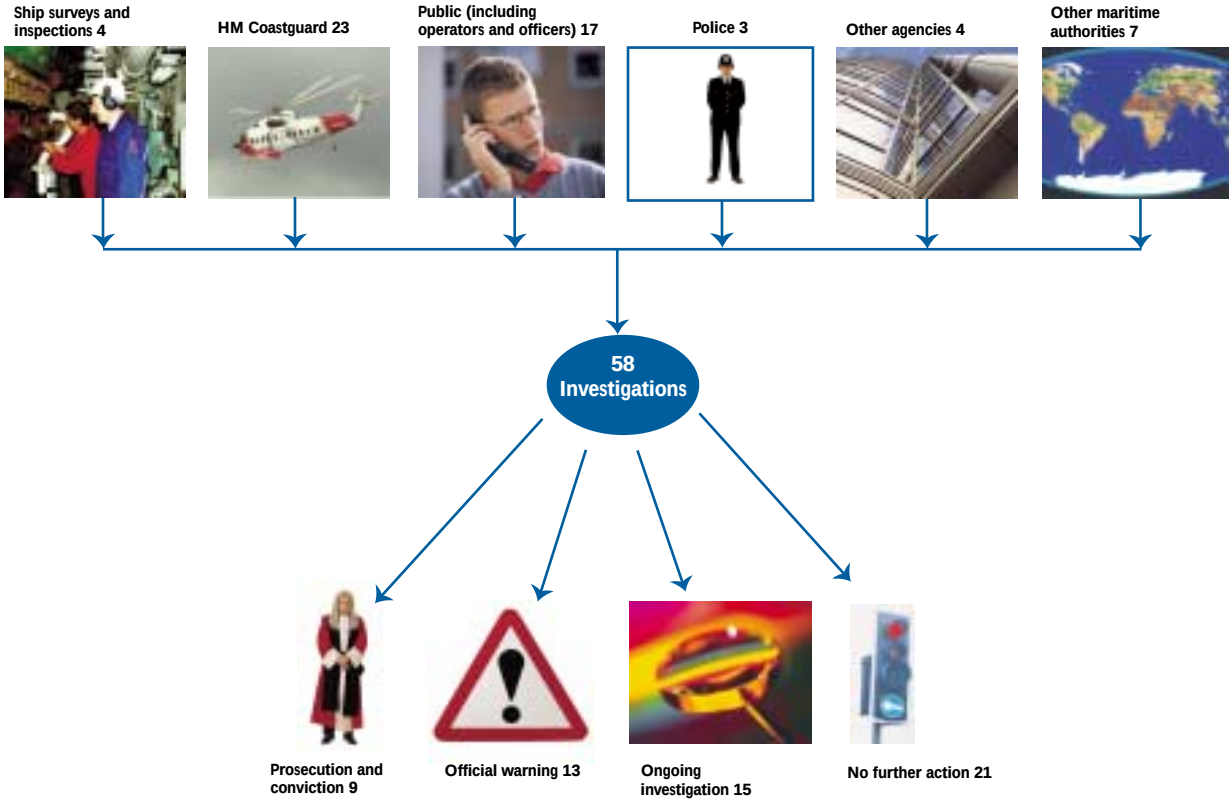
4.4 We contacted other maritime authorities and interrogated their Internet websites to find out about their handling of prosecutions. Few had enforcement units comparable to that of the Agency. Although the US Coastguard's law enforcement arm carries out prosecutions, its focus is much more on combating drug smuggling and illegal immigration; it aims to turn back sub-standard foreign ships before they reach US ports. There was also little evidence of prosecutions for unsafe ships. Those authorities that do prosecute, do so mainly for pollution offences. For example, Transport Canada and the Australian Maritime Safety Agency did not pursue any prosecutions for safety-related offences in 1999-00.

4.5 The Agency aims to investigate all reports of significant breaches and start investigations immediately to ensure that relevant evidence is not lost. **Figure 22** overleaf shows that the Enforcement Unit received and investigated 58 reports in 1999-00. The reports came from six main sources; 27 came from within the Agency, and 31 came from external sources including the public.

4.6 The Agency told us that, in England and Wales, it bases its decision whether to prosecute on: whether it is in the public interest; the seriousness of the offence; and, the likelihood of success. In Scotland, the decision on whether to prosecute is taken by the Procurator Fiscal, on the same grounds. In 13 cases that it investigated, the Agency issued official warnings after deciding that it was not in the public interest to prosecute. In another 21 cases, the Agency took no further action after its investigation: in 11 of these cases, there was a lack of evidence; in four cases, the Agency did not have the jurisdiction to proceed; and in three cases the Agency considered that action would not have been in the public interest.

22 **Reports and investigations of significant breaches, 1999-2000**

The 58 significant breach reports in 1999-2000 resulted in nine successful prosecutions and 13 sets of official warnings. However, in 21 cases, there was no further action taken following the investigation.



Source: The Maritime and Coastguard Agency

Is the Agency set up to identify and report significant breaches?

4.7 In undertaking some 5,500 inspections each year in addition to its surveys, the Agency's own surveyors are its main contact with vessels using UK waters. We would expect this work to provide a major source of significant breach reports. However, only four of the 1999-00 significant breach reports came directly from inspections. The Agency told us that it was for surveyors to decide whether or not to report significant breaches, but that its policy was to prosecute only where other sanctions were insufficient. Surveyors' primary concern was for the immediate safety of passengers and crew, which led them to avoid reporting deficiencies as breaches provided they were promptly rectified. However, by leaving such decisions to surveyors, it is likely that the Agency is not prosecuting all of the cases that it could do. Speedy resolution of problems should not preclude further action being taken where those problems constitute significant breaches.

4.8 The Agency told us that its ability to gather evidence for a possible prosecution of safety-related breaches was constrained by its lack of powers to detain a vessel while such breaches were being investigated. In contrast, the Agency can detain a vessel while investigating alleged pollution offences or until appropriate security (such as a financial bond) is obtained.

4.9 The Enforcement Unit told us that time pressures and a lack of confidence and experience on the part of surveyors also contributed to the small number of significant breaches reported by surveyors. Only four of the 17 surveyors we interviewed told us that they had some experience of preparing reports of significant breaches. And nine of them told us that they did not understand the particular requirements of evidence gathering in the case of a significant breach. The Enforcement Unit considered that guidance and training in criminal evidence gathering was inadequate. If interviews are not conducted in accordance with the procedures of the Police and Criminal Evidence Act 1984, then they may be inadmissible as evidence, prejudicing the Agency's ability to take legal action. There has been one case of a surveyor's actions prejudicing an investigation. The Agency is aware of these problems. It plans to improve its guidance and has commissioned consultants to provide training in reporting and investigating significant breaches in 2001.

Is the Agency successful in its prosecutions?

4.10 In 1999-00, the Agency achieved convictions in all eight cases that it took to court; seven were for significant safety-related breaches and all were the result of incidents that endangered lives, rather than failures to meet safety standards (**Figure 23**). The police took a

ninth case to court with the assistance of the Agency, concerning the use of a bogus certificate of competency by a ship's officer. As in previous years, no cases involved Class V passenger vessels. One officer was sentenced to 12 months' imprisonment. The courts also fined offenders between £1,500 and £15,000 for breaches of safety regulations. The levels of fines for particular offences are set out in maritime legislation. In cases that come before a magistrate's court, fines may be up to a maximum of £50,000 for some types of safety breaches, although for most breaches the maximum fine is £5,000. This compares with a maximum fine of £20,000 for employers who breach health and safety legislation. For pollution offences, fines can be up to £250,000. Fines may be unlimited in any cases that are referred to a higher court. In our survey of ships' officers, 56 per cent of respondents considered that sentences imposed on offenders should be more severe.

23 **Prosecutions by the Agency, 1999-00**

The Agency obtained convictions in all of its eight prosecutions in 1999-00.

Leader (a Liberian bulk carrier), April 1999

Dover Coastguard detected on its radar that *this vessel was crossing the traffic lane on an incorrect course. She ignored advice to correct her course and nearly hit another vessel.* The master was convicted of breaching collision regulations and *fined £1,500*.

Salantai (a Lithuanian cargo vessel), May 1999

The Swedish Maritime Authority reported this vessel to the Agency when it observed that it seemed to be *overloaded*. On arrival in Southampton, it was inspected by the Agency who confirmed the offence.
The master was convicted of submerging the load line and *fined £6,500*.

Royal 1 (a Belizean cargo vessel), September 1999

In March 1999, three crew were rescued by Coastguard helicopter when *this vessel nearly sank off Ireland*. The vessel was inspected and detained when it arrived in Londonderry. The two Irish operators were later arrested on board their vessel.
One was convicted of running an unsafe ship and *fined £5,000*. The other was conditionally discharged for two years. Together they paid costs of £24,000.

Ormaza (a Spanish fishing vessel), September 1999

This vessel ran aground in the Outer Hebrides and was towed off by a lifeboat. *The following day she again ran aground and was written off. Only one man was on watch and he had fallen asleep*.
The master and the watchkeeper were convicted of failing to keep a proper lookout and were *fined £3,000* each.

Sirte Star (a St. Vincent & Grenadines cargo vessel), September 1999

This vessel was spotted by a Dutch pollution surveillance aircraft. *It had discharged a 3 mile oil slick off the Norfolk coast.*
The Gibraltarian owners were convicted of pollution and *fined £25,000*.

Beveland (a Dutch cargo vessel), October 1999

This vessel was *overloaded* with maize on its arrival in Belfast. It was inspected immediately by the Agency and detained.
The master was convicted of submerging the loadline and *fined £15,000*.

Dole America (a Liberian cargo vessel), November 1999

This vessel *sustained severe damage and spilled oil when she struck a large navigation structure,* the Nab Tower near Portsmouth.
The master was convicted of conduct endangering ships, structures or individuals and *fined £3,000*.

Roustel (a Bahamian coaster), January 2000

This vessel ran aground at Redhead. *The Chief Officer had been drinking and went to bed leaving no-one on watch*.
He was convicted of conduct endangering ships, structures or individuals and *sentenced to 12 months' imprisonmen*t.

Source: Maritime and Coastguard Agency

4.11 The Agency's policy is to prosecute owners and operators when the prosecution criteria are met and only to prosecute individual officers where they are personally culpable. However, Figure 23 shows that the Agency prosecuted ships' officers or crew in six of the eight cases taken to court in 1999-00. Our focus group of shipping industry representatives considered that the Agency should try to aim more of its prosecutions at the people who own, operate or charter vessels that significantly breach regulations. And around half of the ships' officers who responded to our survey considered that the Agency was not generally prosecuting those most to blame for safety offences. The Agency told us that it had not prosecuted as high a proportion of owners or operators as it had expected because many offences, such as cases of overloading and collisions, were the responsibility of ships' officers rather than owners or operators. Furthermore, while owners were responsible for some cases of unsafe ships, they were frequently based abroad making prosecution difficult. The Agency was able to prosecute foreign owners for one unsafe ship, *Royal 1*, in 1999-00 because the owners were arrested while visiting the ship after it was detained in a UK port. Since then, the Agency has successfully prosecuted the German owner of a container ship, *Coastal Bay*, for unsafe operation after the vessel ran aground in Anglesey in July 2000.

We are put under too much pressure from companies. If we don't sail, we lose our jobs, then they will find a person who will.

Ship's Officer

We recommend that the Agency:

- ensure that its new training and any associated guidance for surveyors on reporting and investigating significant breaches are made available as soon as possible;
- assess the reasons why a third of investigations of significant breaches result in no further action and consider the scope for reducing this figure;
- consider the case for increasing the level of penalties that may be levied in prosecuting offenders for significant breaches of safety regulations; and
- consider the scope for prosecuting more owners of unsafe vessels where they are personally culpable for significant breaches and can be brought to court.

Does the Agency take effective action to prevent the use of unsafe vessels?

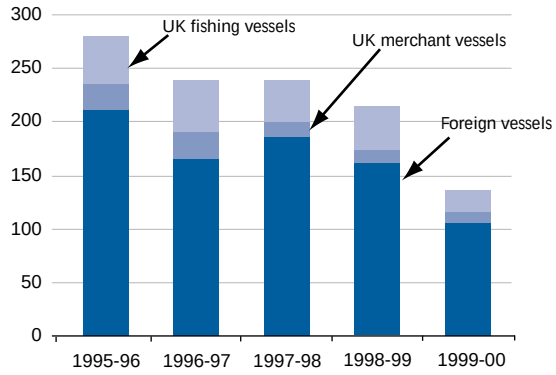
4.12 When a surveyor identifies a deficiency that is clearly hazardous to safety, he can take action to prevent the use of the vessel. Usually, this involves detaining the vessel in port until the deficiency has been rectified.

Does the Agency make good use of its powers of detention?

4.13 The number of detentions has been in decline since 1995-96 (**Figure 24**). In 1999-00, the Agency detained 136 vessels - 105 foreign vessels, 20 UK fishing vessels and 11 UK merchant vessels. This compares with 280 detentions in 1995-96, of which 211 were foreign vessels, 44 were UK fishing vessels and 25 were UK merchant vessels. In 1999-00, the Paris MOU Committee reported a downward trend in detentions of foreign vessels throughout the region and attributed this to members' inspections making it more difficult for sub-standard shipping to operate in the region. The Agency agreed with this and also pointed out that standards had risen with the upturn in the fortunes of some sectors of the shipping industry. The Agency rarely detains Class V and other passenger vessels. In the last five years, it has detained 10 UK passenger vessels, of which seven were Class V vessels.

24 Detentions of vessels by the Agency, 1995-96 to 1999-00

There are now far fewer detentions of foreign, UK merchant and UK fishing vessels than there were five years ago.



Source: NAO analysis of the Maritime and Coastguard Agency's database

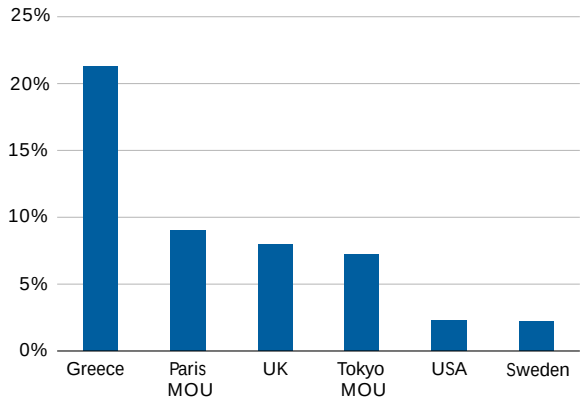
Does the Agency detain enough vessels?

4.14 In 1999-00, the Agency detained some 6 per cent of foreign vessels inspected. There were significant differences between this rate and the detention rates of other countries and regional groupings in recent years (**Figure 25**). In 1999, the UK detention rate was 13th highest of the 18 members of the Paris MOU. Greece had the highest rate in the MOU, detaining 21 per cent of foreign vessels inspected, and the overall rate for the MOU was 9 per cent. The average detention rate for the Tokyo MOU in 1999, covering 18 members in the Asia-Pacific region, was similar to that of the UK. The Agency had done some international comparison work and considered that its detention rate was lower than that of some other maritime authorities because its targeting of vessels, thoroughness of inspection and its policy of prosecuting significant breaches largely deterred sub-standard vessels from using UK ports.

25 International rates of detention of foreign vessels, 1999

There were wide variations in the detention rates of foreign vessels by maritime authorities in 1999, although the Agency's detention rate was close to the Paris MOU rate.

Percentage of inspected foreign vessels detained



Note: The Paris MOU rate is the overall detention rate, including Greece (highest detention rate in the MOU), Sweden (lowest detention rate) and the UK.

Sources: Maritime and Coastguard Agency, Paris MOU, Tokyo MOU, US Coastguard

4.15 There were also considerable variations between the Agency's marine offices in the percentage of deficient vessels that they detained in 1999-00 (**Figure 26**). These variations might reflect the nature of deficiencies identified, although the evidence was not available for us or the Agency to confirm this. Members of our focus group of shipping industry representatives told us that marine offices were inconsistent in their response to deficiencies, some more readily detaining vessels than others.

Does the Agency ensure that deficiencies are rectified before vessels are released from detention?

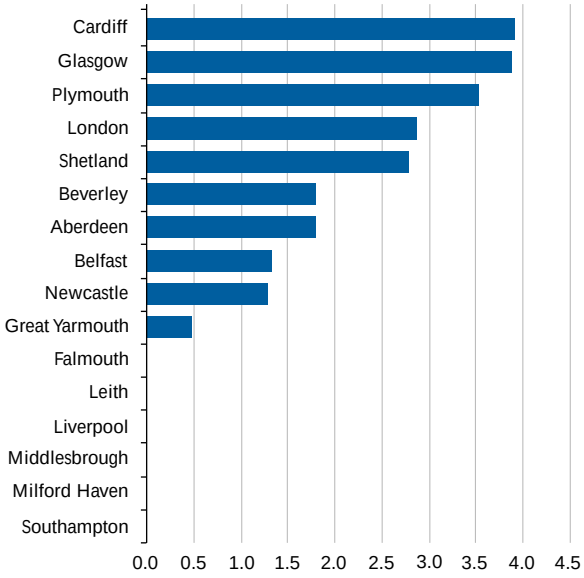
4.16 The Agency's policy is to re-inspect vessels at the owners' cost to check that all of the deficiencies for which the vessels were detained have been put right before the vessels are released from detention. Of the ships' officers we surveyed that answered the question, 105 (76 per cent) agreed that the Agency only released detained vessels once they had been made safe; 34 (24 per cent) disagreed.

4.17 To check whether deficiencies were rectified before detentions were lifted, we reviewed the records of 43 UK and foreign vessels that had been detained by four marine offices in 1999-00. The Agency had re-inspected all 43 vessels and had recorded that the deficiencies had been put right before the vessels had been released from detention. We also interrogated, for a further 40 foreign vessels detained by the Agency, the European Quality Shipping Information System (EQUASIS) database to check whether the vessels had subsequently been inspected and re-detained. Of the 30 that had been inspected again, only four (13 per cent) had been re-detained. The Agency does not conduct this

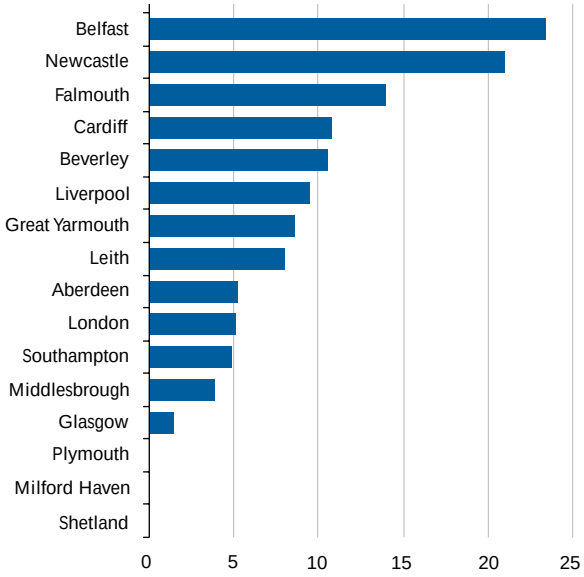
26 Detentions of deficient vessels by marine offices, 1999-00

The rates of detention of deficient UK and foreign vessels between marine offices varied considerably in 1999-00.

Percentage of deficient UK vessels detained



Percentage of deficient foreign vessels detained



Source: NAO analysis of the Maritime and Coastguard Agency's database

type of analysis or investigate why vessels are re-detained, so we do not know whether the re-detention of vessels has any implications for the effectiveness of the Agency's work. There are no readily available data on re-detention rates for the other Paris MOU members. However, given the generally poor standards of many detained vessels, the rate of re-detention in our sample compares well with the overall Paris MOU detention rate of 9 per cent.

4.18 Vessels might be re-detained because, for some operators, the threat and consequences of detention are not enough to deter them from continuing to operate sub-standard vessels. In 1996, the Organisation for Economic Co-operation and Development (OECD) estimated that it would cost the owner of a typical bulk carrier an additional US$183,000 a year to comply with basic safety standards, and an additional US$1,550,000 a year to bring the vessel up to the "maximum level of safety". The OECD pointed out that the charter rate for such vessels was US$12,000 a day and concluded that the financial penalties of detention were relatively low throughout the world compared with the financial savings that could be made from not complying with international maritime standards. In our survey of ships' officers, 96 (57 per cent) of respondents considered that the costs and inconvenience to ship operators of detention were too low in comparison with the significance of the safety breaches. Although most members of our focus group of shipping industry representatives thought that detentions were effective, some argued that owners could cover the cost of detention through insurance.

We recommend that the Agency:

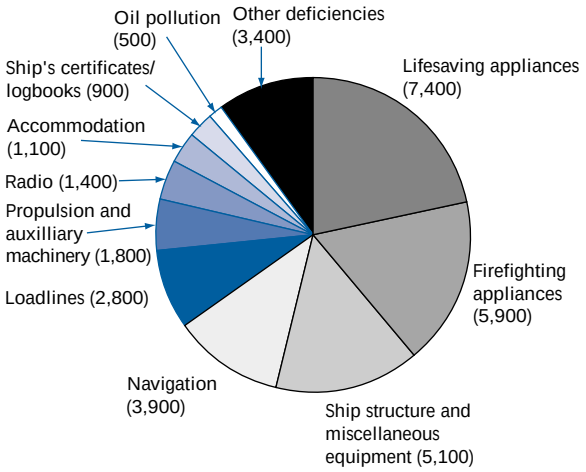
- regularly assess its rates of detention with comparable maritime authorities, establish the reasons for any major variations including difference in the standards of vessels, and take action where this shows that the Agency is not detaining all of the vessels that it should;
- investigate the reasons for variations in the rates of detention of deficient vessels between its marine offices and take action to ensure that all vessels are treated consistently; and
- establish why some foreign vessels that it has detained and then released are re-detained at their next inspection to ensure that they are not attributable to any failure of its inspections.

Does the Agency follow up on other deficiencies found?

4.19 In 1999-00, around 70 per cent of the Agency's surveys and inspections identified deficiencies, most of which were not serious enough for the Agency to prevent the vessels from being used. **Figure 27** shows that the most common deficiencies concern vessels' machinery and equipment. Around a quarter of the deficiencies could be rectified while the surveyor was on board; for the other three-quarters (around 18,000 deficiencies on UK vessels alone), the Agency specified time limits for putting them right. The Agency relies on the masters or operators of UK vessels to notify it in writing that deficiencies have been put right. It would not be efficient, and the Agency does not have sufficient resources, to re-visit all vessels to ensure that vessel operators had fulfilled their responsibility to rectify all deficiencies. However, surveyors do sometimes re-visit vessels where there have been significant problems, or where they have not been notified that deficiencies have been put right. We selected 29 UK vessels inspected between April 1999 and March 2000 and found to have deficiencies requiring rectification within a specified period. For 12 vessels, the Agency had either received confirmation from the vessels' operators or masters, or had verified in a subsequent survey or inspection, that the deficiencies had been put right. However, there was no evidence that corrective action had been taken on the other 17 vessels. The Agency does not collate or analyse information on the rectification of deficiencies, so it is unable to assess the extent to which deficiencies on UK vessels are rectified on time.

27 **Types of deficiencies found on vessels by the Agency, 1999-00**

The most common deficiencies identified by the Agency on both UK and foreign vessels concerned machinery and equipment.



Note: Other deficiencies includes 219 ISM deficiencies.

Source: NAO analysis of the Maritime and Coastguard Agency's database

We recommend that the Agency:

- consider re-visiting on an annual basis a statistical sample of UK vessels with outstanding deficiencies to check whether deficiencies have been put right and assess the extent of non-rectification; and
- consider the scope for prosecuting any vessel operators who persistently fail to rectify significant deficiencies.

Does the Agency publicise, and provide feedback on, the results of survey and inspection work?

4.20 The Agency can deter unsafe shipping by publicising the results of its work, particularly its prosecutions and detentions. It may also improve maritime safety by giving ships' officers and crew advice on safety-related issues and providing feedback to other organisations.

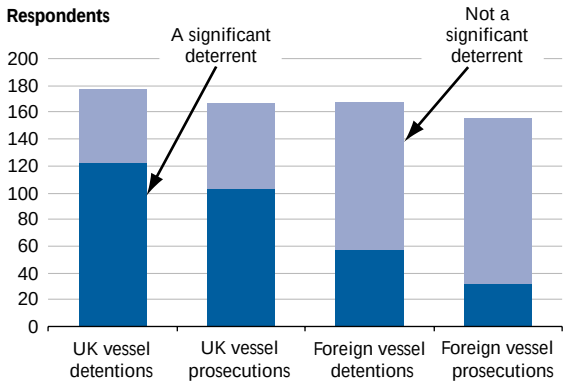
Is the Agency effective in publicising its work?

4.21 The Agency considers that publicising its work helps to deter unsafe shipping. It has therefore significantly increased the amount of publicity for its work over the last few years. It publicises all prosecutions and all foreign vessel detentions but only some of the detentions of UK vessels. The Agency "names and shames" vessels and their operators through press releases and by publishing the information in its annual reports and on its Internet website. We examined how the Agency had publicised its eight prosecutions and its detentions of 105 foreign vessels and 31 UK vessels in 1999-00. Details of all prosecutions and all foreign vessel detentions were set out in press releases and on the website. However, the Agency had publicised only three (10 per cent) of its detentions of UK vessels.

4.22 In our survey of ships' officers, we asked whether they considered that the Agency's detentions and prosecutions acted as a significant deterrent against unsafe shipping. **Figure 28** shows that they considered that the Agency's sanctions were much more effective at deterring unsafe UK vessels than foreign vessels; only a minority considered that sanctions deterred unsafe foreign vessels. And detentions were seen to be more of a deterrent than prosecutions. This was because prosecutions were rare, fines imposed on offenders were low and some ships' officers were unaware of the risk of prosecution.

28 Ships' officers views on whether prosecutions and detentions deter unsafe shipping

Most ships' officers considered that detentions and prosecutions of UK vessels were a significant deterrent against unsafe UK shipping. However, only a minority considered that these sanctions deterred unsafe foreign shipping.



Source: NAO survey of ships' officers

Does the Agency provide advice to ships' officers and crew?

4.23 The Agency's surveyors are well placed to provide advice to ships' officers and crew on safety-related issues during their work. And, the Agency expects its surveyors to use this opportunity. In our survey of ships' officers, over 80 per cent of respondents considered that surveyors did advise on safety issues as and when they arose during inspections.

> *The Agency's inspections are valued for their contribution towards safety standards and awareness.*
>
> **Ship's officer**

4.24 Through its publications, the Agency also provides a large amount of advice to the merchant shipping and fishing industries, much of it aimed at ship operators and ships' officers. In particular, it publishes around 30 to 40 Marine Guidance Notices each year, which advise on a range of safety-related issues, and sends them to British seafarers. It also publishes Marine Information Notices, which provide information such as the results of its research projects, and Merchant Shipping Notices, which describe the regulations and how to comply with them. In its annual report, which is available on its Internet website, the Agency also publishes details of the frequency of the different types of deficiency it has identified during inspections of foreign vessels.

Does the Agency provide feedback to other organisations?

4.25 The Agency enters details of its foreign vessel inspections on to the SIRENAC database so that they are available to the other members of the Paris MOU. Details are also posted on to the EQUASIS database, which is run by the European Commission and the French maritime authority and made available to the public through an Internet website. Where it detains vessels, the Agency sends its inspection or survey report together with details of the deficiencies found to the relevant maritime authorities and classification societies. In the most serious cases, and when resources allow, it writes to the appropriate authorities or societies seeking an explanation. In 1999-00, it wrote to:

- 31 foreign maritime authorities about 71 foreign vessels;
- the relevant classification societies about 55 foreign vessels and two UK vessels; and
- three Red Ensign maritime authorities about six of their vessels.

4.26 Only two of the six marine offices visited routinely gave feedback to the port authorities, pilots and other people who reported potentially dangerous vessels on whether their reports had been followed up and on the outcomes of any action taken. A major port authority told us that the Agency did not provide such feedback even though its business operations could be affected by any action taken by the Agency. The Agency told us that its policy was to send copies of detention documents to port authorities.

We recommend that the Agency:

- consider publicising all UK vessel detentions;
- ensure that its prosecutions and detentions are brought to the attention of foreign vessel operators, officers and crew;
- examine the scope for reporting more of the serious deficiencies it finds on UK ships to the relevant classification societies; and
- ensure that third parties who report potentially dangerous vessels are routinely informed of the action taken by the Agency in response.

Appendix 1 The major international conventions and codes relating to ship safety

The Merchant Shipping Act 1995 is the primary piece of legislation governing ship safety, incorporating the following International Maritime Organization (IMO) conventions and codes.

IMO convention or code	Purpose
International Convention for the Safety of Life at Sea, 1974 (SOLAS 74), as amended	The main instrument relating to maritime safety. The Convention specifies the safety certificates which ships on international voyages are required to hold and the surveys that have to be undertaken before they are issued. It regulates ship safety by laying down: ■ construction requirements for stability, machinery and electrical installations; ■ requirements for fire protection, detection and extinction; ■ life saving appliances to be kept on board; ■ radio communication requirements; ■ safety navigation requirements; ■ specifications for the safe carriage of grain and dangerous goods; and ■ basic requirements for the safety of vessels that carry nuclear materials.
Chapter IX: Management for the Safe Operation of Ships	International Safety Management Code, 1998 This chapter to the SOLAS Convention brings into force the International Safety Management Code. The Code requires a safety management system to be established by the owners and to be implemented on their vessels. Its objectives are to: ■ provide for safe practices in ship operation and a safe working environment; ■ establish safeguards against all identified risks; and ■ continuously improve safety management skills of personnel, including preparing for emergencies. Since July 1998, it has applied to large passenger ships and tankers that trade internationally and will apply to cargo ships and mobile drilling units from July 2002.
International Convention on Load Lines 1966 (LL 66) (and UK Load Line)	The Convention requires the assignment of a minimum freeboard which is marked on the sides of the ship and, to prevent overloading, these marks must not be submerged. Further conditions relate to adequate strength, closing appliances (such as doorways, hatches, windows and sea inlets), reserve buoyancy, and guard rails to protect the crew. The Convention excludes fishing vessels.
International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW 78), as amended	The Convention prescribes the minimum standards for seafarers in the areas of examinations, certification, qualifying service, watchkeeping (navigational, engineering and radio) and medical fitness. It also lays down special requirements for tankers and for proficiency in using survival craft.
Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREG 72), as amended	The Convention aims to reduce the possibility of collision at sea by laying down steering and sailing rules (including lookouts, speed and traffic separation schemes); lights and shapes to be used under different circumstances; and sound and light signals.
The Torremolinos Protocol, 1993	The Protocol contains safety requirements for the construction and equipment on new, decked, seagoing fishing vessels of 24 metres or more, including vessels also processing their catch. It also contains stability requirements.
International Convention for Safe Containers, 1972, as amended	The Convention lays down requirements for handling, stacking and transporting of containers on ships by specifying their testing, inspection, design and approval maintenance.
International Maritime Dangerous Goods Code, 1990	The Code provides guidance on the classification, terminology, identification, packing, marking, labelling, documentation and emergency procedures relating to dangerous goods transported by sea. It contains special provisions for freight containers, portable tanks and roadtank vehicles, storage and segregation, fire prevention and fire fighting and the carriage of dangerous goods on roll-on/roll-off ships.
International Labour Office Convention No.147 (Merchant Shipping (minimum standards)).	This Convention lays down safety standards, including standards of competency, hours of work and manning in order to ensure the safety of life on board ship.
International Convention for the Prevention of Pollution from Ships, 1973 and Protocol of 1978 (MARPOL 73/78)	This Convention lays down regulations covering the various sources of ship-generated pollution and how to minimise them by procedures, and equipment. It has five Annexes, covering: oil, noxious liquids, harmful substances in packaged form, sewage and garbage.

Appendix 2 Survey and inspection regime

Surveys

Surveys may be undertaken by the Agency's surveyors or by surveyors from the classification societies or other certifying authorities, such as the British Waterways Board. They cover specific items depending on the type of survey. Surveys require close examination of the construction and/or equipment or operations on board a ship to ensure that the requirements of the relevant regulations are complied with in all respects. Although it may not be practical to examine every element and component of a ship, it should be an examination of sufficient depth to ensure the vessel complies with each requirement.

Note: Cargo ships includes all vessels (e.g. container, tankers, gas carriers) that are used in trade except passenger ships and fishing vessels.

Certificate	Vessel Type(s)	Covers
UK Fishing Vessel Certificate (for vessels **over** 12 metres only) (6 yearly)	Fishing vessels over 12 metres	Comprehensive survey including - construction, machinery, electrical, equipment, radio, lights and signals.
UK Passenger Vessel Certificate (annual)	All passenger vessels	Comprehensive survey including - construction, machinery, electrical, equipment, radio, pilot boarding, lights and signals.
International Loadline (annual)	All vessels which go to sea (except certain types such as fishing vessels, pleasure vessels not used in trade).	Designation of a minimum freeboard, construction (including closing appliances, protection of crew, hatches, doors, windows, sea inlets and discharges).
Radio Safety (annual)	Cargo ships (over 300GT)	Radio communication equipment and Search and Rescue Aids (e.g. Emergency Position Indicating Radio Beacon (EPIRB)).
Safety Construction (annual)	Cargo ships (over 500GT)	Construction (including hull, machinery, electrical, control systems, fire protection, escapes).
Safety Equipment (annual)	Cargo ships (over 500GT)	All safety equipment (e.g. fire fighting, radio, lifeboats, navigation, pilot boarding, lights, signals).
Tonnage Certificate (once - when vessel built or modified)	All ships	Measurement of internal volume, which gives a measure of earning capacity. (It is not the weight of the vessel - which is called displacement).
Safe Manning Document (once - unless agreed changes are made to manning level)	Cargo ships	Specifies the number and qualification needed for the crew of the particular vessel.
International Oil Pollution Prevention (annual)	Cargo ships (over 400GT) Tankers (over 150 GT)	Construction and equipment to prevent or minimise pollution.
International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk (INLS) (annual)	Cargo ships	Construction and equipment to prevent or minimise pollution from ships carrying noxious liquid substances in bulk.
Certificate of Fitness for Carriage of Dangerous Chemicals in Bulk (annual)	Chemical tankers	Construction, arrangements, provision of equipment to carry chemicals safely. Can also incorporate the INLS.
Certificate of Fitness for ships carrying Liquefied Gases in Bulk (annual)	Gas carriers	Construction, arrangements, provision of equipment to carry gases safely. Can also incorporate the INLS.
Document of Compliance with the special requirements for ships carrying dangerous goods (annual)	Cargo ships	Special requirements for carriage of dangerous goods.
Document of Compliance (ISM) (annual)	EU ro-ro passenger vessels since 1996. Other passenger and high speed craft, tankers and bulk carriers since 1998. All other cargo ships from 2002.	Shows that companies operating vessels comply with ISM Code which requires a structured management system, including responsibilities, procedures, qualifications, training, maintenance, audit and emergency preparedness.
Safety Management Certificate - International Safety Management Code (ISM) (twice in five years)	EU ro-ro passenger vessels since 1996. Other passenger and high speed craft, tankers and bulk carriers since 1998. All other cargo ships from 2002.	Company must have a Document of Compliance. Vessel operates under the ISM Code which requires a structured management system, including responsibilities, procedures, qualifications, training, maintenance, audit and emergency preparedness.

Certificate	Vessel Type(s)	Covers
High Speed Craft Certificate (annual)	High speed craft	Comprehensive survey including construction, machinery, electrical, equipment, radio, lights and signals.
Permit to Operate (annual)	High speed craft	Operational limitations.
Certificate of Compliance for a Large Charter Yacht (annual)	Large motor and sailing yachts used commercially	Comprehensive survey including construction, machinery, electrical, equipment, radio, lights and signals, and manning.
Other code certificates (annual)	Small vessels (below 24 metres in length) used as workboats, or used commercially for sport or pleasure	Comprehensive survey including construction, machinery, electrical, equipment, radio, lights and signals, and manning.

Inspections

Usually unscheduled, inspections are intended to check on vessels in between surveys and also on aspects that are not covered by survey. They also cover vessels that are not subject to a mandatory survey regime, such as fishing vessels under 12 metres. An inspection may look at the whole or specific parts of the vessel, its structure, equipment or operation. It gives a measure of the safety and pollution prevention standard of the vessel concerned; the scope of the inspection is chiefly determined by the professional judgement of the surveyor. If problems are found in a general inspection, the surveyor may focus on areas in depth. The Agency's surveyors undertake all inspections except radio inspections, which are carried out by Marconi Mobile Ltd on the Agency's behalf.

Inspection Type	Covers
Inspection in conjunction with a survey	Covers a sample of those areas of the vessel not part of the specific items covered by the survey. Includes a check that all ship and crew certificates are up-to-date. Where a surveyor finds problems the inspection becomes more detailed. These inspections count towards the Agency's inspection targets and are announced.
Targeted inspection	Covers a sample of aspects of the vessel including a check that all ship and crew certificates are up-to-date. Where there has been a report/complaint or a surveyor finds problems, the inspection becomes more detailed. These inspections count towards the Agency's inspection targets and are generally unannounced.
Concentrated inspection	Surveyors travelling on board ferries operating out of one or more ports over a few days, focusing on operations. Also carried out on oil, gas and chemical tankers and bulk carriers where operations and structure are the focus. These inspections do not count towards the Agency's inspection targets and are generally unannounced.
Radio inspection	Checks radio installation. These inspections are undertaken by Marconi surveyors, are generally unannounced and are not counted towards the Agency's inspection targets.
Food & hygiene inspection	Carried out by specialist inspector, covering food, hygiene and crew accommodation on all vessel types. These inspections do not count towards the Agency's inspection targets and are generally unannounced.
Coastguard Sector Manager inspection	Safety equipment check by specially trained Coastguard Sector Managers on small fishing vessels. These inspections count towards the Agency's inspection targets and are generally unannounced.
Port State Control inspection	Any foreign vessel visiting UK ports. Covers a sample of the vessel including a check that all ship and crew certificates are up-to-date. Where there has been a report/complaint or a surveyor finds problems the inspection becomes more detailed. High risk ship types are subject to more prescribed expanded inspection annually. These inspections count towards the Agency's inspection targets and are generally unannounced.

Appendix 3 Study methodology

	Method	Issues
Data analysis	We interrogated a variety of databases: ■ the Agency's survey and inspection database (SIAS) - inspections and surveys are recorded by date, location, vessel type, deficiencies found and detentions; ■ the Paris MOU database of inspections of foreign vessels (SIRENAC) - details of all Port State Control inspections by MOU members with results and risk target factor; ■ the Agency's headquarters' databases of vessels - vessel details by vessel type for some types of vessel; ■ the Agency's Formal Safety Assessment database - based on data from the Marine Accident Investigation Branch, used by surveyors to inform their views on the safety of different types of vessel; ■ the Agency's time and activity recording system - details of surveyors' time booked to surveys and inspections, by individual and within marine office and region; ■ EQUASIS, an international database - worldwide ship details and Port State Control inspections; and ■ local databases held in marine offices - details of vessels inspected and surveyed by the marine office.	We assessed whether the information available at headquarters and to surveyors in marine offices was robust and complete. We also evaluated the performance of the Agency in surveying and inspecting vessels, particularly in relation to maritime authorities in the Paris MOU and other comparable maritime authorities, and assessed whether there were any areas where the Agency needed to focus its attention to improve its performance.
Review and testing of procedures	We visited the Agency's headquarters in Southampton and 6 of its 16 marine offices, selected to provide audit coverage of a range of offices according to their size, volume and type of workloads, and their geographical location around the UK: ■ Aberdeen ■ Cardiff ■ Great Yarmouth ■ Liverpool ■ London ■ Southampton At the Agency's headquarters, we examined: ■ how the Agency set its annual inspection targets; ■ the Agency's performance against targets; ■ the qualifications, experience and training of surveyors; ■ the guidance provided for surveyors; ■ the Agency's monitoring visits to classification societies; and ■ action taken on significant breaches of maritime legislation. At the 6 marine offices, we examined: ■ the information received from port authorities; ■ how surveyors selected vessels for inspection; and ■ action taken on detained and deficient vessels.	We assessed whether the Agency: ■ inspected enough vessels; ■ ensured that the work was done by people with the requisite skills; ■ ensured that the work covered the right safety issues in sufficient detail; ■ assured the quality of the work delegated to classification societies; and ■ took effective action on significant breaches of maritime legislation. We assessed whether marine offices: ■ ensured that vessels were surveyed on time; ■ had complete, reliable and timely information about ship arrivals and departures; ■ targeted the riskiest vessels for inspection; ■ documented and monitored the work done by surveyors on board vessels; and ■ ensured that deficiencies were put right before ships were released from detention.
Review of key documents and interviews with key staff	We reviewed key documents and interviewed staff in the relevant sections within the Agency: ■ Survey and Inspection Unit ■ Enforcement Unit ■ Technical Consistency & Quality Assurance ■ Personnel, Training, Pay and Grading Branch ■ Formal Safety Assessment Section ■ Secretariat and Planning Branch ■ Registry of Shipping & Seamen	We examined the roles played by each section and how they contributed to enhancing ship safety.

In order to allow us to get the most out of the surveys, interviews and questionnaires, we ensured that where possible, the same questions were asked of each audience. This enabled us to cross-reference results.

	Method	Issues
Structured interviews in marine offices	We interviewed 17 surveyors and 6 Surveyors in Charge (22 per cent of the surveyors in the field) in six of the 16 marine offices in the UK. The interviews were tightly structured to ensure the information would be comparable and quantifiable. We included some "closed" questions to allow more robust analysis of the answers. On some issues, we asked the same questions as those included in our survey of ships' officers. We analysed the answers using coding and abstraction, which allowed us to draw valid and reliable conclusions.	We assessed surveyors' views on: ■ the impact of their work; ■ the targeting of vessels for inspection; ■ the guidance and advice provided by the Agency; and ■ the scope, detail and quality of survey and inspection work.
Questionnaire to Surveyors in Charge	We sent a questionnaire to all 16 Surveyors in Charge in the Agency's marine offices. On some issues, we asked the same questions as those included in our structured interviews of surveyors and our survey of ships' officers. All 16 Surveyors in Charge replied to the questionnaire.	We assessed the views of Surveyors in Charge on: ■ the quality and impact of surveys and inspections; ■ the staffing and conduct of surveys and inspections; ■ the number of inspections undertaken; ■ quality assuring the work done; ■ the databases available in each marine office; and ■ the guidance and advice provided by headquarters.
Survey of ships' officers	In June to August 2000, we carried out a survey of serving British ships' officers to gather their views on surveys and inspections undertaken by the Agency and classification societies. With the help of the ships' officers' union, NUMAST, we sent a questionnaire to 2,000 out of the 6,000 masters, chief officers and engineers who were members of NUMAST and who were serving on board ship. To ensure that the survey results would be valid and robust, we asked for responses only from officers who had served and had first hand experience of a UK survey and inspection in the last 2 years. We received 200 responses. Many of those receiving the survey were unable to respond because they were at sea. **The full results are available on the NAO website at www.nao.gov.uk/publications/nao_reports/00-01/ships1.htm**	We analysed ships' officers' views on: ■ the quality of the surveys and inspections carried out by the Agency; ■ the quality of the surveys carried out by classification societies; ■ the skills of the surveyors; ■ the numbers of inspections of UK and foreign ships; ■ the impact such work has on ship safety; ■ the Agency's role in deterring sub-standard shipping in UK waters; and ■ any areas where the Agency performed well or poorly.

	Method	Issues
International comparisons	We contacted five other maritime authorities to gather information on their survey and inspection regimes to compare with the Agency. We also used the Internet to review other maritime authorities' approaches to surveys and inspections and, in some cases, followed this up with telephone interviews. We obtained information about the maritime authorities in: ■ Australia ■ Canada ■ Denmark ■ The Netherlands ■ USA	We ascertained other maritime authorities' approaches to survey and inspection work and examined data on their activities and the results of their work.
Consultation with stakeholders	We met or corresponded with 15 other stakeholders to ensure that we had a complete picture of the Agency's survey and inspection work and to obtain stakeholders' views on the quality and impact of surveys and inspections. We consulted with: ■ Associated British Ports ■ Baltic and International Maritime Council ■ British Ports Association ■ British Waterways Board ■ Chamber of Shipping ■ Marconi Mobile Ltd ■ Intercargo ■ International Association of Classification Societies ■ International Maritime Organization ■ Lloyd's Register of Shipping ■ Marine Accident Investigation Branch ■ National Federation of Fishermen's Organisations ■ NUMAST ■ Rail, Maritime and Transport Union ■ Scottish Fishermen's Federation	We established stakeholders' views on the quality of surveys and inspections and identified the issues that were of most concern to them.
Focus group	We ran a focus group of 11 representatives of the British shipping industry including the Chamber of Shipping (who hosted the event). Participants came from: ■ Bibby Line Group Ltd ■ Chamber of Shipping ■ Esso Mobile ■ FT Everard & Sons Ltd ■ Furness Withy & Co Ltd ■ P&O Cruises (UK) Ltd ■ South Coast Shipping Co Ltd ■ Stena Line Ltd ■ Three Quays Marine Services Ltd ■ Western Ferries (Clyde)	We assessed the views of the Agency's customers on: ■ the quality of the surveys and inspections carried out by the Agency and the classification societies that work on the Agency's behalf; ■ the impact of the Agency's work on enhancing ship safety and deterring sub-standard shipping; and ■ any aspects of customer service that the Agency had got right and any that needed to be improved.

Internet websites

UK Government sites:

Maritime and Coastguard Agency	www.mcga.gov.uk
Department of the Environment, Transport and the Regions - Shipping	www.shipping.detr.gov.uk
Department of the Environment, Transport and the Regions - Maritime Statistics	www.transtat.detr.gov.uk/shipping
Marine Accident Investigation Branch	www.maib.detr.gov.uk

International regulatory bodies:

European Commission - Maritime Transport	www.europa.eu.int/comm/transport/themes/maritime/english/mt_en.html
International Maritime Organization	www.imo.org
International Labour Organization	www.ilo.org
Paris MOU	www.minvenw.nl/extdomein/parismou
EQUASIS	www.equasis.org
Tokyo MOU	www.iijnet.or.jp/tokyomou
Australian Maritime Safety Authority	www.amsa.gov.au
Transport Canada	www.tc.gc.ca
United States Coastguard	www.uscg.mil

Classification societies:

International Association of Classification Societies	www.iacs.org.uk
American Bureau of Shipping	www.eagle.org
Bureau Veritas	www.veristar.com
Det Norske Veritas	www.dnv.com
Germanischer Lloyd	www.germanlloyd.org
Lloyd's Register of Shipping	www.lr.org
Registro Italiano Navale	www.rina.org

Other shipping, ports and fishing industry organisations:

NUMAST	www.numast.org
Rail, Maritime and Transport Union	www.rmt.org.uk
Chamber of Shipping	www.british-shipping.org
Baltic and International Maritime Council	www.bimco.dk
Intercargo	www.intercargo.org
Intertanko	www.intertanko.com
British Ports Association	www.britishports.org.uk
Associated British Ports	www.abports.co.uk
Port of London Authority	www.portoflondon.co.uk
National Federation of Fishermen's Organisations	www.nffo.org.uk
Scottish Fishermen's Federation	www.sff.co.uk

Appendix 4 Previous PAC conclusions

In March 1992, the Committee of Public Accounts took evidence from the Department of Transport based on the C&AG's report *Ship Safety* (HC186 1991-92). This Appendix sets out the Committee's main conclusions from their 6th Report of 1992-93, and the Treasury Minute response. Where the issues are covered in this report, paragraph numbers are given.

PAC conclusion	Treasury Minute	Current position
i), ii) We share the Department of Transport's concerns that international negotiations could delay until 2010 new regulations on the stability of ro-ro ferries. We support the Department of Transport's intention to act independently if necessary.	The Department of Transport is seeking to achieve a regional agreement. If this fails, it will consult and act unilaterally if necessary.	The 1996 Stockholm Agreement with other North Western European states set new survivability and stability standards for both new and existing ferries to be implemented by 2002.
iii) We are concerned about the delay in developing a new lifejacket and expect the Department of Transport to press for speedy adoption within IMO. We recommend that the Department of Transport review the speed and priority of ship safety developments within its research programme.	IMO adoption of the new lifejacket is expected shortly. The Department of Transport has set up a research committee to review quarterly the speed and priority of ship safety projects within its research programme.	IMO adopted new lifejacket requirements in 1992. It also made further changes to the SOLAS Convention in 1996 to make donning of lifejackets simpler The Agency's research committee now meets three times a year to discuss research priorities.
iv) We consider it unsatisfactory that the Department of Transport did not introduce passenger counting systems for small passenger vessels until 1990. We expect the Department to carry out stringent checks to ensure these systems are operating effectively.	The Department of Transport carries out unannounced inspections of small passenger vessels to ensure compliance with these regulations.	1999 merchant shipping regulations introduced new arrangements for passenger counting and registration systems on passenger vessels. The Agency carries out checks of these systems during its inspections. We mention these checks in this report (paragraph 2.20).
v) We note that vessels with the visibility defects of the *Marchioness* and the *Bowbelle* no longer work on the Thames and that these defects would not be allowed on new vessels. We expect the Department of Transport to ensure that owners of two particular vessels with visibility defects make the necessary modifications.	The Department of Transport is preparing new regulations for visibility standards on tidal waters and is pressing IMO to make mandatory its visibility guidelines for seagoing ships. On the two vessels with visibility defects, the Department is satisfied that the vessels have adequate compensatory measures.	Since 1992, passenger vessels have been required to meet specified standards of visibility. And all other new vessels over 45 metres have been required to meet these standards since 1998. Other vessels must provide appropriate lookout arrangements to compensate for poor visibility from the bridge.
vi) We expect the Department of Transport to introduce computerised analysis of the results of its inspections as soon as possible. This will assist surveyors and help in allocating resources.	The Department of Transport is to introduce a new computer system by the end of 1992 that will enable it to undertake improved analysis.	A computer database was introduced in 1993 for recording the results of surveys and inspections and the Agency carries out analysis of the results. However, this report explores the scope for further improvement (paragraphs 15 to 18).
vii) We recommend that the Department of Transport consider setting annual targets for the numbers and types of vessels to be inspected, providing an overall discipline but allowing some flexibility.	The Department of Transport is revising its methods for recording inspections, which will enable it to set annual targets focusing on vessels most at risk.	In 1999-00, the Agency had annual inspection targets for six types of UK vessel (see Figure 7) and a target for foreign vessels. This report recommends that the targets be further divided (paragraph 2.14).
viii) We expect the Department of Transport to achieve its target of a full inspection each year of all ro-ro ferries, both UK and foreign registered.	The Department of Transport is aiming to meet or better its target of at least one targeted inspection of all ro-ro ferries on voyages to and from the UK. This is in addition to its eight concentrated inspections of ro-ros each year.	The Agency set an inspection target of 91 inspections of UK ro-ro ferries in 1999-00, which it exceeded (Figure 10). However, we found that the Agency counted inspections in conjunction with surveys towards achieving its targets even though they do not involve a separate unannounced inspection (see paragraphs 2.16 to 2.17).
ix) We note that human and operational factors are a major cause of accidents, so we welcome the Department of Transport's intention to increase the number of concentrated inspections of vessels in operation at sea.	The Department of Transport plans to undertake 24 concentrated inspection programmes in 1992-93, compared with six in 1991-92.	The Agency continues to carry out concentrated inspections: it plans to carry out 27 such programmes in 2000-01. However, in this report we explore the scope for further improvement (paragraph 3.17).
x) We expect the Department of Transport to analyse the results of concentrated inspections to identify common failures and to issue guidance where appropriate. We support the Department's action within IMO to introduce concentrated inspections of foreign vessels visiting UK ports.	The Department of Transport intends to collate this information and circulate it to ships' owners and masters. It has agreed with IMO and Paris MOU that operational inspections may be carried out on visiting foreign vessels.	The Agency analyses the results of all of its inspections and this work informs its preparation of regulations and guidance for the shipping industry (see paragraphs 4.23 and 4.24). The Agency now carries out concentrated inspections of UK and foreign vessels as well as joint inspections with other maritime authorities.

PAC conclusion	Treasury Minute	Current position
xi) We note that human error is a major cause of accidents to fishing vessels and we expect the Department of Transport to fulfil its intention of introducing a code of operational practice for fishing vessels by 1993-94.	Subject to developments in the European Community, the Department of Transport intends to introduce a Code by 1993-94. Guidance for fishermen on safety matters already exists.	The Agency plans to introduce a statutory code of practice for under 12 metre fishing vessels in April 2001 (see paragraphs 2.6 and 3.18). The severe delays were caused mainly by its difficulties in preparing and agreeing a voluntary code that was acceptable to fishermen. It expects to produce a code for larger fishing vessels by 2003.
xii) We agree that the significant increase in fishing vessel accidents is unacceptable and support the Department of Transport's decision to introduce from 1993 biennial inspections of fishing vessels over 12 metres.	The Department of Transport is preparing to introduce biennial inspections from 1993.	The Agency carries out four-yearly surveys of all fishing vessels over 12 metres. In addition, it plans to carry out 600 inspections of them in 2000-01, which is equivalent to around a third of the fleet. It has not achieved its aim of biennial inspections of large fishing vessels because it decided to focus more of its effort on small fishing vessels which it considers to be more dangerous (see paragraph 2.11 and Figure 7).
xiii) We note the Department of Transport's intention to inspect more 9 to 12 metre fishing vessels, given the unacceptable results of these inspections. We recommend that the results of the inspections should be analysed and reported.	The Department of Transport is on target to inspect at least 300 of these vessels in the year. The results will be analysed along the lines of those adopted for larger vessels.	The Agency carried out around 450 inspections of 9 to 12 metre fishing vessels in 1999-00. Its analysis of the results of previous years' inspections contributed to the development of the *Under 12 Metre Code*.