THE UNITED KINGDOM MUTUAL STEAM SHIP
ASSURANCE ASSOCIATION (BERMUDA) LIMITED

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ANALYSIS OF MAJOR CLAIMS 1993

UK P&I CLUB

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Introduction

This third report of our analysis of major claims develops further the detailed analyses published in the two previous editions based upon an increasing number of claims now available for analysis.

The UK P&I Club is committed to quality; both quality in respect of the standards to which Members adhere in their own operations and also quality of service to those Members by the Club and its Managers. This analysis seeks to advance both these aims; it is itself a service to the Members who will, by considering the collective claims experience of their fellow Members, be able to review their own exposure to P&I claims and consider how they might best reduce that risk. Quality is, of course, much wider than mere avoidance of P&I claims, yet the measures necessary to achieve the latter will inevitably contribute to enhancing the former.

This report develops the conclusions of the previous two reports and, for the first time, approaches claims from the perspective of the relevant trade type, ie, tankers, bulk carriers, etc. It continues to reflect suggestions received from Members in response to the previous two editions, and the Managers would welcome any comments and proposals from Members as to what further information of value to them might be obtained from the substantial data which the Managers hold in respect of the claims of almost one quarter of the world's blue water tonnage.

It is known that a number of Members have incorporated the report into their internal training programmes, and this is of course welcomed by the Club as a most obvious and practical utilisation. As part of the Club service, the Managers have prepared a limited number of sets of slides and overhead transparencies of the graphs in the report, together with short speaker's notes; Members who would like a set, either on loan or for their retention, are invited to contact the Managers' London agents.

Structure of This Report

This year's report is in three sections. The overview describes the scope and size of the analysis and sets it in the context of the overall claims experience of the UK P&I Club. The relative importance of human error, structural failure and other factors are discussed in Section two - "Summary of Findings". The third section is divided into four parts, where the claims arising from each of tanker, bulk carrier, refrigerated vessel and dry cargo operations are reviewed separately so that Members who operate such ships can more easily consider how their own experience compares with that of the Club. Bulk carrier claims are examined in particular detail in this report because of the widespread industry concerns about the difficulties of operating these ships safely. Tankers, dry cargo ships and reefers together provide a spectrum of operations which illustrates the different patterns of claims experienced by each.

1. Overview

The purpose of the overview is to describe the key factors of the analysis and to explain the significance of the analytical findings in the context of the overall claims experience of the UK P&I Club. The Club provides protecting and indemnity cover for owners or charterers of some 8,000 ships, predominantly ocean-going, which together comprise between 20 and 25 per cent of the world's deepwater fleet. The ships entered in the Club are broadly representative of the world fleet overall, in terms of tonnage and type of ships, areas and types of ownership, flag, class and risk profile.

The analysis is thus capable of being interpreted as reflecting the major claims experience of the whole industry over the period of review. To facilitate study, the profile of the Club's entered tonnage is utilised in a number of the tables in the report. The profile does in fact change slightly each year as existing ships get older, new ships are entered into the Club, new Members bring new and older ships into the Club and some ships are removed from the Club, scrapped, laid up or lost at sea. An average profile has therefore been utilised in the report to provide the necessary measurement.

The Period of Review - Policy Years from 1987 to 1992

The analysis examines the underlying causes of the 1,971 major claims against the UK P&I Club Members arising between 20th February, 1987 and 31st December, 1992, which had been notified to the Club by that latter date and were capable of analysis.

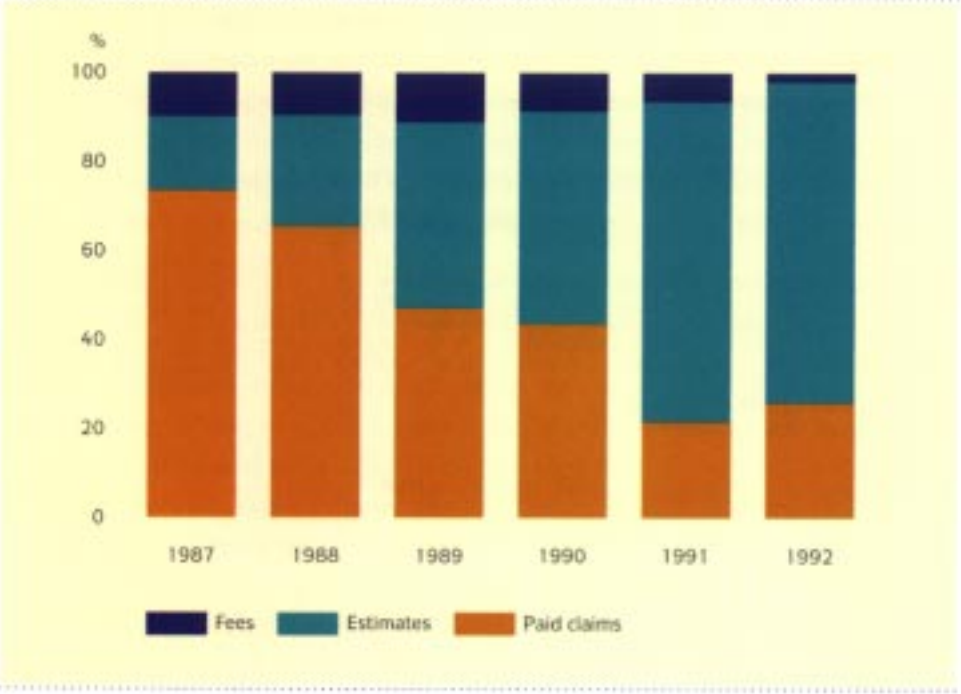
Size of Claim

The claims analysed, described as major claims, are those for which the amount paid plus the amount of any outstanding estimate (in each case net of any deductible) together total at least US$100,000. This is the same threshold as utilised in the previous two editions of this report, and thus it may be considered that the number of such claims is increasing partly as a result of inflation. In practice, the effect of inflation over the timescale of the three editions is negligible. It will, in future years, be necessary to adjust for inflation in order to develop certain information regarding trends; the principal benefit of the analysis, however, which is to address issues of causation, benefits from the inclusion of the largest number of claims possible. The threshold of $100,000 was selected partly because this provides a sufficient number of claims for statistical purposes, but also because claims in excess of that amount tend increasingly to impact upon the wider membership rather than just the record of the owner concerned.

CLAIMS HANDLING FEES

Both paid fees and estimates of any future fees are included in the values. Table 1 shows a proportionate breakdown, by policy year, of the total amounts involved. The amounts are divided into paid claims (payments of Members' claims), paid fees (fees which have been paid to surveyors, lawyers or other experts), and estimates (current estimates of the total future payments for each claim file, including both the claim amounts and fees). Paid fees make up about nine per cent of the cost of major claims in the older policy years, but rather less in the less developed years - although this proportion will increase as the claims mature.

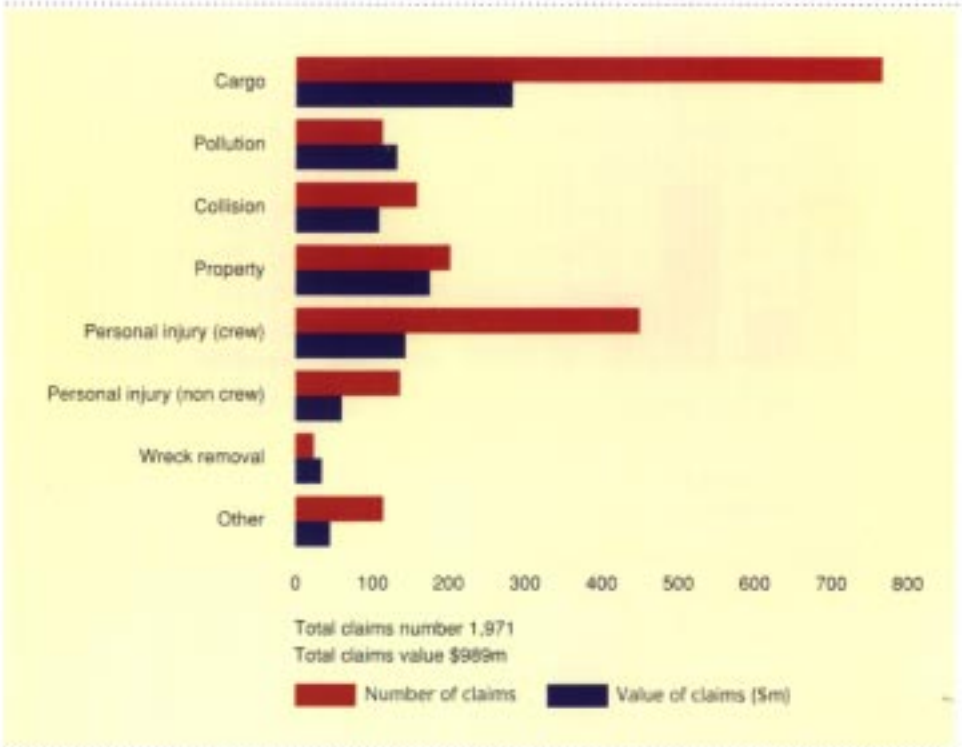
TABLE 1 - THE BALANCE BETWEEN CLAIMS, ESTIMATES AND FEES



TYPES OF CLAIMS

The review takes account of all major claims reported within the risk period, irrespective of the type of liability involved. As measured in December 1992, there were 1,971 such claims with a gross value of $989 million. 95 per cent of these claims are in respect of cargo, personal injury - including injury to passengers, crew members and stevedores - property damage, pollution and collision. The few remaining claims relate to wreck removal, fines and unrecoverable general average. Table 2 shows the pattern of these claims analysed by reference to the type of risk concerned.

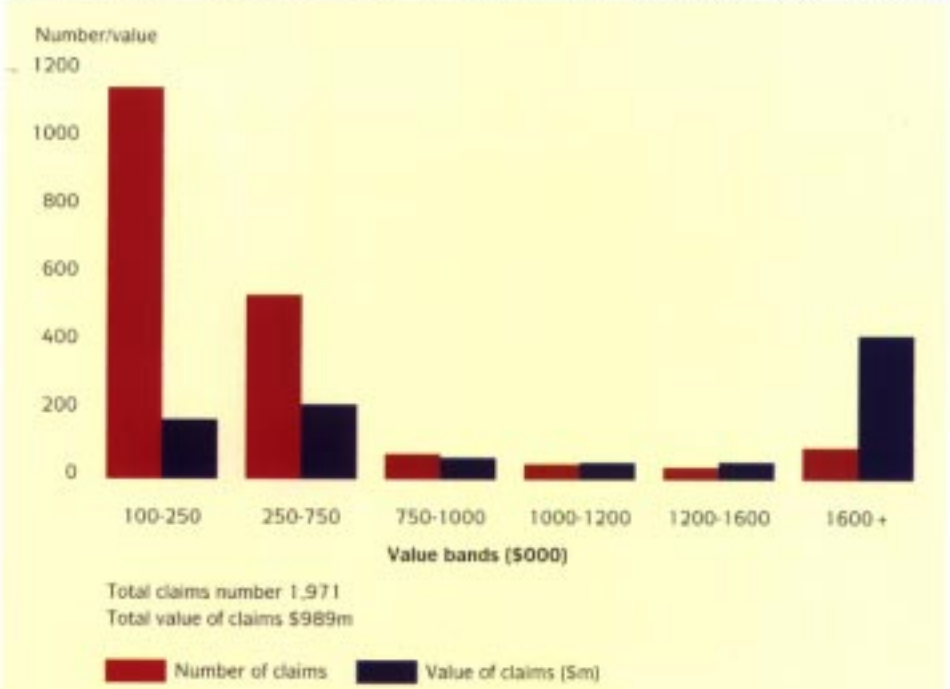
TABLE 2 - TYPES OF MAJOR CLAIM



VALUES OF CLAIMS

As can be seen from table 3, there are a substantial number of claims which, while exceeding $100,000, are less than $250,000 - almost 60 per cent. A further 25 per cent of claims fall in to the next band. The remaining four value bands have a relatively small number of claims in each, although the value of those claims is highly significant in the Club's overall performance.

TABLE 3 - VALUES OF MAJOR CLAIMS



REINSURANCE

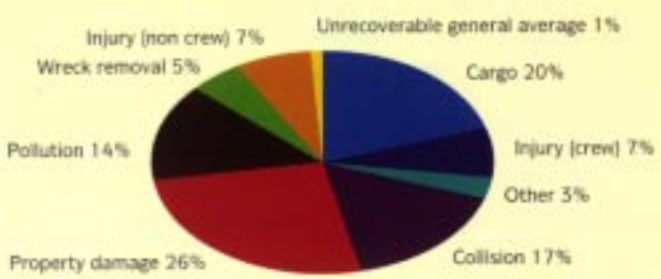
As Members are aware, the Club, through the International Group of P&I Clubs, protects its funds through the pooling arrangements and the substantial reinsurance programme placed by the International Group in the commercial reinsurance markets worldwide. For the purpose of the analysis, however, the operation of this reinsurance structure is disregarded, with no allowance being made for reinsurance recoveries from the Pool or market reinsurers. Conversely, however, the review does not include any of the payments made by the Club in respect of the Pool claims of the other 14 Clubs in the International Group.

For some years, the UK Club has been pursuing a policy of raising the point at which the Pool begins to operate, in order better to insulate Members of the UK Club from the actions of owners entered elsewhere. From 1987 to 1989, claims above $1.2 million were pooled; in 1990 and 1991 the level rose to $1.6 million, in 1992 to $2 million and the level is currently $3 million. In furtherance of the Club strategy, it is expected that this level will rise to $4 million in February 1994 and $5 million shortly thereafter. Over the six years of the analysis, only 131 claims have exceeded the 1987 pooling threshold of $1.2 million. Over the same period, only 43 claims out of the total 1,971 (ie, 2.2 per cent) exceed $3 million. The impact of these claims in terms of value, however, is very substantial, since those 43 large claims account for some $360 million or 32 per cent of the gross value of major claims.

CAUSES OF VERY HIGH VALUE CLAIMS

There were 94 claims occuring during the risk period covered by this study which individually cost in excess of $1,600,000. Table 4 shows the frequency distribution of these 94 claims of very high value analysed by reference to type of risk. As can be seen, claims from damage to property and cargo claims contribute to almost half the number of such incidents, followed by the consequences of collision and pollution incidents.

TABLE 4 - TYPES OF VERY HIGH VALUE CLAIMS



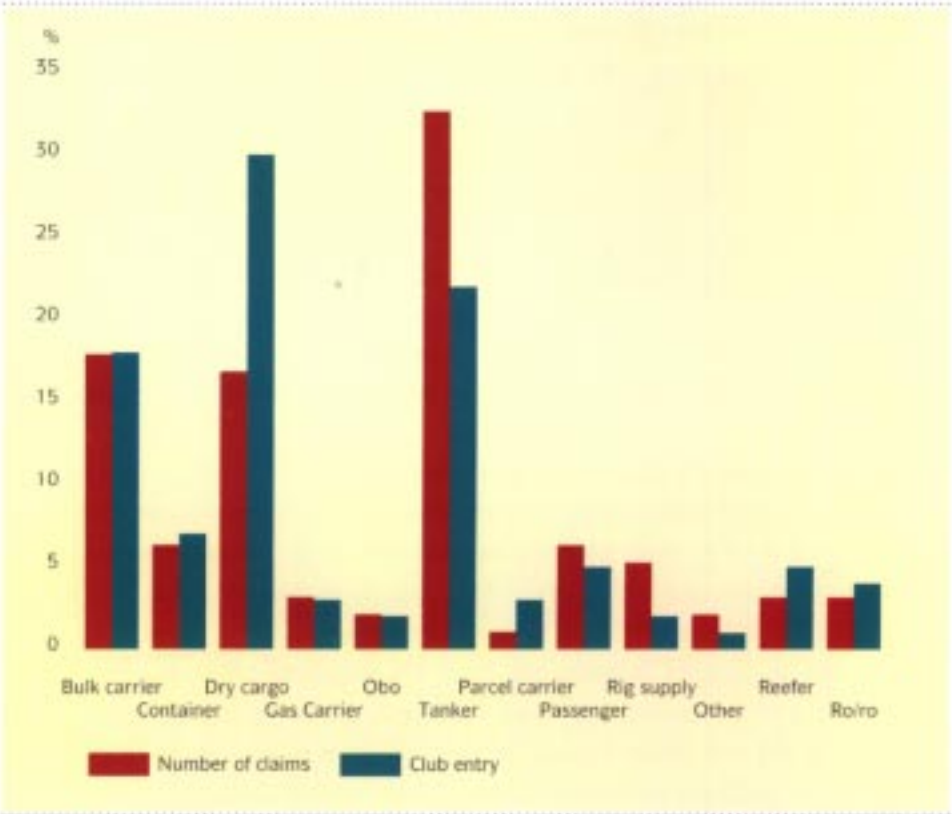
Analysing these very high value claims by detailed cause, table 5 below indicates that ship sinkings, groundings and bad cargo handling predominate. Comparing this table with the equivalent table in the 1992 edition, Members will note that there has been a significant increase in the proportion of such claims attributable to sinking, and a corresponding reduction in claims caused by grounding and bad handling. Although the number is statistically very small, and therefore liable to fluctuate significantly from year to year, this sharp move may indicate the growing number of problems being encountered with increasing age.

Although much has been written regarding the serious bulk carrier casualties, an analysis of the very high value claims which have impacted upon the UK Club shows that tankers still predominate at this high level. Members are, however, reminded that, at this high level, the greater cost of tanker claims is taken into account in apportioning the Club's reinsurance costs fairly across the membership.

TABLE 5 - CAUSES OF VERY HIGH VALUE CLAIMS

All types of ship entered in the Club occasionally have very high value claims. Table 6 compares the number of claims from each type of ship against the number that would randomly be expected from that type of ship purely by virtue of the number of similar ships in the Club.

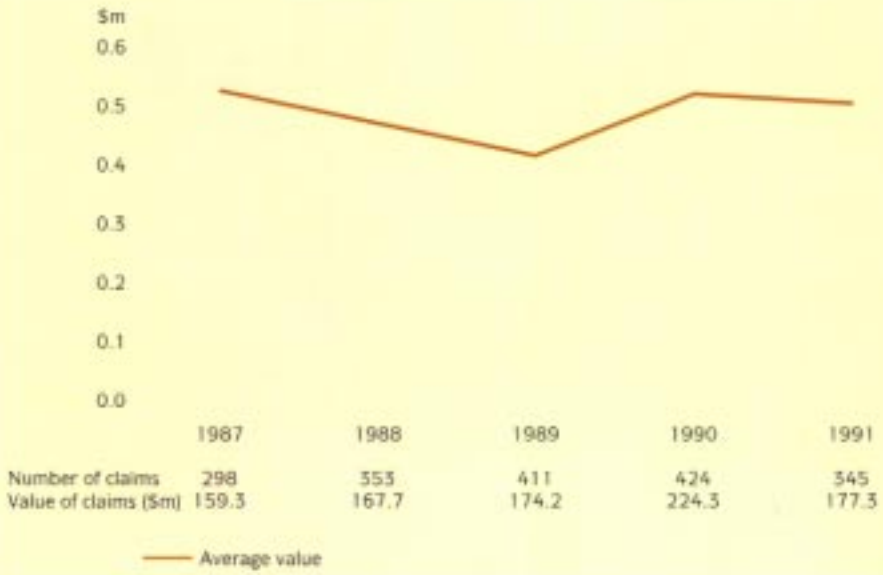
TABLE 6 - TYPES OF SHIP PRODUCING VERY HIGH VALUE CLAIMS



Trend of Major Claims

Table 7 shows the average value of major claims distributed by policy years. The figures indicate the number and value of the claims in each policy year. The latest year, 1992, is excluded because the number and value of claims notified to date is still relatively undeveloped, and the average is thus statistically unreliable. As can be seen, the average value of the claims remains steady around $500,000. The reduced number of major claims in 1991 and the early indications from 1992 (not shown) do give some cause for optimism that measures taken by Members to reduce claims are meeting with a degree of success. Given the high average value of major claims, each claim that can be avoided does have a significant impact on the Club's overall cost to Members.

Table 7 - Average Value of Major Claims



	1987	1988	1989	1990	1991
Number of claims	298	353	411	424	345
Value of claims ($m)	159.3	167.7	174.2	224.3	177.3

Major Claims Compared with All Claims

Despite the great emphasis which the Club rightly places on the 1,971 major claims which occurred over the six policy years, it must not be overlooked that these represent only 1.38 per cent by number of all the claims experienced by Members and reported to the Club. The reason for the concentration is, however, evident when the value is considered - that small number of claims, still under 2,000 over six years, has contributed 71 per cent of total claims values on the books of the Club over the period. It is thus evident that avoidance of major claims has a much more immediate and significant impact upon the Club as a whole than any other single action that Members can take.

TABLE 8 - COMPARISON OF CLAIMS ABOVE AND BELOW $100,000

It is possible to conclude from this and from the previous reports that it is difficult to predict whether an incident will lead to a major claim or a minor claim. The Club views the overall picture statistically in this analysis, but from the perspective of an individual Member, who is unlikely to suffer a major claim with any significant degree of frequency, the difficult message pointed up by this fact is that the way to avoid major claims is to concentrate on avoidance of claims of any size. It is for this reason, amongst others, that loss prevention measures and the consequential pursuit of ever higher standards of operating quality remain central to the Club's strategy.

PREMIUM

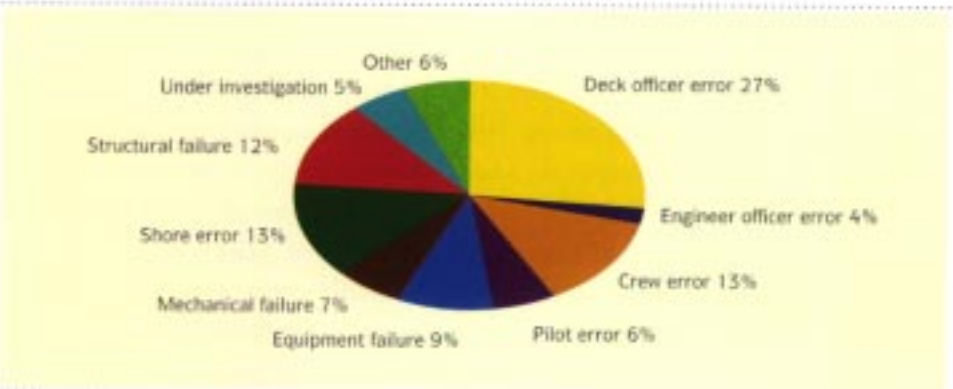
As Members are aware, the Club rates each Member individually by reference to the overall pattern of risk which a Member presents to the Club, taking into account particularly past performance of a Member, together with operational and other relevant factors, and also the randomness with which certain types of claim occur. This analysis, however, views the Club's experience from a statistical perspective, and does not permit any conclusions to be drawn as to the premium structures of the Club, the rating applied to any individual or type of Member, or the Club's total income, which also meets overheads and reinsurance costs. Nevertheless, the development of this analysis makes a significant contribution to the underlying task of keeping premium levels continually under review to ensure that risk is adequately reflected in individual ratings.

2. Summary of Analytical Findings

2.1 Main Causes of Claims

Table 9 shows the main category of cause of all the major claims as a percentage of the total number of claims. The main cause is the cause which is most obviously linked to the incident giving rise to the subsequent claim. Where there is a direct human act or decision taken by an individual which is immediately causative of the incident leading to the claim, the claim will be attributed to human error even though there will often be other factors present without which the human act would not have resulted in the loss.

Table 9 - Main Causes of Major Claims



Human error is not, of course, limited to areas of direct action and there can be no doubt that many of the claims attributed to mechanical and structural failure have their real cause in lack of maintenance and proper care for the fabric and equipment on board ships, which is itself attributable to human failing. This failing may also occur at the design stage, the construction stage or indeed during periods of maintenance. It should not however be assumed that the human error is one for which culpability must automatically be attributable; a significant number of claims arise where there has been an error of judgment made by a responsible and careful individual. Nevertheless, even in these cases, there are often factors present such as fatigue, overwork or economic pressures which help to colour that judgment and may in themselves contribute to the human mistake.

As in previous years, human error dominates the causes of major claims and thus the Club continues to encourage all Members to address the human issues as much as the structural and mechanical factors, although these remain an important part of the ownership and management of ships. Moreover, with an increasing number of claims now available to be analysed, it is possible to look more closely at claims where there is an element of structural failure, particularly in the bulk carrier and tanker trades - these are explored more fully in the respective parts of Section 3.

HUMAN ERROR

Three out of every five major claims are directly related to an error on the part of one or more individuals engaged in the operation of the Member's ships. The previous edition of this report made a number of observations on this subject, which Members have endorsed.

There is evidence that well-informed and properly trained personnel can be over confident, careless or even reckless in responding to commercial pressures. There are temperamental factors such as fatigue, discomfort, boredom, anger, and stress which make people more prone to mistakes than might otherwise be the case.

Pride is an interesting example; most mariners have considerable pride in their performance, but this can on occasion lead to a failure to seek assistance or advice with consequential disaster. Personal injury claims demonstrate this most obviously with sailors carrying out single-handedly tasks for which they should have some help, with resultant back strain injuries.

Property damage claims are often caused by confusion, particularly where a pilot is involved. The Club's study into pilotage continues (jointly with that of the other International Group Clubs) but experience indicates that there is no substitute for a proper pilot's conference with the pilot and master considering together all likely eventualities and clarifying exactly where responsibility lies at each stage of any manoeuvre.

Language problems also have a part to play in contributing to error. These are of course particularly significant during pilotage operations. Not only may the pilot and master have difficulty understanding one another, but the potential for misunderstandings between officers and crew is ever present in mixed nationality ships and the consequences are inevitably more serious where there is little or no margin for error, such as in berthing or bunkering.

Fatigue is a continuing cause for concern, with smaller crews and shorter turn round times in harbour, often themselves periods of intense activity. Fatigue may also be an element in explaining unhappy arithmetical mistakes in calculating stability and other important professional matters.

As the previous report observed, human error cannot be eradicated, but there is no doubt that thoughtful and well designed working environments, sound procedures, training and standards of good practice help to make such incidents less likely.

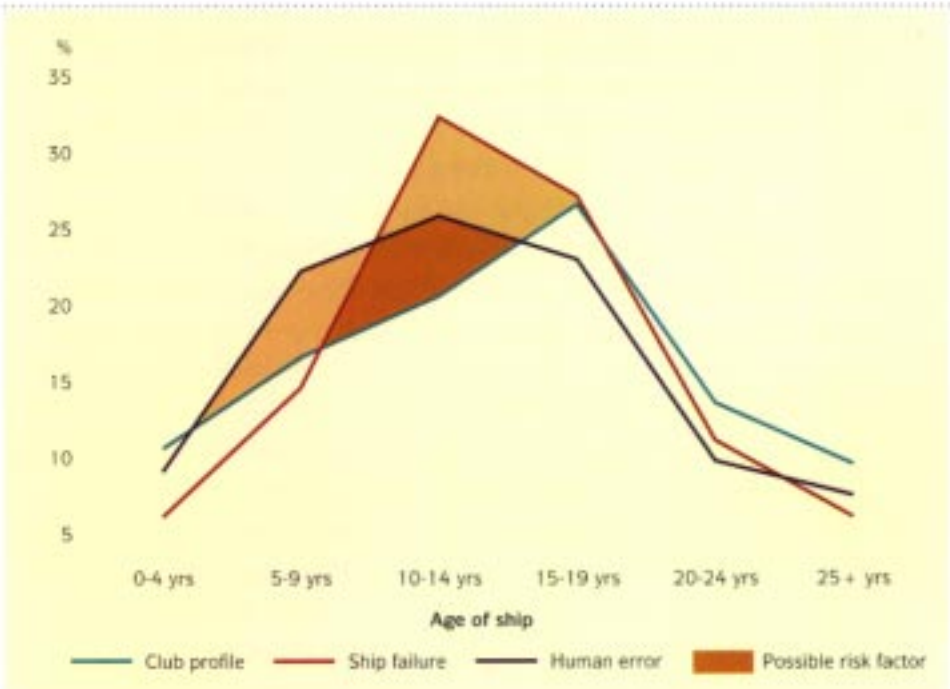
The Club's inspectors have confirmed that many masters and officers at sea are unaware of the consequences of incidents which give rise to P&I claims, not surprisingly since the subsequent action of settling such claims is normally carried out by owners in conjunction with the Club. The Club's Managers believe that a greater awareness by masters and key officers of the consequence of these claims will help to enhance a culture of care and

contribute to rising standards. They have accordingly distributed to all Members a video designed to increase the awareness by seagoing staff of where claims arise and how avoidable many claims are; they are also publishing a new regular loss prevention newsletter targeted at raising this awareness of risk. (Members may obtain additional copies of video and newsletters from the Managers' London Agents).

AGE OF SHIP

A statistical comparison of the age of ships involved in major claims compared with the occurrence of human error and the incidence of ship failure confirms the findings in previous years of a distinct coincidence in ships between 10 and 14 years old - see Table 10. Why this should be so is still not yet clear from the analysis. There is no doubt that age plays a part in ship failure but given the apparent correlation of the risk factors, it seems reasonable to suggest that the difficulties of running ships at this high risk age adds to the pressures on the individuals concerned leading in turn to a greater incidence of human error. Alternatively it may be that it is the consequences of human error that are more serious on ships of this age because of the deteriorating condition of the ships. Inevitably, however, the correlation, which is now based on the substantial total sample of 1,971 claims, lends further support to the views of those who consider that many human errors would not lead to such significant claims had the ships involved been maintained to a higher standard.

TABLE 10 - HUMAN ERROR AND AGE OF SHIPS

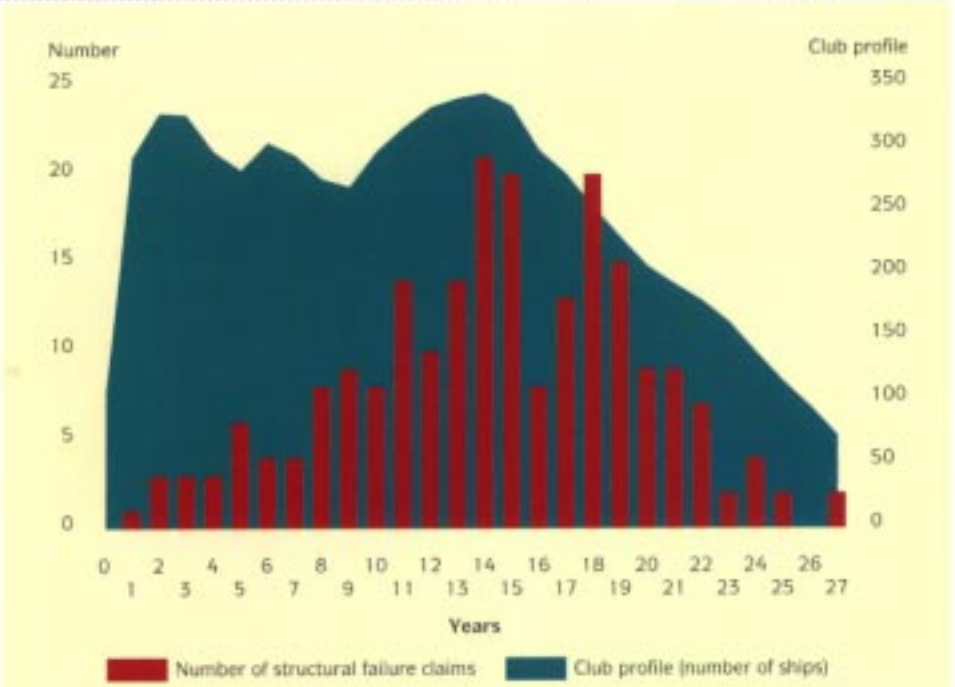


It is however noteworthy that claims occur in ships of all ages, whether caused by ship failure or human error. Simplistic linking of claims to age as a cause is not justified by the statistical analysis. Rather, the spread, albeit uneven, confirms that many of the major claims arise from the same kinds of errors that give rise to smaller claims every day of the week. It is merely some additional factor particular to the individual circumstances that causes a routine mishap to develop into a major claim. Assuming that such errors will always be with us, it is clear that the role of loss prevention must therefore include substantial measures to try and minimise the effect of mishaps as well as seeking to avoid them altogether. This indicates that a high quality operator will seek to place emphasis on fail-safe systems, positive reporting of incidents - including near misses - and good contingency planning and practice. He will also utilise lessons learned in relation to risk management from other transportation industries including aircraft and railway systems, and continuously strive to develop internal measures to improve performance. In pursuit of the Club's determination that its membership should comprise owners committed to high quality, it is encouraging that the ship inspectors are finding evidence in most ships of increased measures put in place by shipowners to improve safety and to avoid incidents which cause claims.

Quality of Tonnage

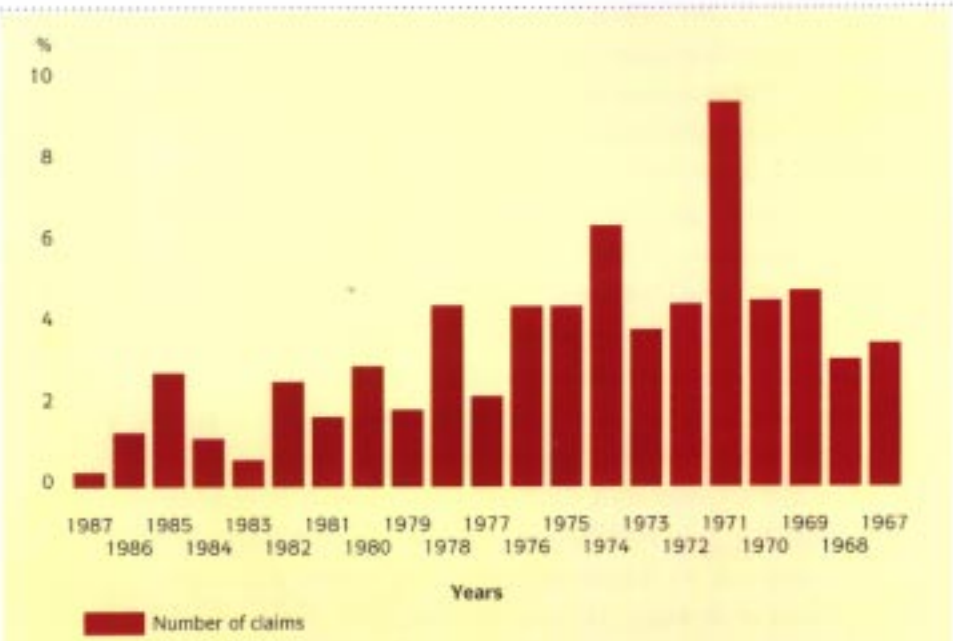
Age continues to be a significant factor in relation to structural failure claims, particularly in ships in excess of ten years old, although it must not be overlooked that there is a significant number of such claims in ships under eight years old. The number of claims available for analysis where structural failure has been identified as a main cause is now such that it is possible to analyse them by reference to the actual age rather than age band. Table 11 indicates the result comparing the number of incidents with the average number of ships entered in the Club over the period concerned (the average Club profile). Ships of 14 years old are conspicuous in their contribution to structural failure claims but there is further evidence that ships of 15 years to 20 years generally contribute a disproportionate number of claims, reflecting the difficulty of operating these ships to the necessary high standards. Further experience in 20-22 year old ships, albeit based on a smaller number of ships of that age in the club, indicate there is a continuing heavy maintenance burden on those who operate older ships, with serious consequences when things go wrong.

Table 11 - Age and Structural Failure Claims



The structural failure claims have also been analysed by reference to the years in which ships were built. Table 12 shows the structural failure claims of each generation of ships - a generation being the ships of which the construction was completed in a particular year. The number of claims on ships of each generation is then expressed as a percentage of the average number of ships of that same generation in the club over the period 1987 to 1992. It must be read with some care; for instance the 1987 generation itself is only now six years old, whereas the 1982 generation passed through the analysis period when its ships were between five and ten years old. It is however interesting to note that the pattern is not even, nor is there evidence of a simple trend. The generations of 1985, 1982, 1980 and 1978 have all performed less well than the generations immediately either side of them. The 1971 generation, which passed through the analysis period when its ships were between 16 and 21 years old, is particularly distinctive - Nine per cent of the ships of that generation entered in the club have had a major claim related to structural failure during the period under review.

TABLE 12 - STRUCTURAL FAILURE CLAIMS ANALYSED BY YEAR OF BUILD



These findings underline the importance of the UK Club's continued policy of maintaining the age requirement for a condition survey of ships offered for entry into the Club at ten years rather than later (as used to be the case). In assessing the quality of those who operate older ships, moreover, particular emphasis is being placed on ensuring that the prospective owner has both the capability and the resources to make the necessary investment in maintenance of the fabric of the ship.

The findings of the UK Club's Analysis correlate closely with those published by the Institute of London Underwriters in their hull casualty statistics. The hull underwriters too have experienced disproportionately adverse experience from ships in the 15-19 year old age band. While it must not be overlooked that structural failures are more likely to result in a hull and machinery claim than in a P&I claim, their own similar experience in this area is undoubtedly of great significance. The fact that the proportion of ships of this age in the world fleet continues to increase confirms the need for continued vigilance both by the Club in monitoring the quality of its entered tonnage and also by individual owners who face the challenge of operating these ships in conformity with their commitment to quality.

Structural failure is a cause of claims in all types of ship entered in the Club. It is an area where the work of the classification societies is particularly important in supporting owners with objective, high quality surveys carried out in timely fashion. Deterioration through age is clearly a factor, and the importance of the 10-year survey cannot be overstated.

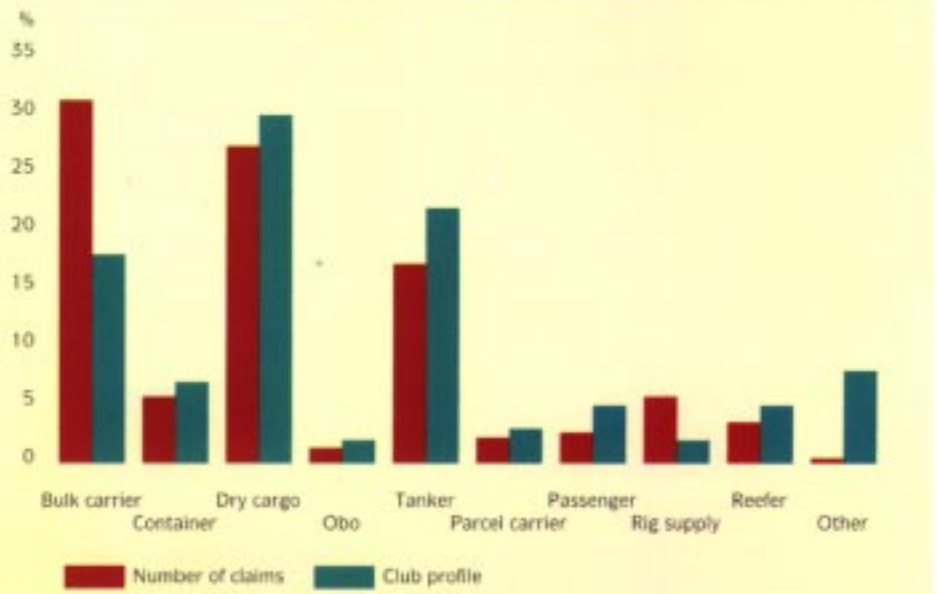
The professionalism of this survey is particularly important, and the Club welcomes the efforts by the leading class societies, and in particular those within the International Association of Classification Societies (IACS), to ensure that no ship is certified incorrectly. Preparing a ship for all major surveys does, of course, place a significant burden upon the owner if the surveys are to have maximum benefit. The ship needs to be clean, in port, not working cargo and available over a period of some days to a team of surveyors who will inevitably need support from the ship's officers. A responsible owner looks to these major surveys as complementing his own commitment to quality, rather than a burdensome interference in his trading. The substantial sums of money involved in structural failure claims demonstrate clearly the importance of maintaining the structure, and proper utilisation of class surveyors is a most crucial element. From the Club's perspective, it is, of course, the owner who is responsible for maintaining his ship in class, and while class surveyors are not infallible, it is owners not class surveyors who have the burden of maintaining ships and who are responsible for keeping them in a safe and seaworthy condition at all times. The Club does, however, continue to monitor the performance of class societies in relation to structural failure claims with a view to helping class societies maintain consistency and achieve the high standards of survey needed.

It is a condition of Club cover that a ship is maintained fully in class; if a ship suffers an incident giving rise to a claim whilst it is in breach of class conditions, the Board of Directors of the Club has discretion to refuse to pay the claims, whether or not directly linked to the breach of class. It has been the practice of the Board in recent years not to exercise this discretion in the owner's favour in these cases, regarding a failure to maintain the ship in class as a fundamental failure by the owner to maintain minimum standards of quality necessary for mutual trust between members. Continued breach of class requirements, or a failure to rectify shortcomings identified by the Club's condition surveys will, moreover, cause the Managers to bring the Member's entry in respect of all ships to the Board's attention, so that the Board can decide whether the Member should be excluded from the Club.

TYPES OF SHIP WITH STRUCTURAL FAILURE

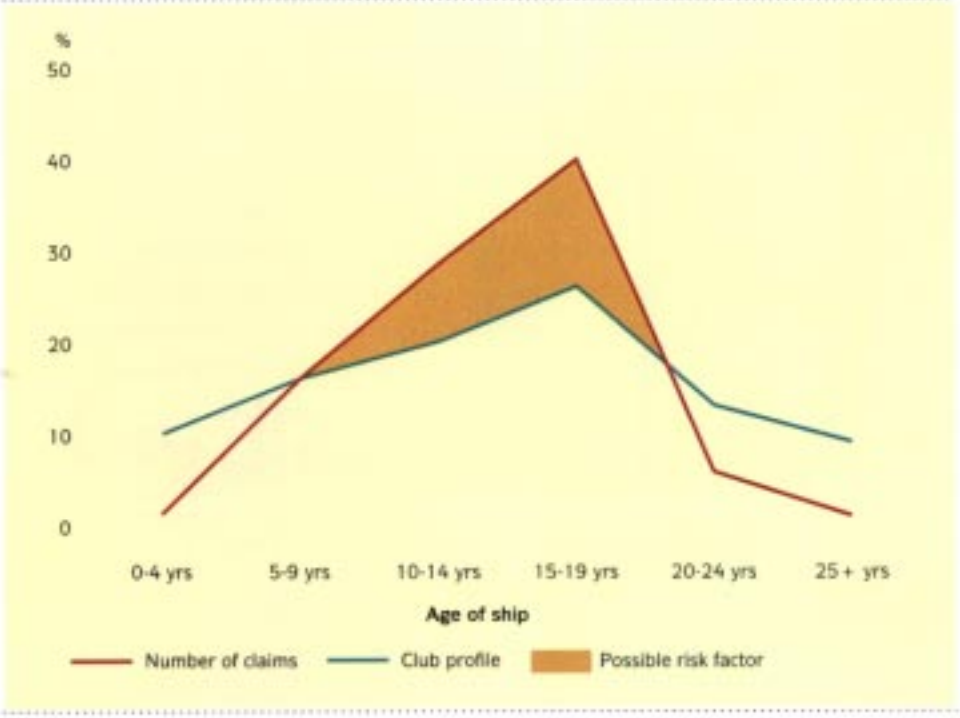
An analysis of the types of ships where major losses have arisen from structural failure continues to demonstrate that bulk carriers present the greatest risk and that concern about this type of ship is well founded. The position is illustrated in table 13 which shows the number of incidents affecting the various types of ship entered in the Club. Comparing this table with the equivalent table in the two previous editions of the report shows a further deterioration in the performance of bulk carriers generally, and the position in relation to these ships is considered further in Section 3.

TABLE 13 - TYPES OF SHIP WITH STRUCTURAL FAILURE CLAIMS



Within the generality of structure failure claims, there are a substantial number of cargo claims which stem from the continuing difficulties experienced in relation to hatchcovers. While defects in this class arise in ships of all ages, a disproportionate number occur in ships between 10 and 20 years of age; there are also a significant number occurring between 5 and 9 years old. This demonstrates the importance of maintenance of hatchcovers right from the start of a ship's life.

TABLE 14 - CARGO CLAIMS CAUSED BY HATCH COVER FAILURES



STRUCTURAL FAILURE AND FLAG STATE PERFORMANCE

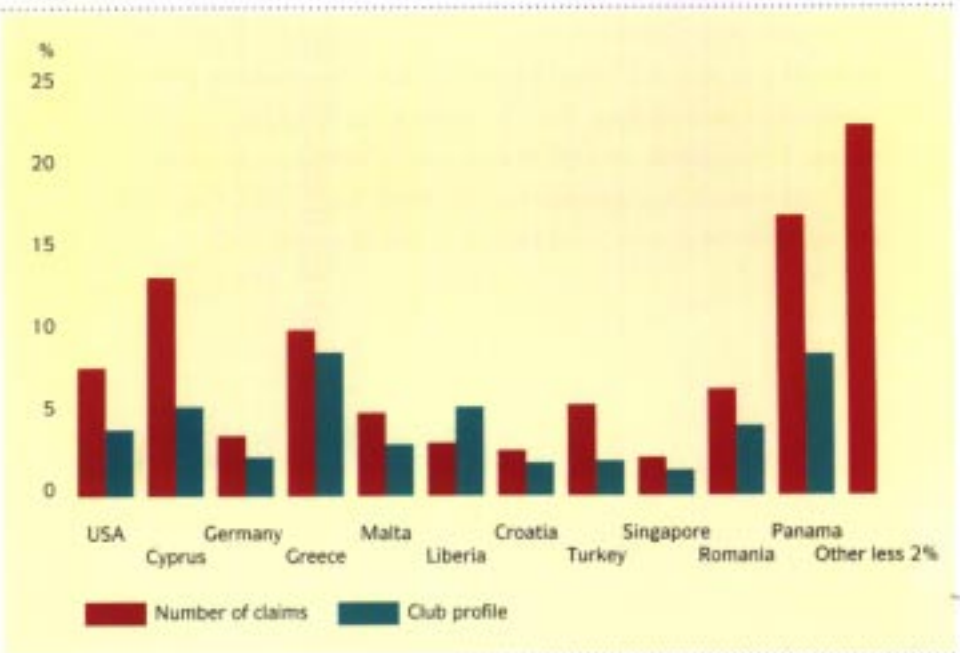
Structural failure is an area where flag states also have a statutory duty. Although this is often related to the work carried out by class societies, it is interesting to observe and monitor the performance of flag states. Table 15 shows the distribution of claims categorised by flag of the ship, as a percentage of the total number of claims, and compares this to the Club entry. Flags where the ships have had less than four claims are excluded. Although it must not be forgotten that hull underwriters suffer more from structural failure claims than the P&I Club because of the direct damage to and loss of ships, nevertheless the liability claims involve substantial sums of money. It is, therefore, relevant to identify flags which appear to have a less than satisfactory capability of performing their monitoring function.

It remains the case that the mere fact that an owner chooses a particular flag does not give any reason to assume that the owner is seeking to lower his own standards through using a less well-performing flag state. On the other hand, an owner who is not fully committed to quality and instead seeking to operate a sub-standard ship is likely to be attracted by such a flag, and indeed by a class society not committed to performing well. By monitoring these features through the major claims analysis, the club is able to view the choice by an owner of his

flag as one of a number of elements which together may indicate that the ships operated by the owner should be brought under closer scrutiny by the Club in order to confirm the quality of the owner's operation.

From table 15, it can be seen that the USA, Cyprus and Panama all stand out conspicuously as flag states which have substantially more than their fair share of structural failure claims. Whilst there may be factors which contribute to this imbalance, such as the substantial number of dry cargo ships and bulk carriers which tend to use Panama for instance as their flag, nevertheless it gives continuing cause for concern as a pattern which is being repeated in successive years. In this context, the public declarations and evidence of action being taken by the Cypriot government and maritime community to improve the performance of its flag are greatly to be welcomed.

TABLE 15 - STRUCTURAL FAILURE CLAIMS AND FLAG STATES



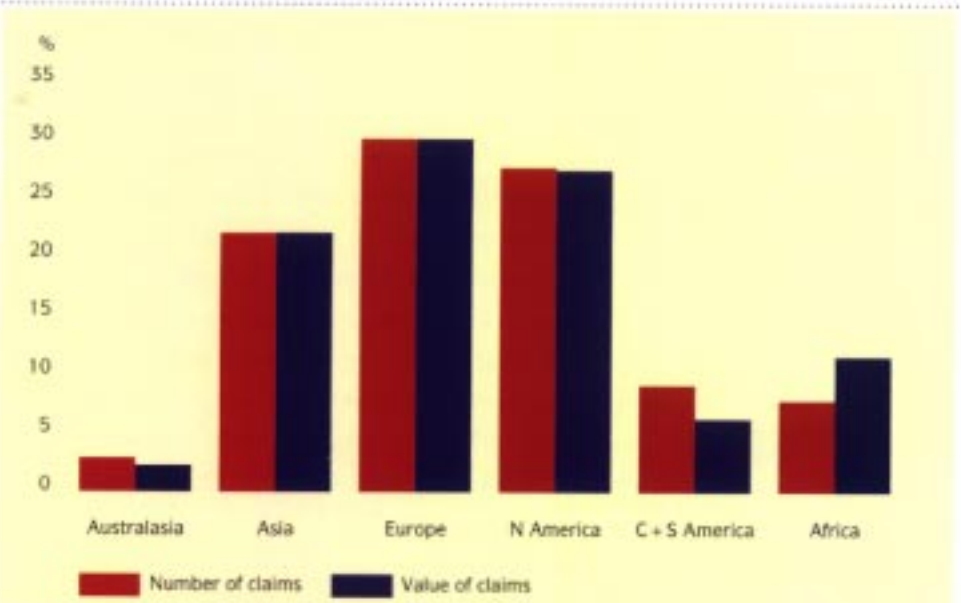
Legal Regimes and Jurisdiction

Table 16 identifies the countries where more than 10 incidents giving rise to major claims occurred. The table sets out the number and value of the claims in each country, showing the percentage of each. In terms of number of claims, the United States continues to dominate the major claims affecting the Club. This is, of course, partly a factor of the sheer size of the United States' economy and the fact that it represents the bulk of a continent, whereas smaller countries with more limited trade would not be expected to be so conspicuous. Secondly, it also reflects the high number of personal injury claims brought in the USA. The USA is a jurisdiction which not only gives substantial rights to individuals, but through its contingency fee legal system and a jury-based award process, encourages claimants in many cases of dubious merit. The Club works on behalf of owners in this position to ensure to the greatest possible extent that owners are not disadvantaged by a system which encourages in individuals an expectation that "somebody else will pay". Analysing the value of claims, significance is attached to the points on table 16 where the proportionate number and value diverge. Italy, a relatively small nation, has a very high number of claims and, perhaps of even greater concern, claims which have a significantly higher average value than the norm. Spain, South Korea and Africa also stand out, as do one or two other individual countries.

TABLE 16 - ANALYSIS OF COUNTRIES

Looked at on a more regional basis, table 17 demonstrates that there is no region which is predominantly safer or less likely to give rise to high value claims than another region. Africa demonstrates a region where the value of claims is noticeably higher than the norm. This represents significant operational risk for members who trade to Africa, partly due to the difficulties frequently experienced with legal regimes of varying quality.

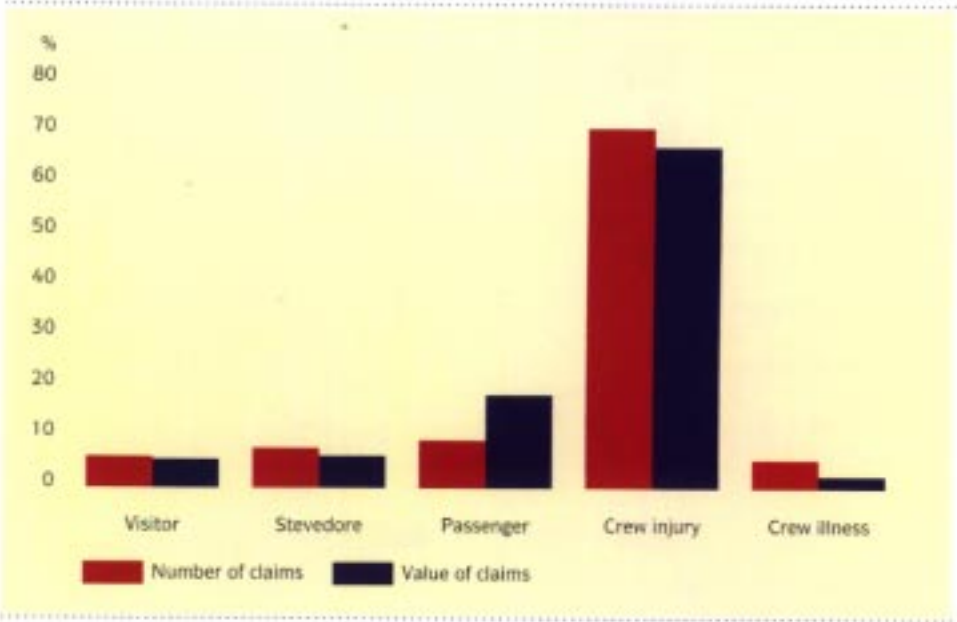
TABLE 17 - REGIONS OF INCIDENT



2.2 PERSONAL INJURY CLAIMS

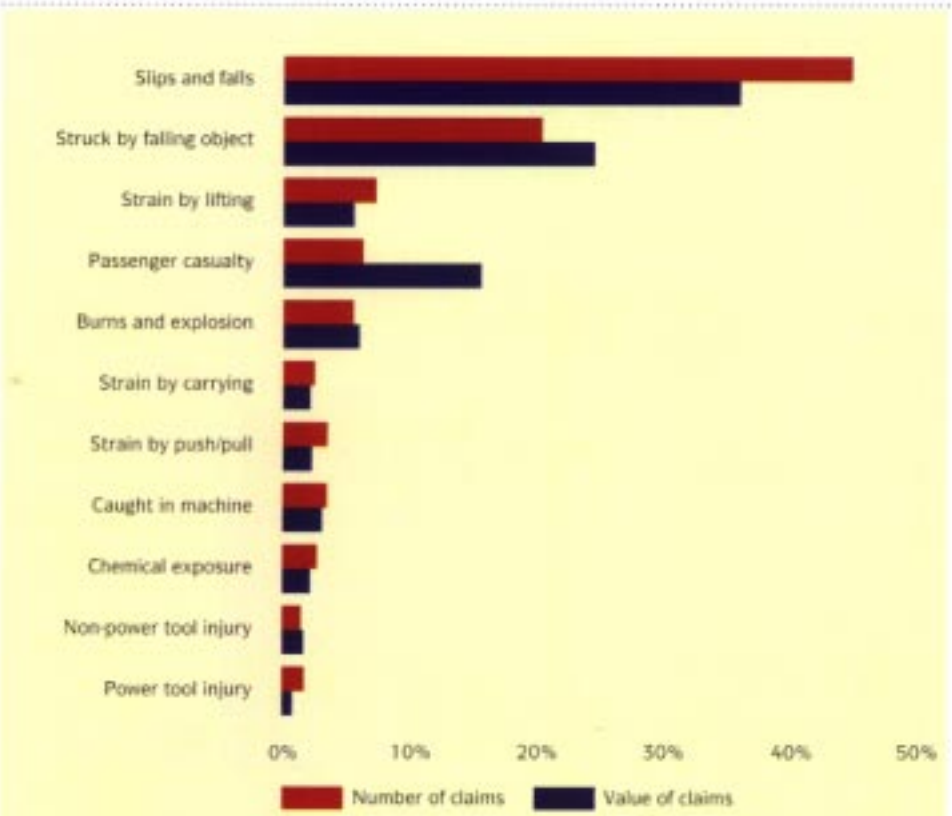
Almost one-third of the major claims dealt with by the Club arise from personal injury, where claims are made by crew, stevedores or passengers. Such claims arise across ships of all types, and the vast majority relate to crew injuries. This is shown in table 18.

TABLE 18 - PERSONAL INJURIES



These claims can be more difficult to quantify, because of the long period often involved between the incident giving rise to the injury and the final settlement of a claim, when the consequences of that injury have been fully evaluated. The types of accident from which these claims arose are shown in table 19. Slips and falls are by far the most common cause of accidents both in terms of number (45 per cent of claims notified) and value (36 per cent of the sums paid out) in this category. These claims are costly, and it is difficult for an owner to avoid liability. Ensuring proper footwear is worn, and most rigorous attention to ensuring absence of oil and grease from decks is important if such injuries are to be avoided or a proper defence against a claim is to be successfully mounted. Nearly 20 per cent of major incidents arise where individuals are struck by falling objects. Apart from the obvious need to ensure that proper hard hats are both issued and worn by seamen working cargo, the finding underlines the need for a real commitment to safe working practices on board ships, despite all the many strains and stresses imposed upon ships during intense periods of activity in ports.

TABLE 19 - PERSONAL INJURY CLAIMS - TYPES OF ACCIDENTS

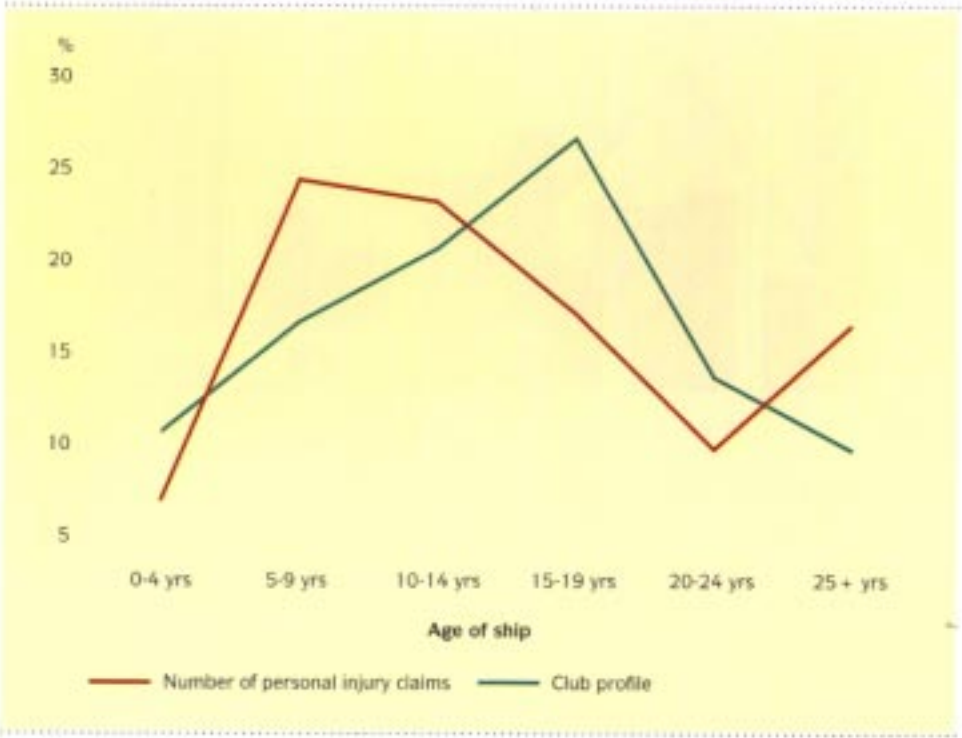


Passenger claims can also be expensive, reflecting the consequential losses to injured passengers, who tend to be drawn from high earning classes of people. The average age of cruise passengers is falling and this in turn will lead to higher value claims as plaintiffs become younger. Whilst all ships that carry passengers necessarily place a high profile on passenger safety, the consequences of accidents in this case are so significant in financial terms (as well as to the reputation of the carrier) that there can be no relaxation from a commitment to total prevention of accidents.

PERSONAL INJURY CLAIMS - AGE OF SHIPS

An analysis of the age of ships in which injuries to personnel occurred shows a different pattern from that observed earlier in relation to structural failure claims (table 20). Contrasting the occurrence of incidents with the age profile of all ships entered in the Club, more claims occur on ships aged 5 to 9 years and over 25 years than one would expect from the entry profile. Given the reduced levels of manning in more modern ships, this fact is particularly disturbing, and points to the need for personal safety to be high on the priorities of owners of ships of all ages. The disproportionate experience in ships of over 25 years of age is attributable to the high average age of passenger cruise ships, coupled with the earnings factor mentioned above.

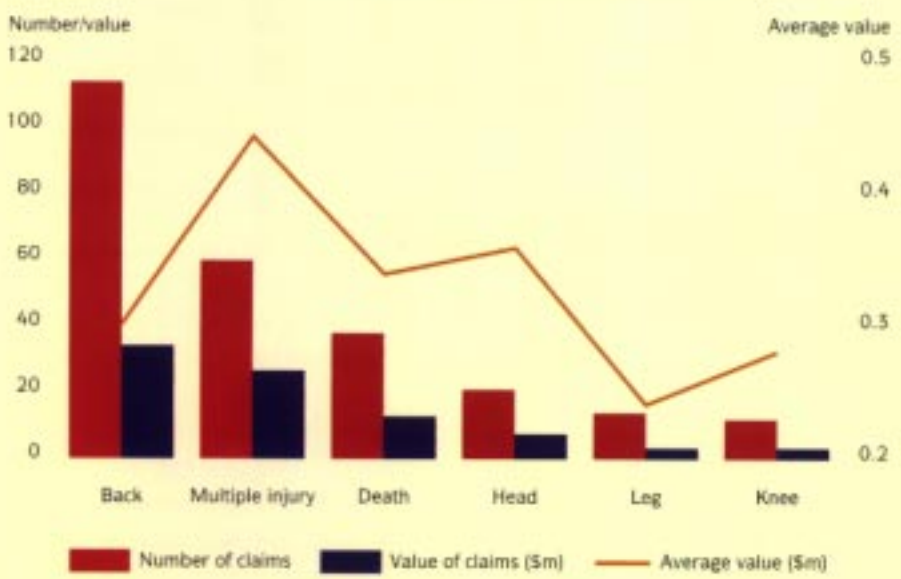
TABLE 20 - PERSONAL INJURY CLAIMS - AGE OF SHIP



MOST COMMON CREW INJURIES

Table 21 shows which sort of injury has been most common. Of the 259 crew injuries analysed in this way, back injuries dominate the Club's experiences in number although the average value of the claims is relatively moderate. The highest value claims relate to those sad cases where a person suffers multiple injuries or death, of which there have been 100 over the six years of the analysis. It should be noted, however, that even knee or leg injuries can themselves give rise to major claims of over $100,000 in certain circumstances.

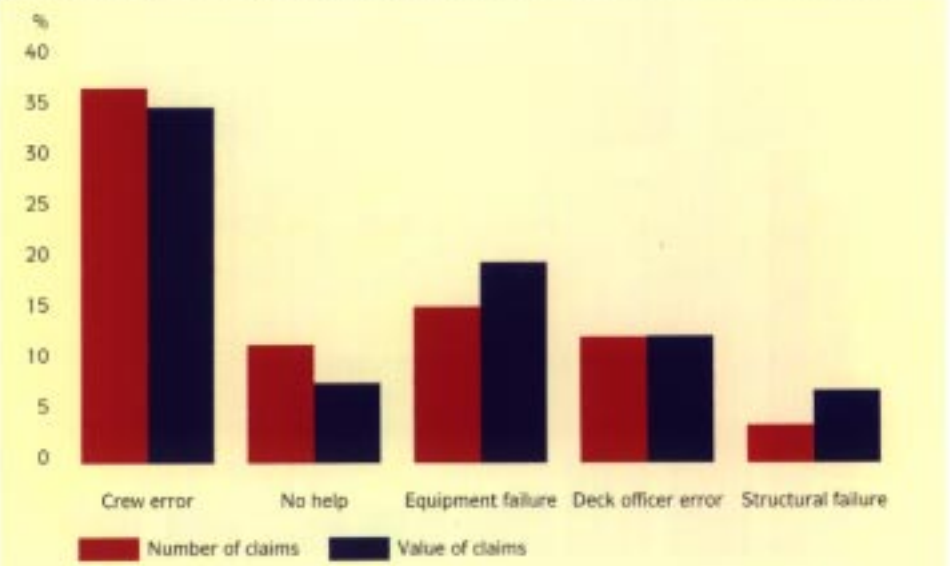
TABLE 21 - CREW INJURIES



CAUSES OF PERSONAL INJURY CLAIMS

Over one-third of injury claims arise directly from errors by the crewmen themselves - see table 22. Of significance also are "no-help" claims, which are those where a seaman has sought to carry out a task where he should have had assistance either from another individual or from some mechanical device. These claims, typically causing back injuries, are significant in terms of the overall costs of major injury claims.

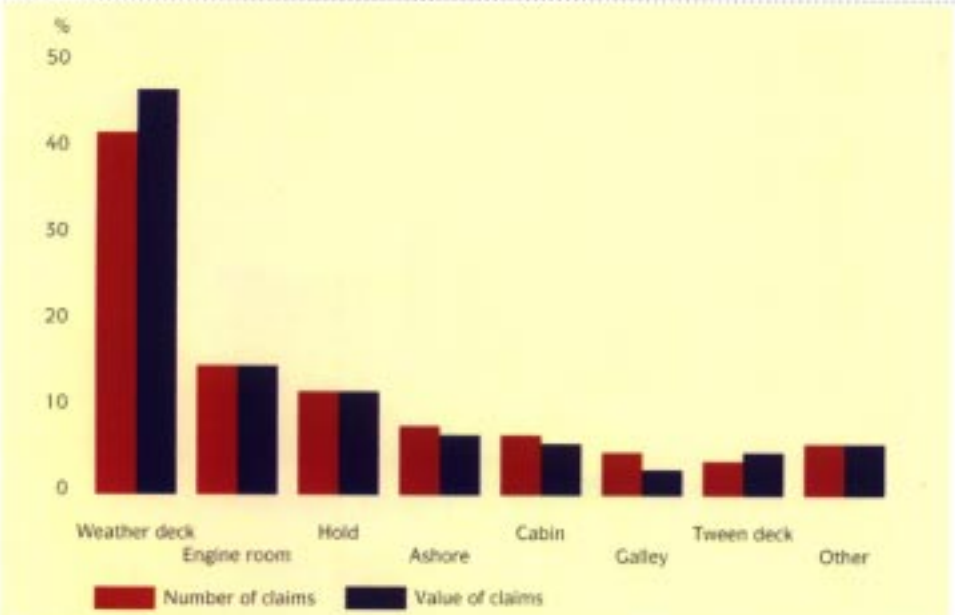
TABLE 22 - CAUSES OF CREW INJURY CLAIMS



PLACE OF INJURY

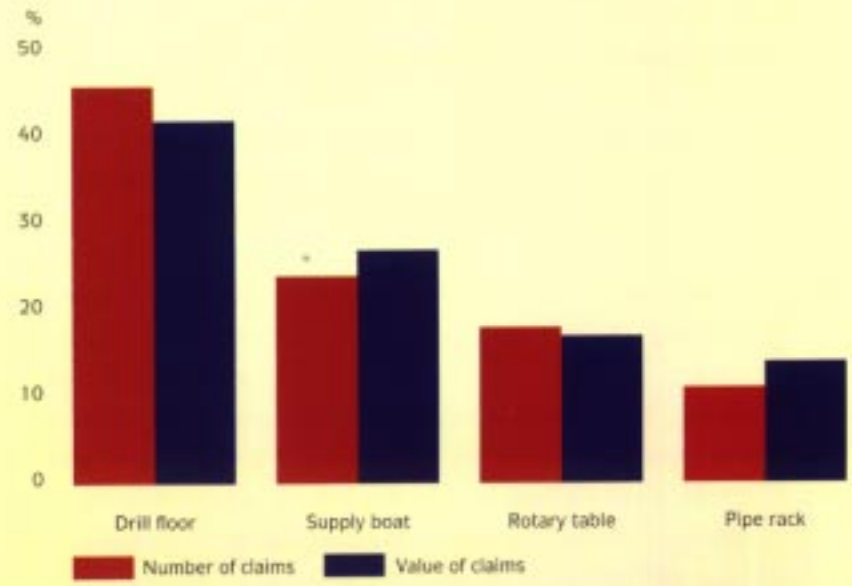
Over 40 per cent of major personal injury claims follow accidents on the weather decks of ships. This is nearly three times greater than those arising from incidents in the engine room, which in turn is more dangerous than the holds of ships. Expensive accidents also occur in cabins, galleys and other places on board. This all indicates the absolute necessity for an overall safety policy addressing all issues of safety on board, including safety in places where seamen relax and where their own concentration on safety issues is likely to be at its lowest.

TABLE 23 - LOCATION OF CREW INJURIES



There are a number of mobile oil rigs and supply vessels entered in the Club, and these have a different pattern of crew injury relating to their task. In these units there are a much smaller number of injuries, but the drill floor is clearly the most dangerous place. Supply boat injuries, however, are significant in terms of both number and cost, reflecting the inherent dangers within the oil production and exploration industry.

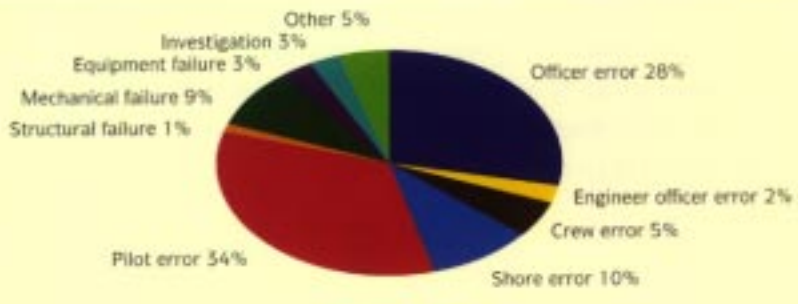
TABLE 24 - LOCATION OF CREW INJURIES - RIGS AND SUPPLY VESSELS



2.3 PROPERTY DAMAGE CLAIMS

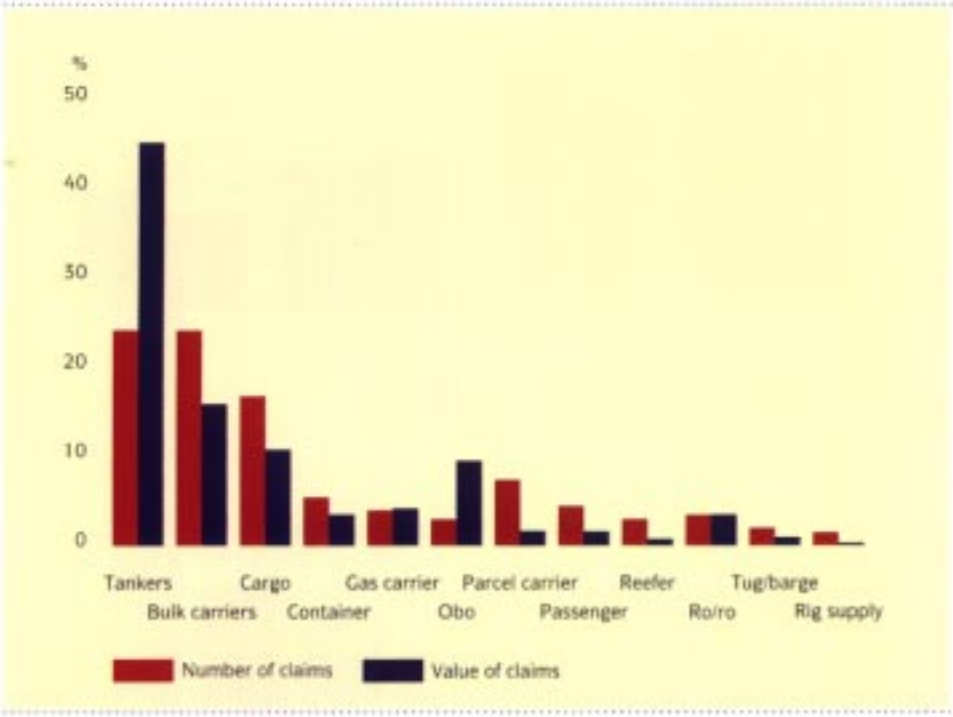
Human error, whether by crew, shore personnel or pilot, accounts for over 80 per cent of property damage claims. Pilot error is the subject of a separate ongoing study in which all International Group Clubs are combining to try and ensure pilotage standards worldwide are consistent and high. The causes are summarised in table 25.

TABLE 25 - PROPERTY DAMAGE CLAIMS - MAIN CAUSE



All types of ship cause property damage claims, but as can be seen from table 26, tankers and bulk carriers contribute significantly to the number of such claims. The incidents of property damage claims for these two types of ships is analysed in more detail in Section 3 of this report.

TABLE 26 - PROPERTY DAMAGE CLAIMS - TYPE OF SHIP



2.4 POLLUTION CLAIMS

Of the major pollution claims, 114 claims totalling $132 million have been analysed. Pollution claims are increasingly expensive, and the average value of these claims is over $1 million each. Although there is in these figures a distortion caused by one particularly large claim, the underlying trend continues to be adverse, and pollution remains one of the most expensive consequences of incidents.

POLLUTION CLAIMS - CAUSES

The causes of pollution claims fall into four distinct categories:

- Direct human error, during bunkering operations or causing collisions or groundings, account for around half of the total number of claims and three-quarters of the value. Human error is clearly the most significant factor in causing costly pollution claims.
- Tankers account for around half the total claims, and just over two-thirds of their value. This is not surprising given the potential for extensive pollution damage caused when the cargo is lost or spilt. It is also significant, however, that half the total number of pollution claims arose from incidents involving ships not carrying oil cargo.
- Bunker oil spills during bunkering, collisions,etc. account for just over one-third of the total number of claims and over two-fifths of the value of all those claims - ships of all types in the age band 10-14 years present a disproportionately higher risk than their number in the Club would otherwise suggest.
- Shell plate failure continues to account for a significant numbers of claims (around one-fifth) and a similar amount of value.

Table 27 shows the percentage number of claims attributable to the type of ship and compares this to the Club entry. The number of bulk carrier claims, as a proportion of all claims, continues to increase in this area as in others, and these are ships that are not carrying oil as a main product. It reinforces the importance of pollution awareness on non-oil carrying ships, and the particular need for anti-pollution measures to be rigorously applied when bunkering.

TABLE 27 - POLLUTION - TYPE OF SHIP

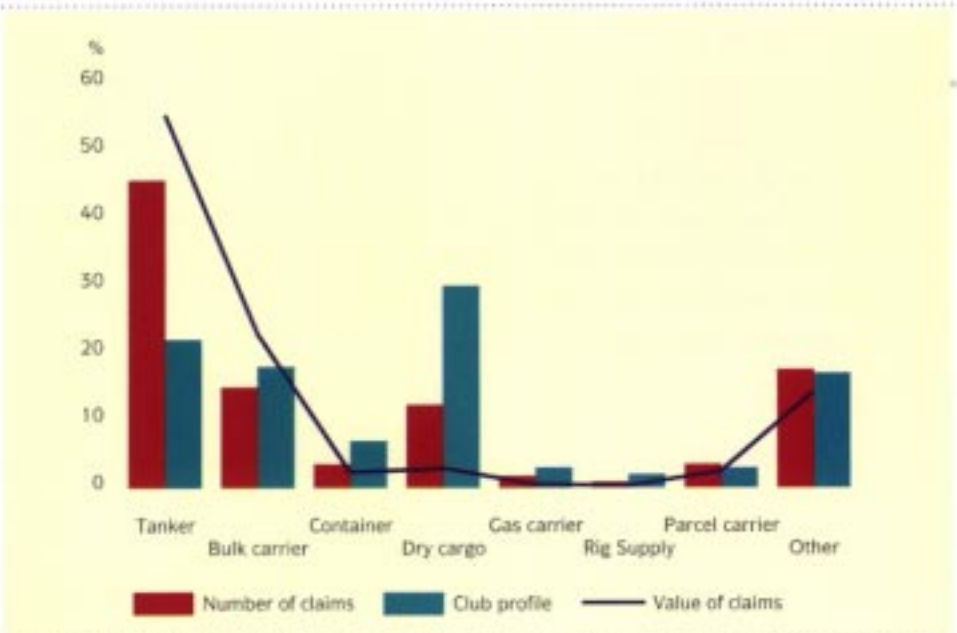
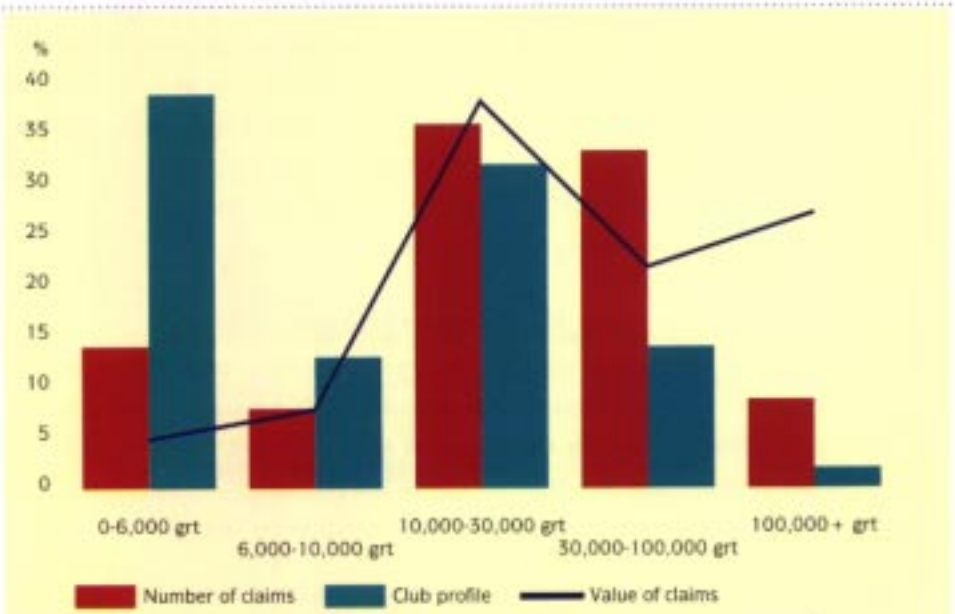


Table 28 shows the percentage number and value of claims attributable to the size of ship expressed in tonnage ranges. The table also shows the distribution of ships in each tonnage range for the Club as a whole and the average value of claims within each range.

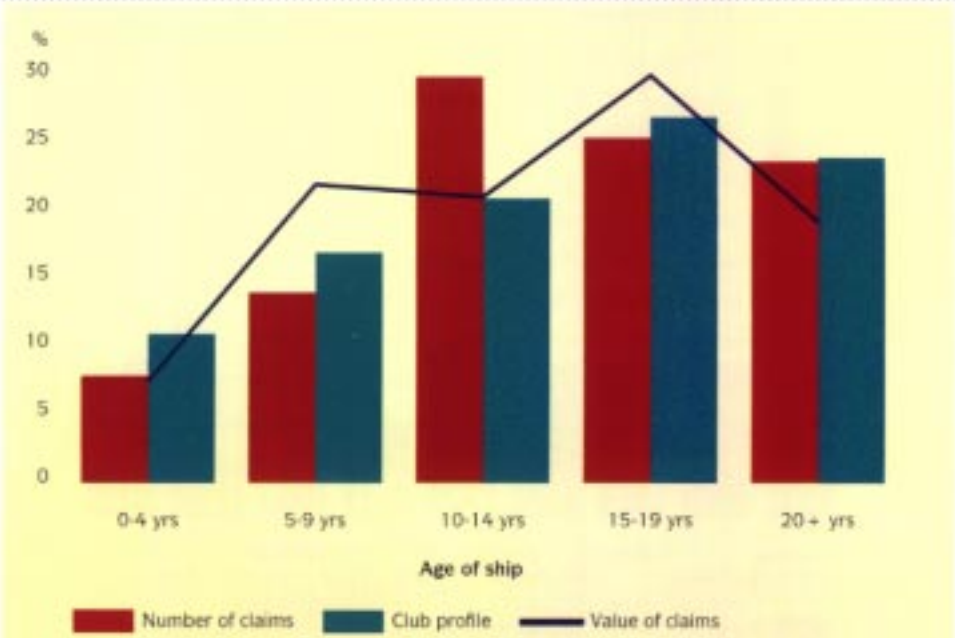
Pollution from ships in the tonnage ranges of 0-30,000 grt accounts for over half the value. The higher percentage of the value of claims arising from ships exceeding 100,000 grt is due in part to the one distorting claim referred to earlier; it is, however, evident that ships in the 30,000 to 100,000 grt range cost the Club significantly more than their profile indicates is likely.

TABLE 28 - POLLUTION - SIZE OF SHIP



Age, too is clearly a factor; table 29 categorises by age the claims of all types of ships, including tankers, and expresses this as a percentage of the total number of pollution claims contrasted with the Club entry. Ships in the 15 to 19 year age bracket are significantly more costly in terms of pollution claims, as such ships are with other types of loss. Even new ships are not immune, however, with some seven per cent of claims being caused by pollution from ships under five years old.

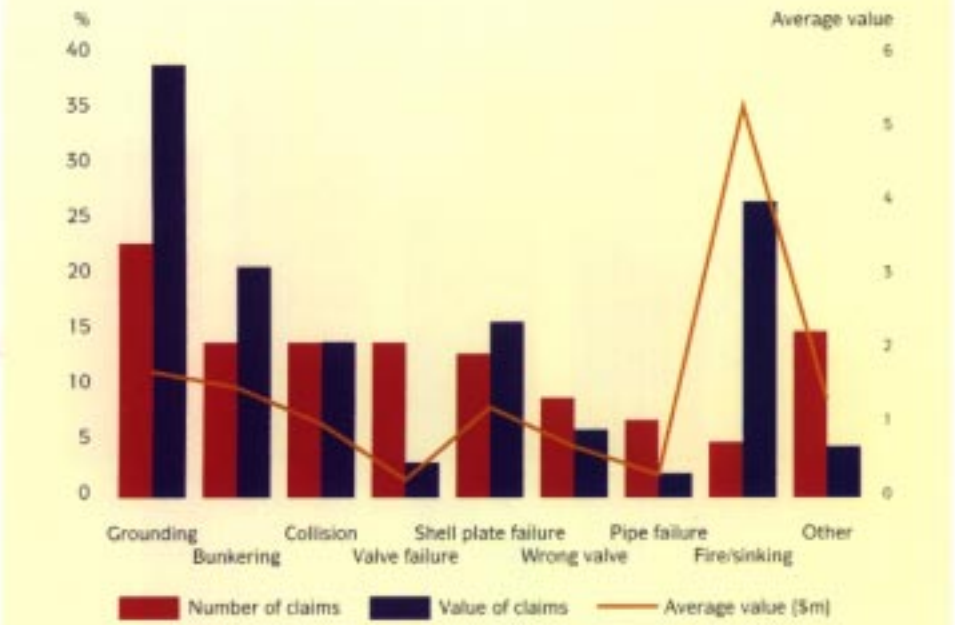
TABLE 29 - POLLUTION - AGE OF SHIP



POLLUTION CLAIMS - OPERATIONS INVOLVED

Pollution claims occur in a number of different ways. Bunkering, collision, valve failure and shell plate failure each contribute 12 per cent of the total number of claims. For the 14 bunkering claims analysed, the total bill exceeded $20 million, giving an average of $1.5 million per claim. While this is distorted by one large bunkering claim, it nevertheless illustrates that any ship of any type can present the Club with a major pollution claim, and, as previously observed, underlines the need for a strong loss prevention policy on board to minimise risks during bunkering, including double checking tanks/gauges and clear communications between the ship and the supplier of the bunkers.

TABLE 30 - POLLUTION CLAIMS - DETAILED CAUSE



CAUSES OF POLLUTION CLAIMS

Errors committed by deck officers account for 36 per cent of pollution claims, compared with only six per cent by engine room staff and six per cent by crew. Unsurprisingly, bunkering claims tend to fall within the latter two categories, whereas the deck officer errors lead to the collisions and groundings. Structural failure did, however, pay a significant part in these claims as the main cause of 1 in 5 pollution claims, emphasising the need for owners both to pay close attention to the physical condition of ships, and also to facilitate thorough and timely class surveys.

TABLE 31 - POLLUTION CLAIMS - MAIN CAUSE

2.5 COLLISION CLAIMS

Collisions giving rise to major claims can occur anywhere, as shown by table 32. Almost 1 in 5 occurs in open water, 1 in 3 in coastal waters, 1 in 5 in harbours or anchorages and 1 in 7 in separation zones. It can be seen, therefore, that overall collision claims are as likely to occur in open water as in locations where there is more obvious risk. Thus unremitting vigilance is required by masters and officers on watch wherever ships are, and there must be continuing adherence to the international regulations for the prevention of collisions at sea. The figures also remind the mariner that over-reliance on radar and lack of early and clear alterations of course to avoid a collision situation are two key elements of basic marine safety. Officers should be encouraged to refresh themselves regularly on the regulations, up-to-date copies of which should always be readily available to them.

TABLE 32 - COLLISIONS - LOCATION

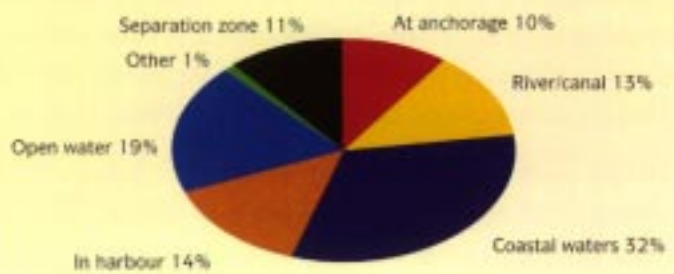
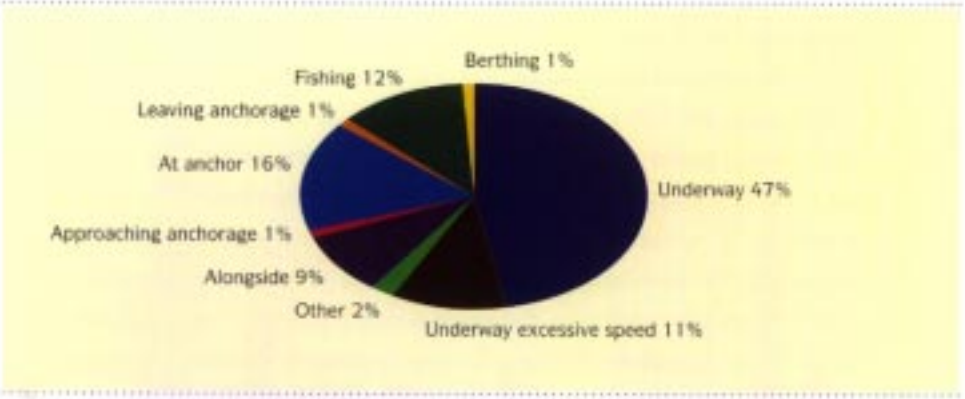


Table 33 shows the status of the "other" ship i.e. the ship which was not entered in the Club and with which the entered ship collided. Berthing incidents are, perhaps, understandable, although the importance of a good working relationship between pilot, master and tugs can avoid most expensive claims. As many as sixteen per cent of "other" ships were at anchor; this reflects the inherent difficulties of manoeuvring ships in confined spaces and reinforces the importance of the pilot/master relationship, a clear plan and avoidance of over-reliance on radar.

TABLE 33 - COLLISIONS - OTHER SHIP STATUS



TYPES OF COLLISION

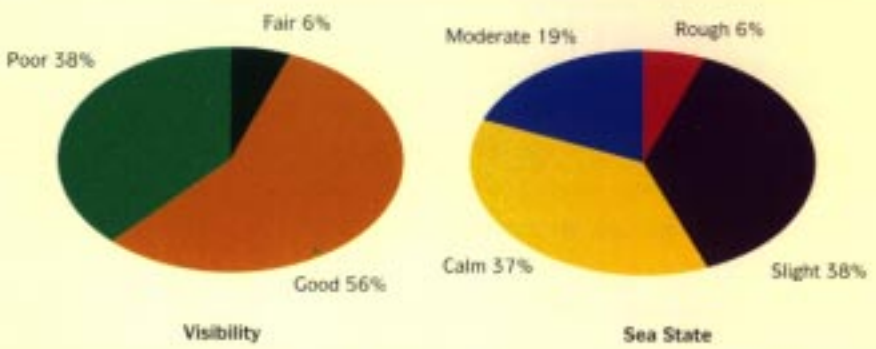
Crossing situations continue to dominate the experience of collisions, with 2 in 5 claims arising in this way. Nine per cent involve an overtaking scenario, which indicates rule of the road difficulties; 1 in 4 involves one of the two ships being stationary.

TIME OF COLLISION

Collisions are not evenly distributed through the day. Ten per cent occur in one hour between 05:00 hours and 06:00 hours local time and altogether over 40 per cent occur during the morning watch. While this may relate to the activities traditionally carried out during that watch, including entering harbour when there is a full bridge complement including a pilot, it is nevertheless worthy of further study. It does, however, reinforce the message that this watch, which frequently coincides with a change of tempo in a ship's activity, is a watch where a more experienced officer might well be appropriate on occasion.

As noted in previous editions of this report, many collisions occur in good weather and good visibility. Table 34 shows this, analysing the visibility and sea state at the time of the collision. This occurrence again indicates that complacency is a factor in human error, and that collisions are not caused by overwhelming forces of nature. The 38 per cent of collisions that occur in poor visibility suggest that there is room for improvement in the utilisation of navigational aids such as radar, but it is also important be that these should not be seen as replacing basic marine practices such as keeping a good look out and proceeding at a safe speed.

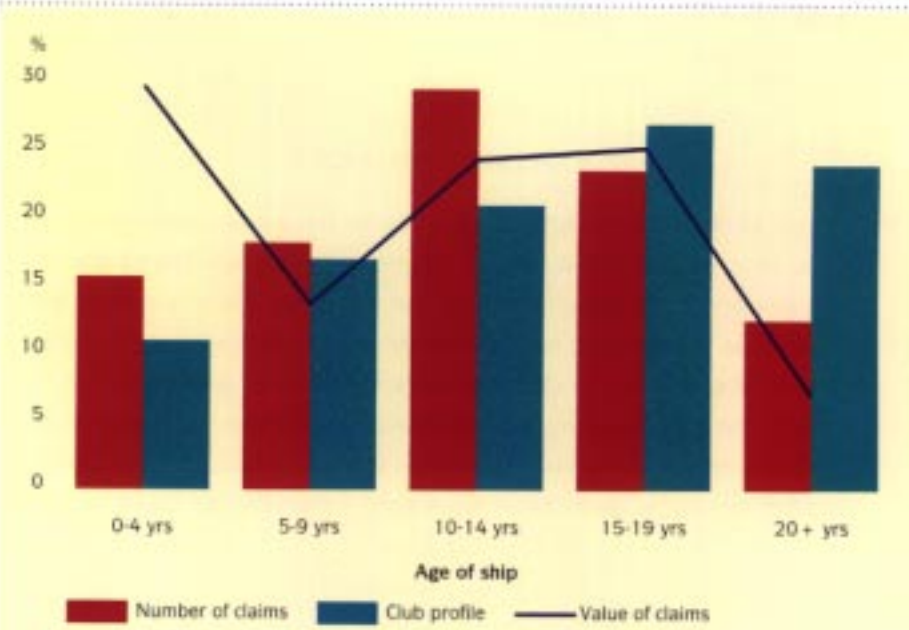
TABLE 34 - COLLISIONS - VISIBILITY AND SEA STATE



AGE OF SHIPS IN COLLISIONS

Table 35 shows the age of ships involved in collisions as a percentage of the total number and value of claims and compares this to the Club entry. Ships of all ages become involved in collisions, although there is a slightly higher number of newer ships colliding than the number in the Club would suggest is likely. Some 15 per cent of claims are, moreover, caused by ships less than five years old, perhaps indicating the greater strains on the smaller numbers of officers found in newer ships

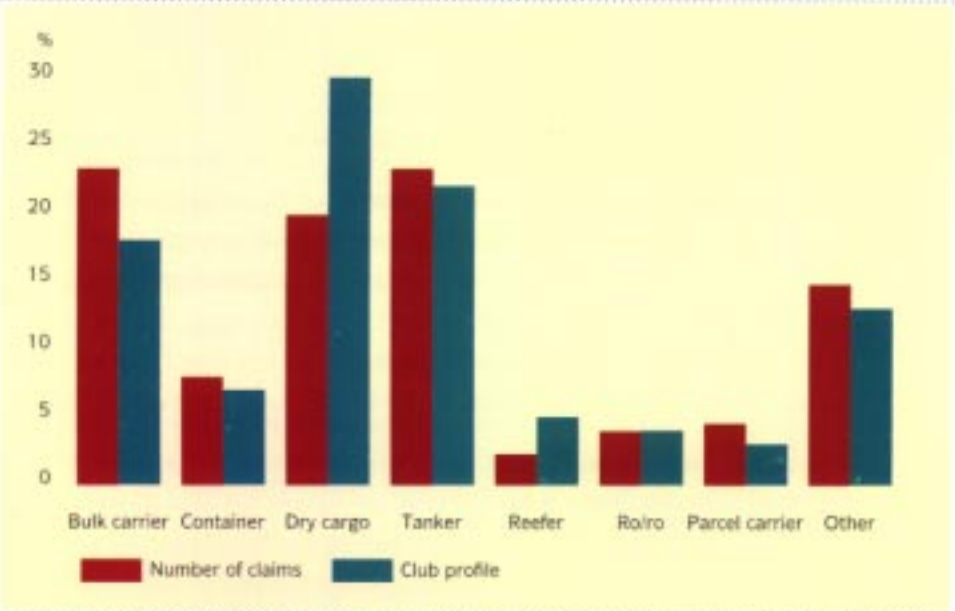
TABLE 35 - COLLISIONS - AGE OF SHIP



TYPES OF SHIP IN COLLISION

Table 36 illustrates the types of ships involved as a percentage of the total number involved in collision claims, comparing this to the Club entry. As in other categories of claim, bulk carriers and tankers again appear to have a higher number of incidents than their Club profile would predict, whereas dry cargo ships perform better. This may be a reflection of the size of ships, bearing in mind that dry cargo ships are often (but not always) smaller and more manoeuvrable than bulk carriers and tankers.

TABLE 36 - COLLISIONS - TYPE OF SHIP



2.6 OVERALL POSITION

The analysis of these claims continues to point up the overall consequences of human error, coupled with increasing concerns regarding age. The solution to these problems is not going to be easy, but it is hoped that this analysis will contribute to underpinning further research both by this Association and in research establishments to identify possible measures for prevention. For its own part, the Club has also sought to develop publications targeted towards raising awareness at sea of the consequences of human error and its 1993 video "Counting the Cost" is specifically aimed to assist in this important objective.

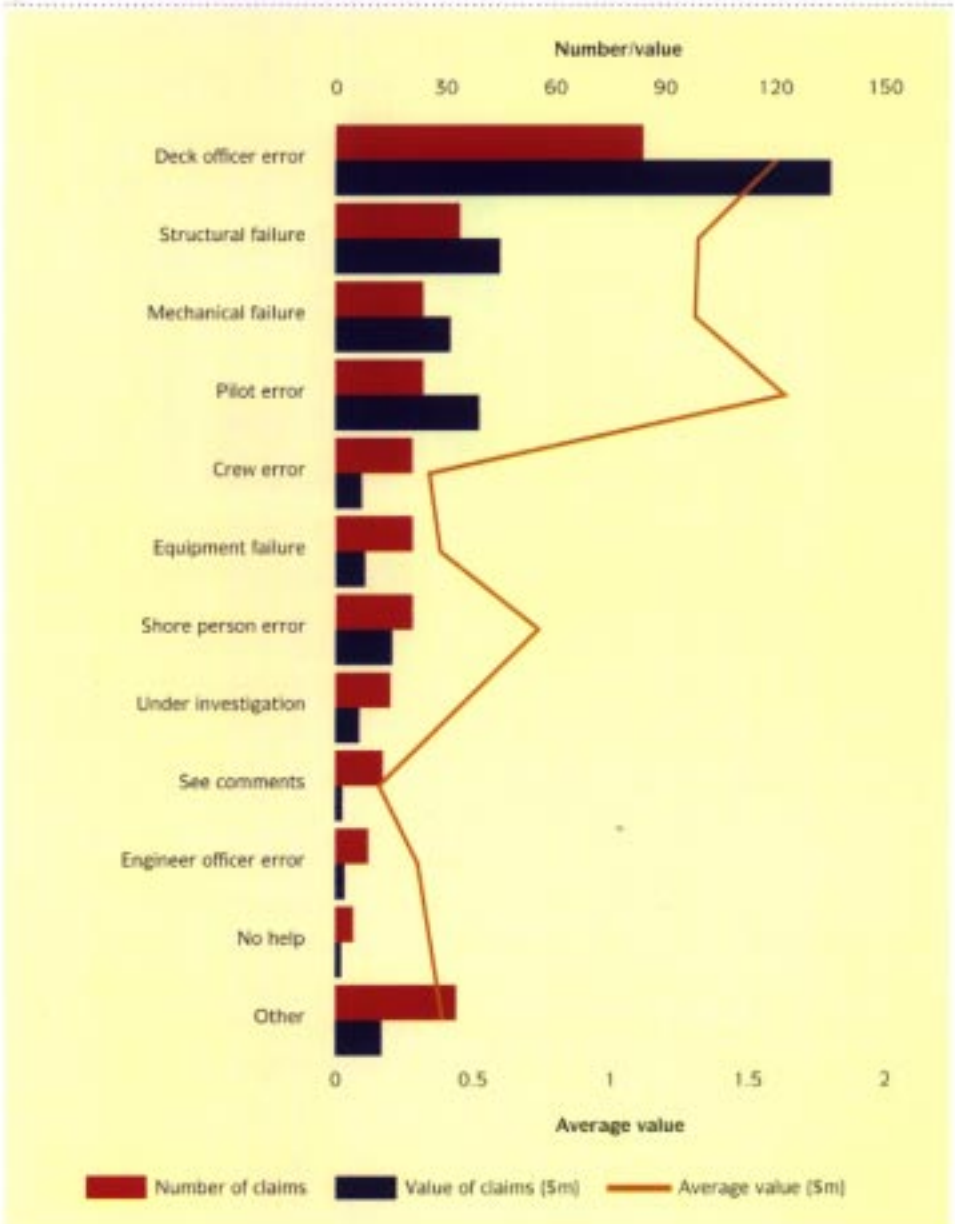
3. Analysis of Ship Types

Within the overall position outlined in Section 2, there are a number of distinct variations in the experience of the various different types of ship entered in the club when analysed by trade category - i.e. tankers, bulk carriers, dry cargo ships, reefers etc. A number of the differences have been mentioned in Section 2; in this section, specific features of each of the main trade types are analysed in greater detail in order to allow Members to consider their own experiences with the various trade types against the experience of the Club as a whole.

3.1 - TANKER CLAIMS

Some 304 of the 1,971 claims analysed involved tankers. The main causes of these claims are shown in table 37. Claims caused by deck officers and pilot error dominate in terms of average value, each costing around $1.6 million. Structural failure and mechanical failure claims, significantly fewer in number, also have a lower average value. The picture is further evidence of the importance of the human factor in safe operation of tankers, and a reminder of the severe financial consequences of human error.

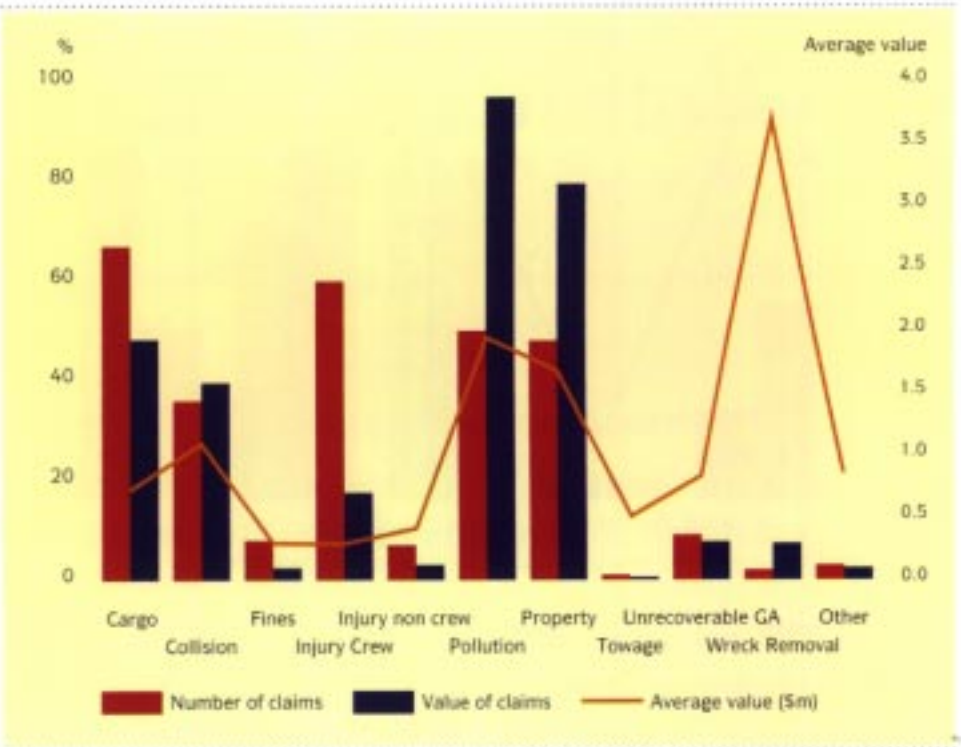
TABLE 37 - TANKER CLAIMS - MAIN CAUSES



TYPES OF RISK

Table 38 sets out the types of risk involved in tanker claims. Pollution is the most expensive, but cargo claims account for a greater number of major claims, closely followed by personal injuries. Over six years, there have each year been around ten such major claims for each of those two categories (i.e. cargo and personal injury) compared with eight pollution claims and property damage claims. An expensive category of claim is wreck removal, although fortunately there have only been two such claims in the last six years.

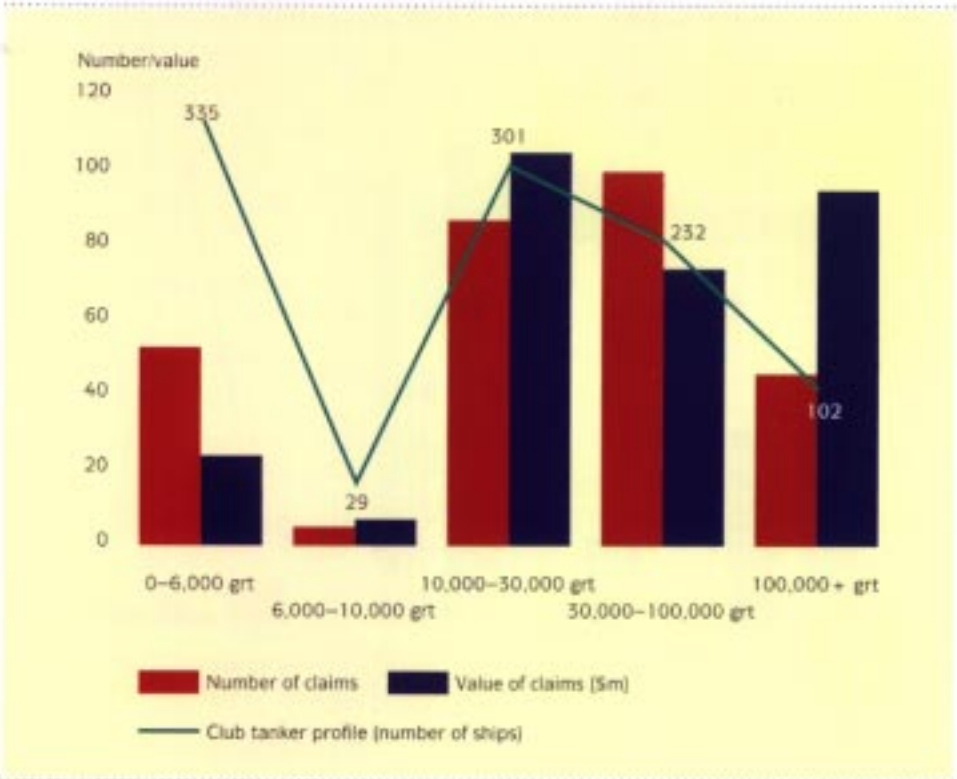
TABLE 38 - TANKER CLAIMS - TYPES OF CLAIM



Tonnage Factor

The size of tankers involved in major claims has been analysed in table 39. The majority of claims occur in the 10,000 to 100,000 grt range, broadly in line with the Club tanker profile. These claims are also the more expensive claims. Claims by tankers of over 100,000 grt are also more frequent than the number of such tankers in the Club would justify, and the value of such claims is very high.

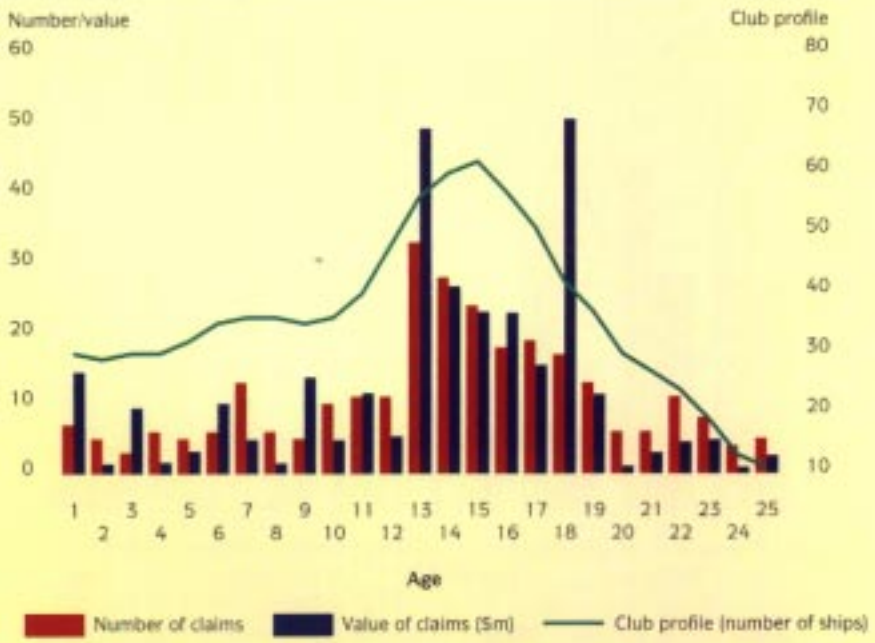
Table 39 - Tanker Claims - Tonnage



Age

An analysis of the claims by age is set out in table 40. The number of claims is sufficient to allow an analysis of individual years, and, interestingly, the Club profile broadly follows this pattern, with deviations mainly around the 13 year point. While this is part of the band analysed in Section 2 of 11 to 15 years, it illustrates that it is not all ships within that band that are likely to suffer, but instead there are particular ages at which ships are more prone to be involved in claims. The value of claims shown in this graph is distorted by two particularly large claims affecting ships aged 13 and 18, but it can be seen that value does not follow Club profile and even ships under one year old have an adverse experience.

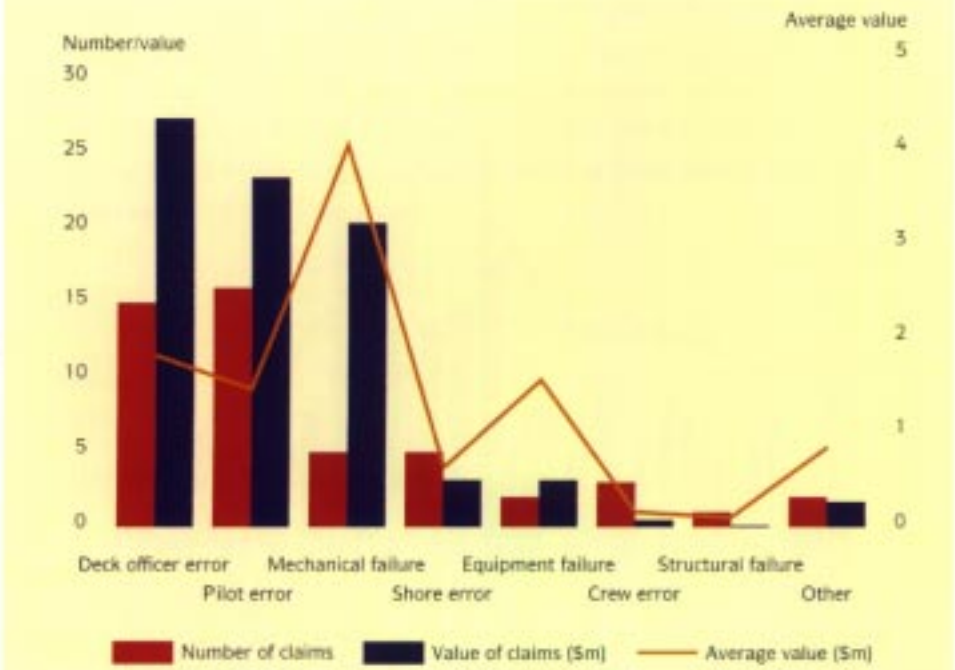
TABLE 40 - TANKER CLAIMS - AGE



PROPERTY DAMAGE BY TANKERS

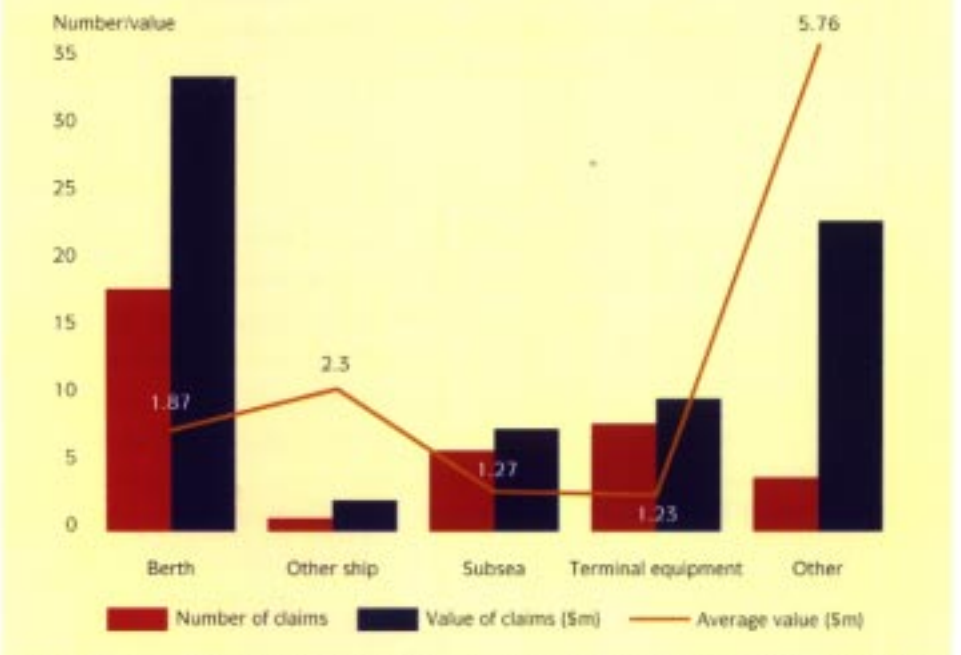
Tankers are not usually manoeuvrable ships and the property damage claims illustrate the difficulties experienced by masters. 49 incidents gave rise to major claims, of which 15 were caused by deck officer error and 16 involved pilot error - almost two-thirds of such incidents. The value of the claims caused by these 31 mistakes exceeded $50 million. This experience indicates the importance of unremitting vigilance in appointing deck officers and seeking to minimise the risks inherent in pilot/master relationships.

TABLE 41 - TANKER CLAIMS - PROPERTY DAMAGE - MAIN CAUSE



These property damage claims were predominantly related to damage to berths and terminal equipment as illustrated in table 42. The category "subsea" is also linked to terminals, generally relating to underwater equipment associated with terminal operations.

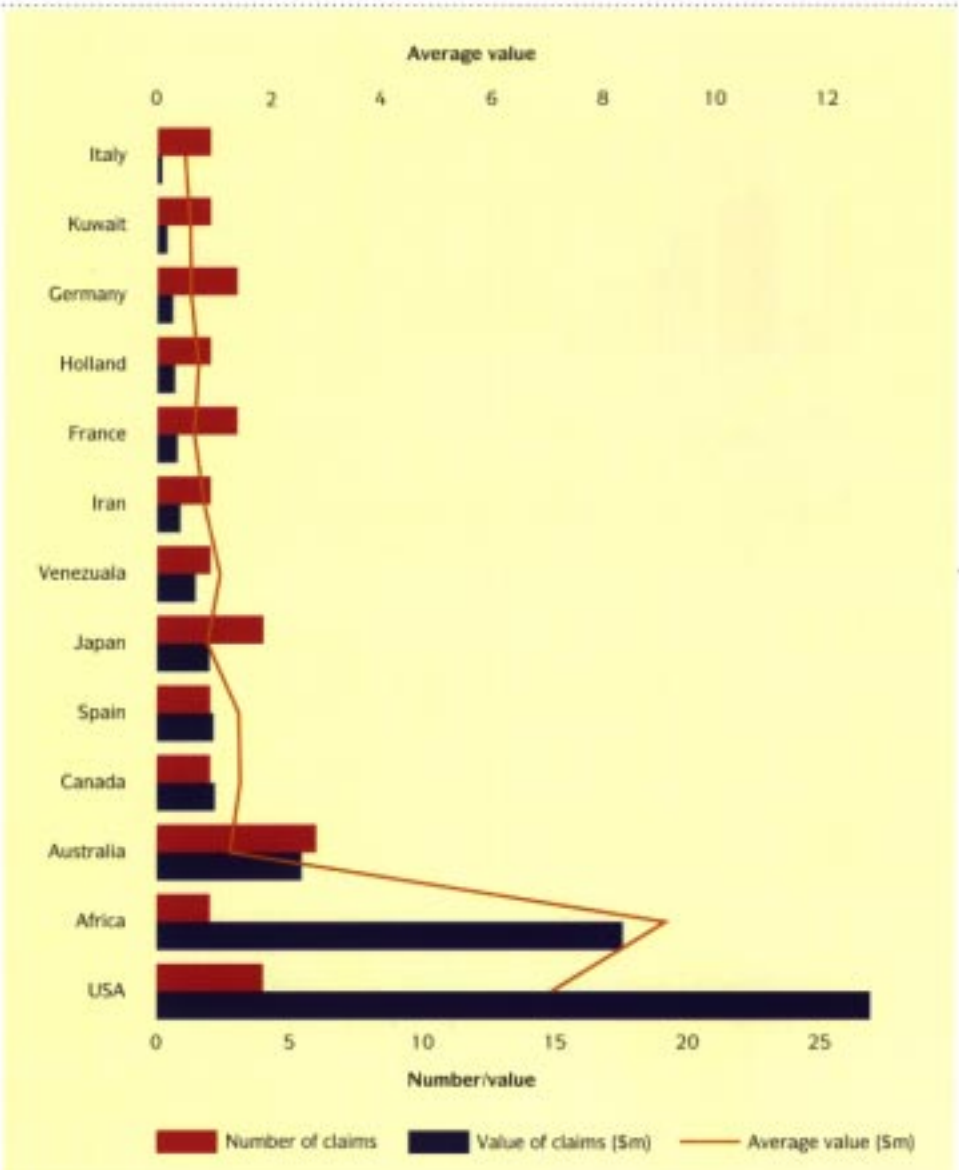
TABLE 42 - TANKER CLAIMS - PROPERTY DAMAGED



COUNTRY OF INCIDENT

It is interesting to note that the property damage caused by tankers is widespread. Table 43 illustrates this. Only 13 countries have experienced two or more claims, and these range widely through the industrial and non-industrial nations of the world, including both exporters and importers. As noted in the general section of this report, African claims are individually significantly more expensive than the norm, exceeding even the United States in the average cost albeit from a smaller number of incidents. This again perhaps reflects the attraction to less sophisticated nations of taking advantage of property damage to improve facilities, a trend which has been remarked upon in previous editions. It emphasises the importance of sound operating procedures in every port, not just those (such as the USA) which are well known for higher risks.

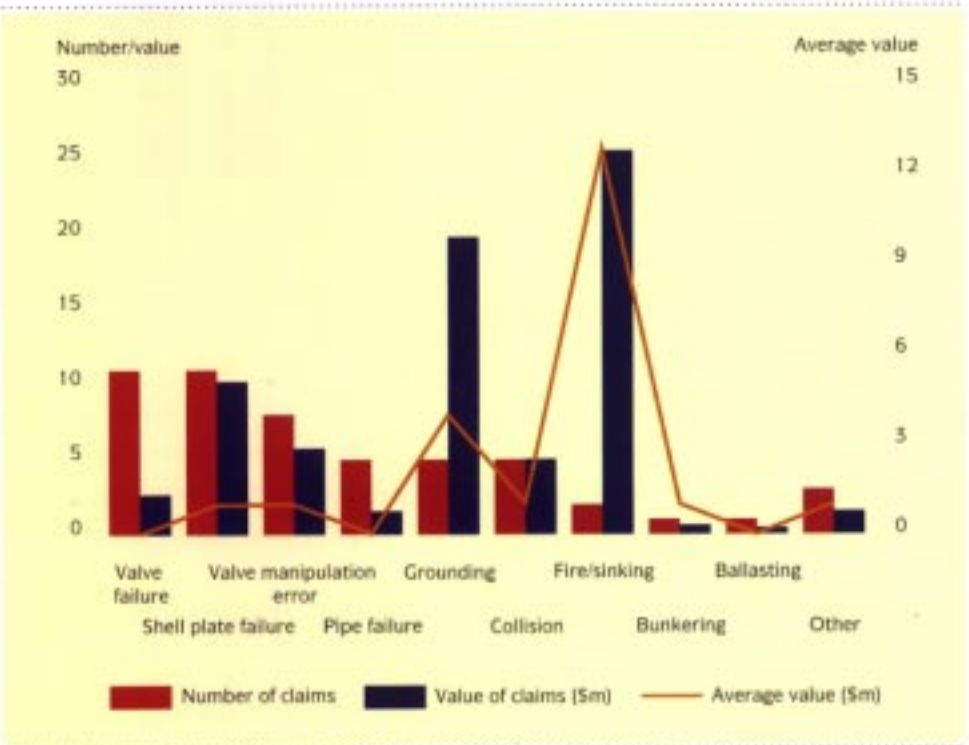
TABLE 43 - TANKER CLAIMS - PROPERTY DAMAGE - COUNTRY



CAUSES OF POLLUTION

Although it is the pollution following the groundings of tankers that makes the headlines, it is interesting to note that, of 52 tanker pollution claims, 11 were caused by valve failure and 11 by shell plate failure, eight by wrong valve manipulation and five by pipe failure. Only five were caused by groundings and five by collisions, and there was only one bunkering incident. This experience indicates the continued importance of planning for accidents of all types and ensuring safe operating procedures.

TABLE 44 - TANKER POLLUTION CLAIMS - OPERATIONS INVOLVED

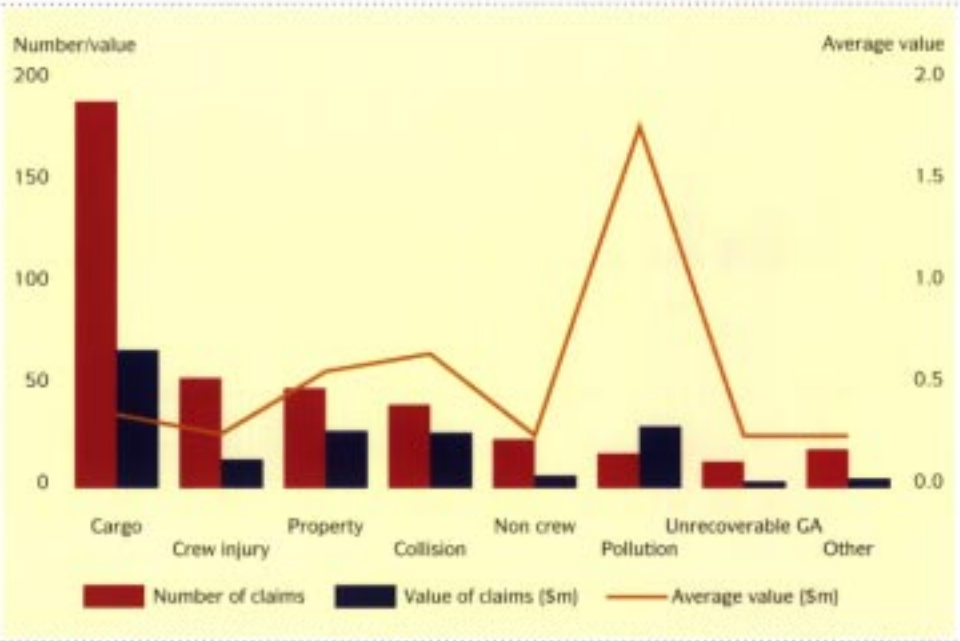


3.2 - BULK CARRIERS

Bulk carriers were involved in 407 major claims totalling $180 million, representing 21 per cent of the total number of major claims and 18 per cent of their value.

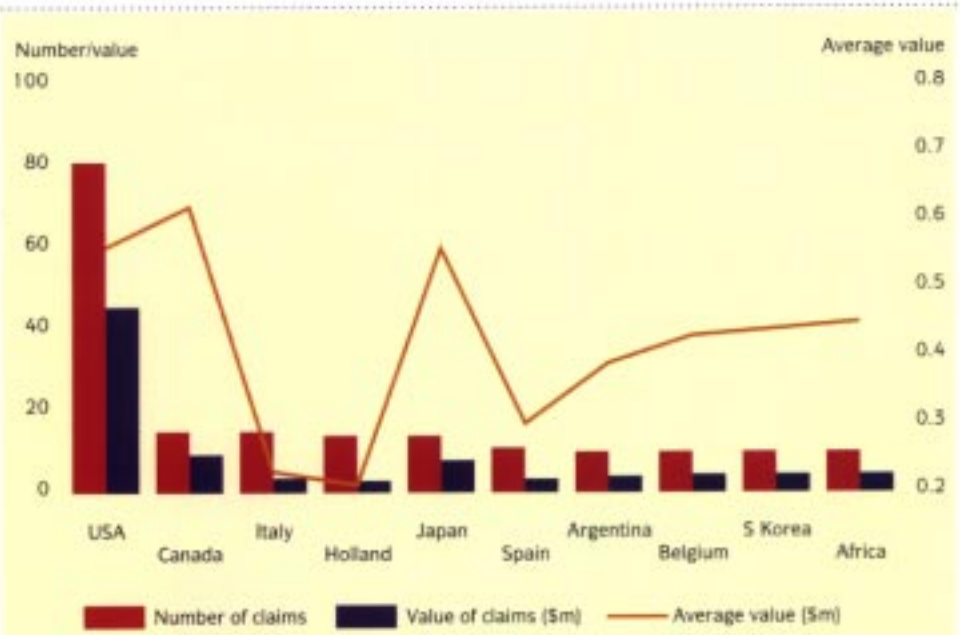
Table 45 shows that bulk carrier claims stem mainly from cargo damage, accounting for some $68 million over the period of six years. While property, collision and pollution claims are individually more expensive on average, it is the sheer number of cargo claims (190) which gives rise to the most concern.

TABLE 45 - BULK CARRIERS - TYPES OF CLAIM



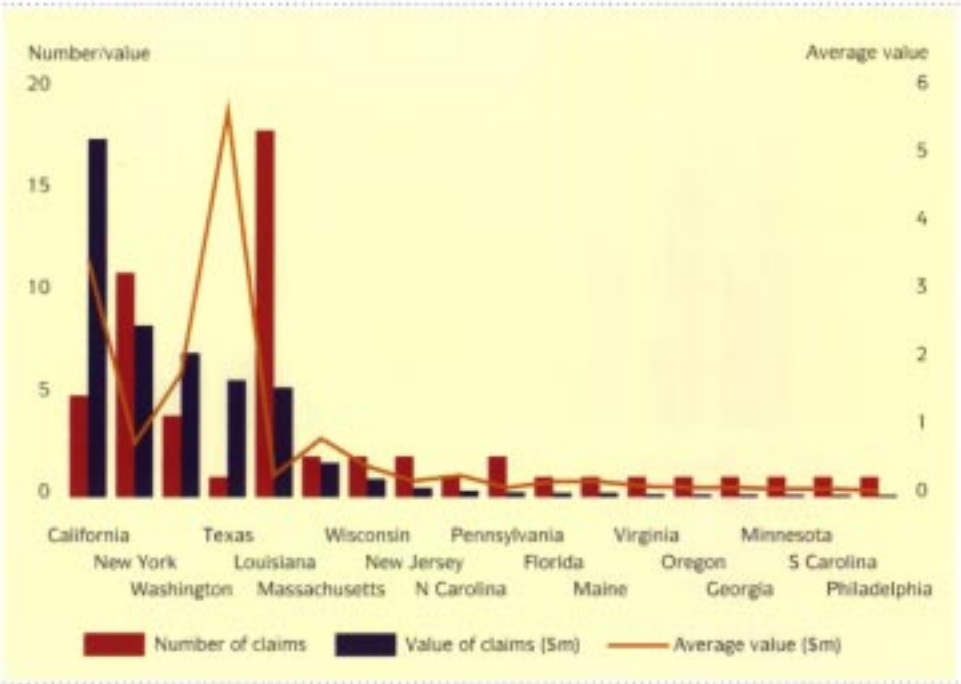
The geographical distribution of claims from bulk carriers broadly follows the pattern for all ships (see Section 2 of this report) with the United States dominant. Otherwise claims are widely spread.

TABLE 46 - BULK CARRIER CLAIMS - COUNTRY OF INCIDENT



An analysis of the jurisdiction of the claims shows 33 per cent were subject to US law and 29 per cent to UK law. This demonstrates the importance of these legal systems, and underlines the importance of a good understanding of those laws in drafting and amending charterparty agreements. Of the 87 claims with US jurisdiction analysed in table 47, Louisiana is conspicuous with 18 claims, perhaps reflecting the prominence of New Orleans as one of the country's busiest ports. It is however interesting to note that 12 of the 18 claims in Louisiana are for personal injuries, comprising seven claims by dock workers and five by crew members. This is by any standard disproportionate.

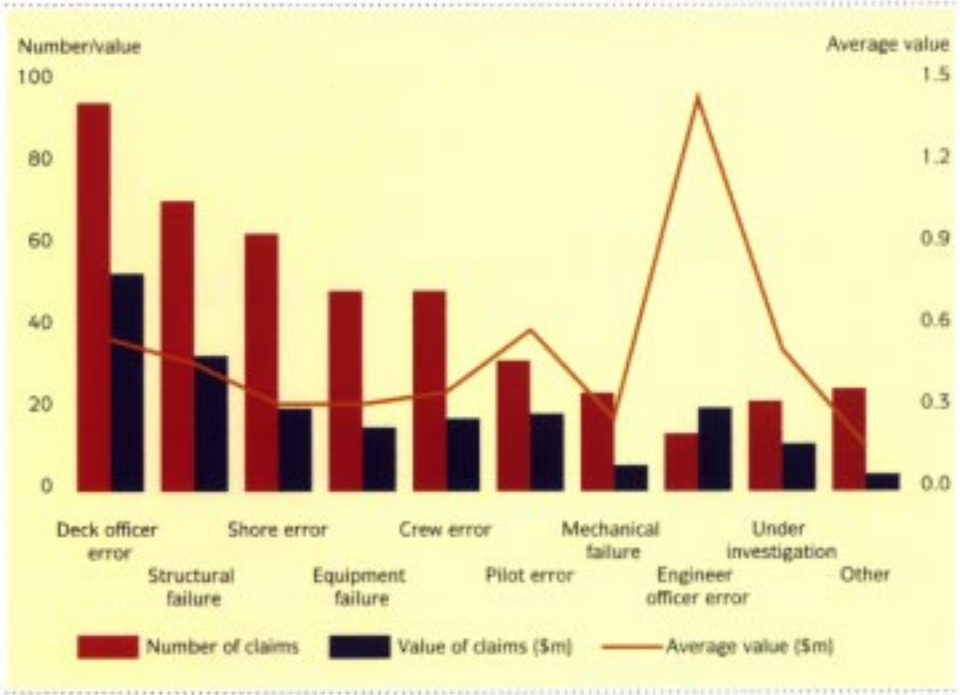
Table 47 - Bulk Carrier Claims Subject to US Jurisdiction



Causes of Bulk Carrier Claims

As shown in Table 48, human error is the main cause, with a fairly even divide between shore personnel error and mistakes by those on board. The pattern for bulk carriers is different from that in Table 9 for all ships; 16 per cent of bulk carrier claims are attributable to ship failure, compared with an average across all ship types of 11 per cent. It is thus clear that, for bulk carriers, structural integrity is of particular importance if losses are to be reduced.

Table 48 - Bulk Carrier Claims - Main Cause



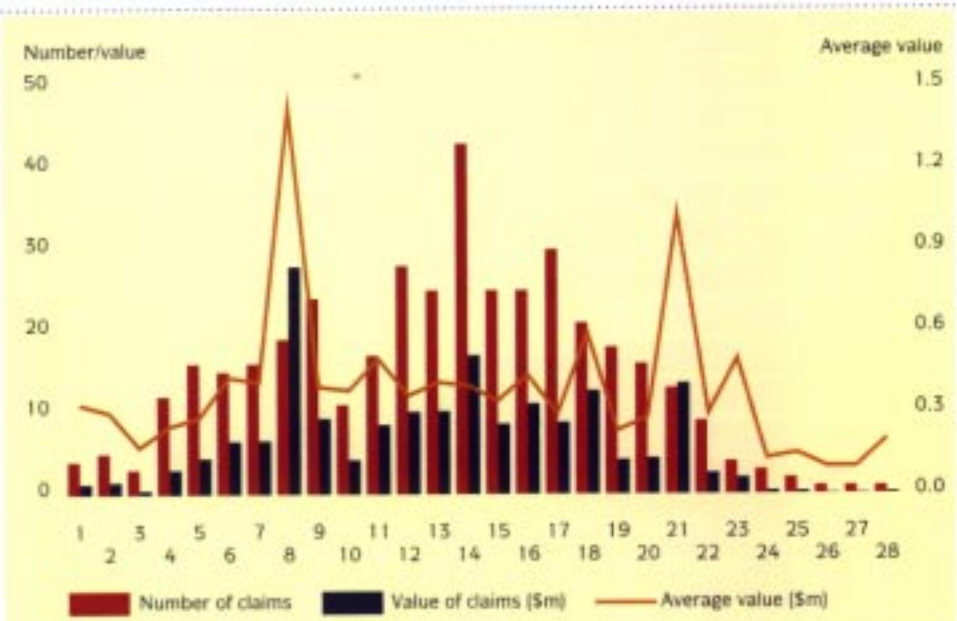
Class Factors

Of the 138 ship failure claims (structural, mechanical or equipment failure), 33 were considered over the six year period to be specifically class related, involving shell plate failure or serious hatch cover defects. Although classification societies can be criticised on occasion, the Club regards the shipowner as responsible for the condition of his vessel, and owners who are lax in this area can not expect the Club's board of directors to waive breaches of the class rule. Of the ships involved in the 33 claims where class was considered in question, eight had their last special survey in Piraeus and five in Kashima; ten flew the Panamanian flag and seven that of Cyprus.

AGE AND SIZE

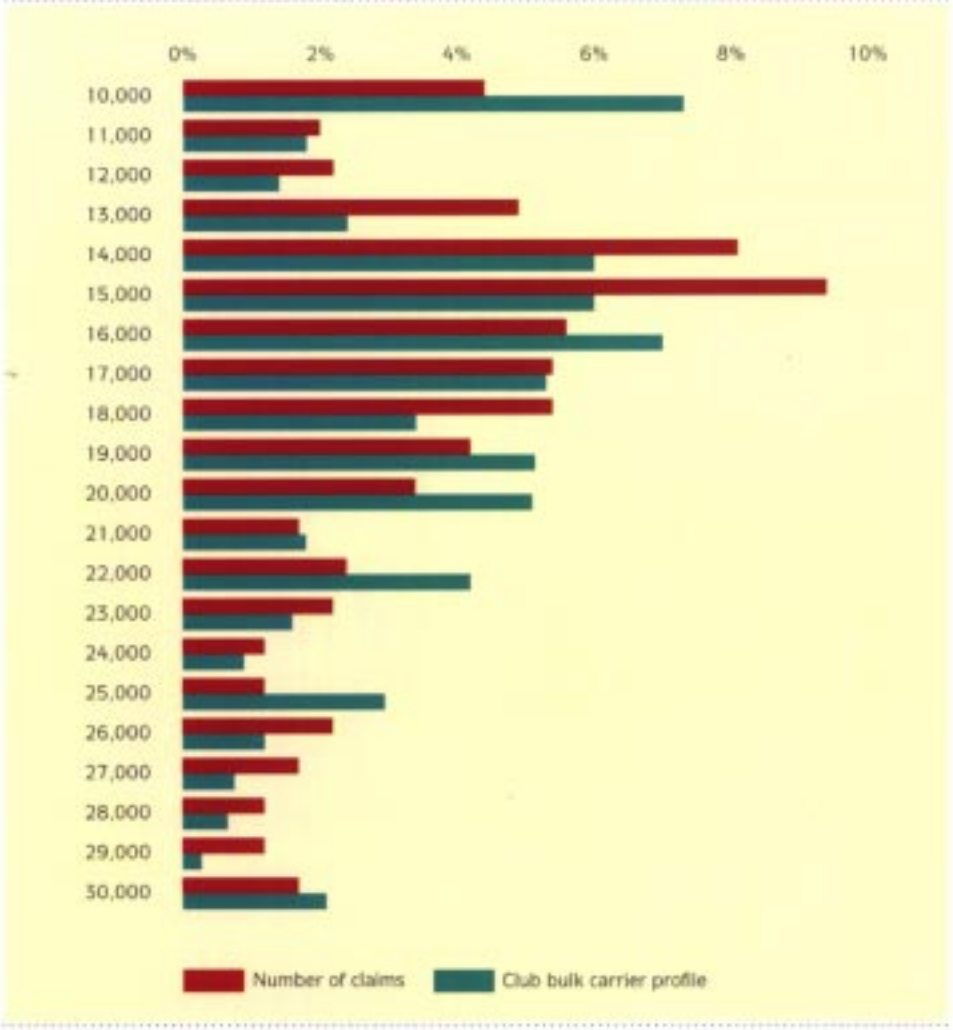
Age appears to be a consistent factor in claims arising from bulk carrier structural failures, with ships between 14 and 21 years of age accounting for 67 per cent of such claims.

TABLE 49 - BULK CARRIER CLAIMS - AGE OF SHIP



Bulk carriers of between 13,000 and 15,000 grt account for over 22 per cent of the number of major claims from bulk carriers, yet ships of this tonnage constitute only 14 per cent of the bulk carriers in the Club. Of the 91 incidents in this category, over one third involved ships between 15 and 17 years old, and the main causes are divided equally between human error and ship failure. There were 46 claims related to cargo damage, 30 to property damage. Looking at a slightly wider tonnage band, over half of all bulk carrier property damage claims involved ships of between 13,000 and 17,000 grt. All these factors taken together suggest that it may be the trading pattern of the smaller bulk carriers, with shorter voyages and more berthing, discharging and loading operations per year that results in a higher propensity to be caught up in a major claim incident, rather than any more simplistic measure such as mere age. It underlines the need for professionalism in the routine operation and management of such ships, particularly when entering port and working cargo.

TABLE 50 - BULK CARRIER CARGO CLAIMS - TONNAGE ANALYSIS



Nevertheless there is a correlation between age and structural failure, most relevant at the 14 year point, although directly linked to less than half the claims. There is therefore a particular need for a strong emphasis on monitoring the structural condition of ships around this time. An interesting detail of these claims from 14 year old ships is that 29 out of the 43 occurred in the 1990 and 1991 policy years (i.e. on ships built in 1976/77), whereas it might have been expected that there would have been a more even spread.

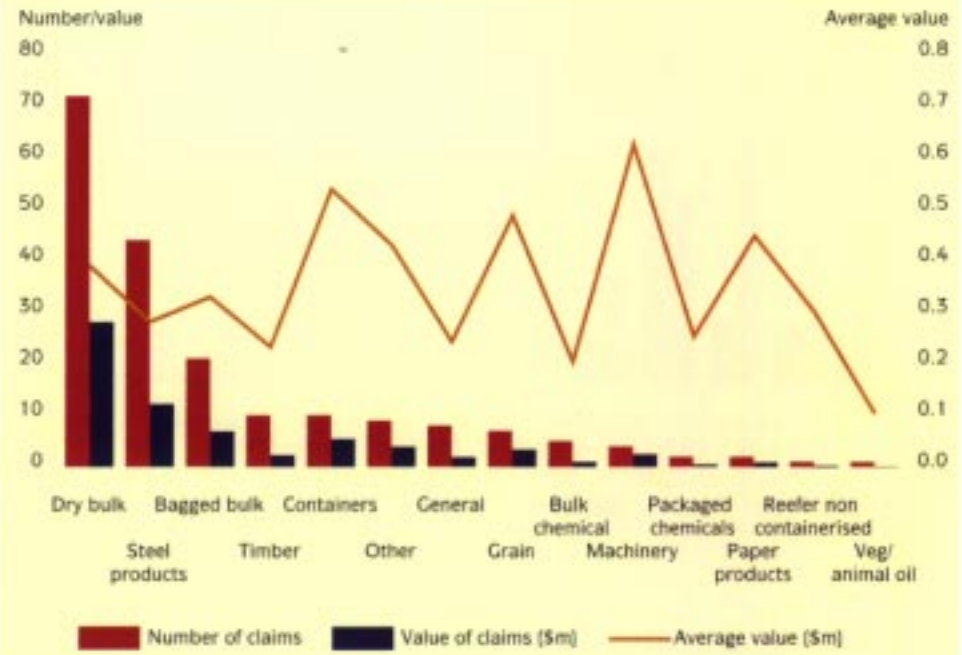
BULK CARRIER CARGO CLAIMS

The 190 cargo claims were valued at $67.8 million, representing 47 per cent of the total number of bulk carrier claims and 38 per cent of the value.

TYPES OF CARGO AFFECTED

Table 51 shows that the cargo category most often involved in major claims is dry bulk, accounting for 72 of the 190 claims - costing $28 million or nearly 50 per cent of the total value of all bulk carrier claims.

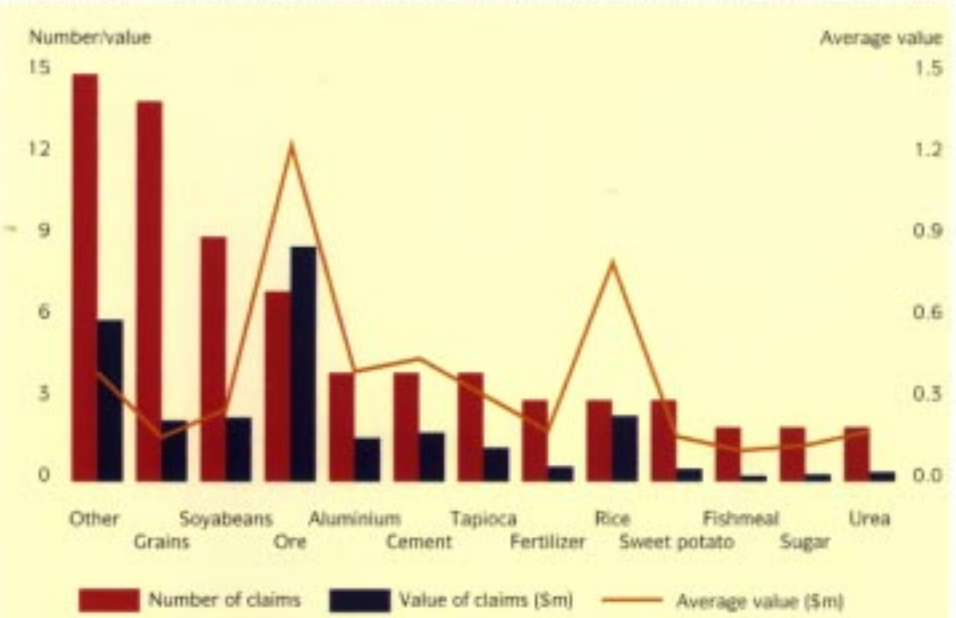
TABLE 51- BULK CARRIER CARGO CLAIMS



DRY BULK CARGOES

Analysing cargoes in greater detail, the following products are most significant.

TABLE 52 - BULK CARRIERS - DRY BULK CARGOES



The three most significant cargoes are grains, soya beans and ore. Of the 14 grain cargoes giving rise to major claims, eight were damaged by water; of these water entered in four cases by hatch cover failure, two by pipe failure, one by a leaking double bottom and one by condensation. It can be seen that ship failure has played a significant role in these expensive claims.

Of the nine soya bean cargoes, four were damaged by water; of these water entered in one case by hatch cover failure, two by condensation and one after a grounding. One claim is still under investigation.

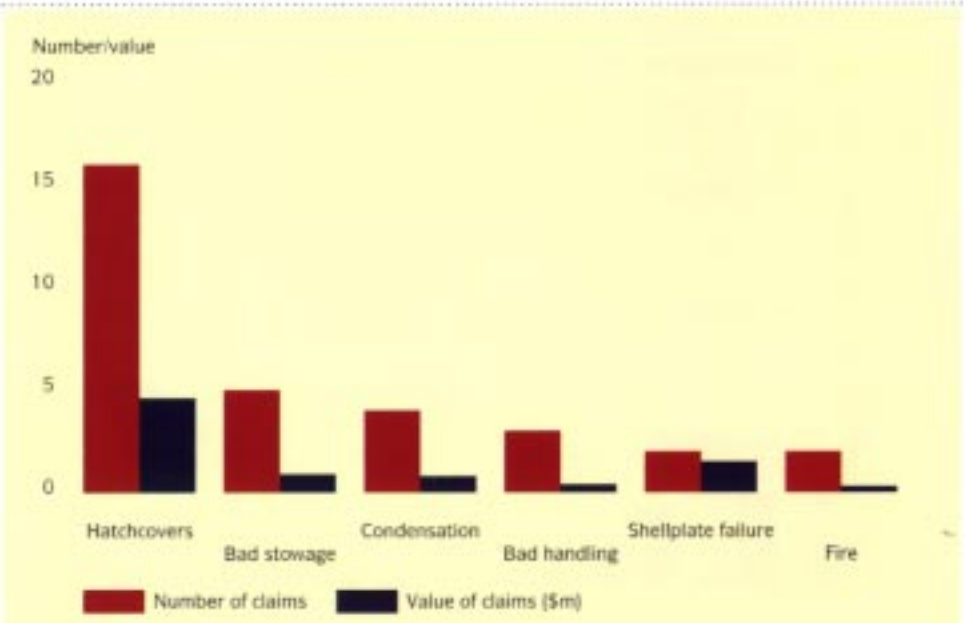
Of the seven ore cargoes, two were bauxite, three iron ore, one lead concentrate and one zinc concentrate. Six out of the seven incidents were due to ship failure, three out of the seven involving total loss by sinking. The cargoes where the vessel sank were in all cases iron ore.

Type	Number	Value	Average value
Grains	14	$2.25 million	$160,000
Soya Bean	9	$2.36 million	$260,000
Ore	7	$8.65 million	$1.24 million

STEEL

Claims arising from the carriage of steel are particularly evident, with 44 major claims ($12 million) in the six year period. Ship failure is the most prominent cause accounting for 24 of the claims compared with human error (11 claims). Hatch cover failures are the most frequent accounting for 16 of the claims valued at approximately $4 million (see Table 53). The USA accounts for around 50 per cent of the steel claims by number with the majority of the claims occurring in Houston. The UK Club will accordingly be monitoring even more closely claims in this port, and also considering whether further measures can be recommended to assist owners to ensure hatch covers are in an adequate condition prior to loading steel. Owners are also referred to the Club's publication "Carefully to Carry" where a large section is devoted to the carriage of steel.

TABLE 53 - BULK CARRIERS - STEEL CARGOES



BAGGED CARGO

There were 21 claims in respect of bagged bulk cargo over the six year period, valued at $7 million. Whilst the numbers are comparatively low it is disturbing to see claims in respect of such types of cargo, more commonly associated with shortage claims than damages, creeping into the major claim category. The predominant type of cargo is rice, accounting for 50 per cent of the claims, and the most common discharge ports were in West Africa, underlining the inherent risks in trading to this area.

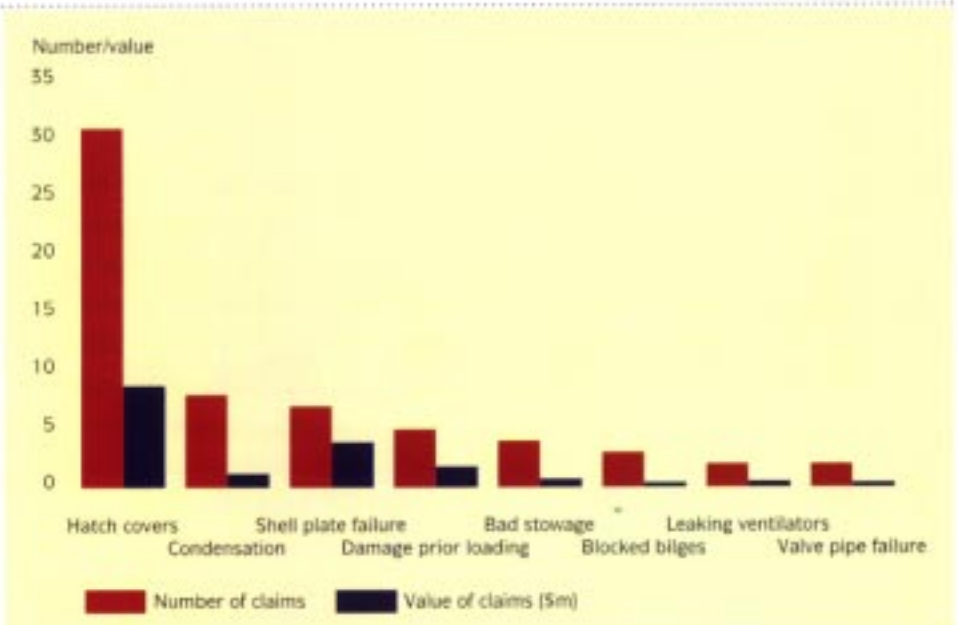
LOAD AND DISCHARGE PORTS

Of the countries of loading of bulk cargoes generally, the USA predominates accounting for some 25 of the 190 claims, but Brazil, Thailand and Belgium also stand out significantly. Of discharge ports, Houston is related to the largest number (see steel paragraph above), with a rate nearly twice that of other major ports where claims arise such as Ravenna and Rotterdam.

CONTRIBUTORY CAUSES OF CARGO CLAIMS

The physical cause contributing to the cargo claims is most often water, accounting for some 73 claims valued at $22 million. Of these wet damage claims, 31 were due to hatch cover problems, condensation accounts for eight, shell plate failure seven, and damage prior to loading five. 13 of the 31 hatch cover problems occurred on Cyprus flagged ships; given this experience, the moves by that country to tighten up its supervisory flag state function are clearly timely.

TABLE 54 - BULK CARRIERS - WET DAMAGE TO CARGO



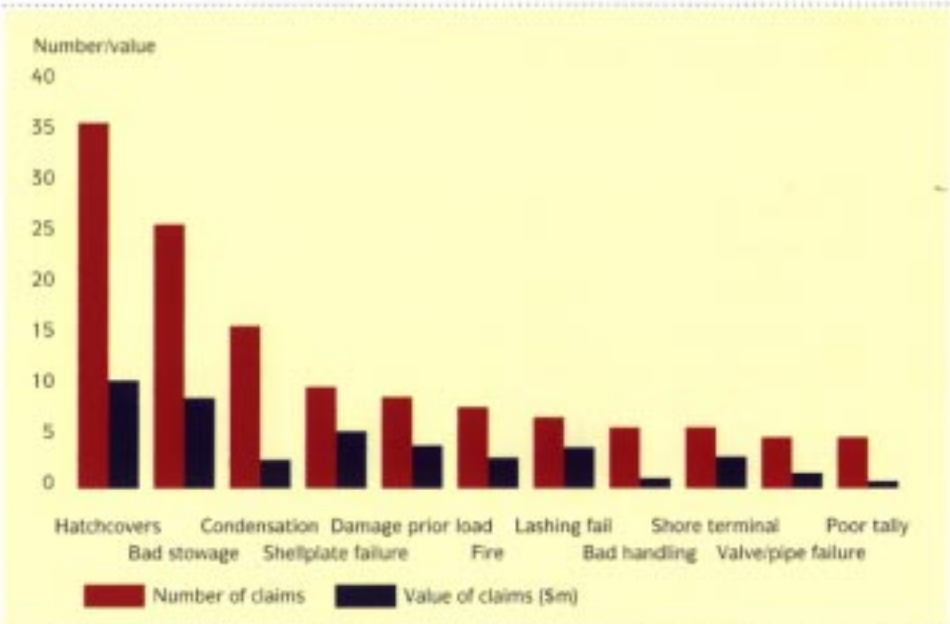
It is also evident that the annual rate of claims associated with hatch cover problems has increased since 1987, a fact that may be related to the overall ageing of the world bulk carrier fleet. Given the serious consequences of water ingress in both economic and safety terms, it is perhaps useful to recall the responsibilities carried by flag states under the "International Convention on Load Lines 1966", a convention intended to ensure a weather-tight ship:

"The means of securing weather tightness shall be to the satisfaction of the administration. The arrangements shall ensure that the tightness can be maintained in any sea conditions and for this purpose tests for tightness, shall be required at the initial survey and may be required at periodical surveys and at annual inspections or at more frequent intervals." (Regulation 16 Section 4)

"Weather tight means that in any sea conditions water will not penetrate into the ship." (Regulation 3 section 12)

The other most significant contributory cause is bad stowage, where the cargoes most frequently affected are timber, steel, bagged bulk and containers. Timber claims usually arose from the cargo breaking loose and the vessel suffering serious stability problems. The most costly claims in this category involved bad stowage of containers. Other contributory factors of significance are shown in Table 55.

TABLE 55 - BULK CARRIER CARGO CLAIMS - CONTRIBUTORY CAUSES

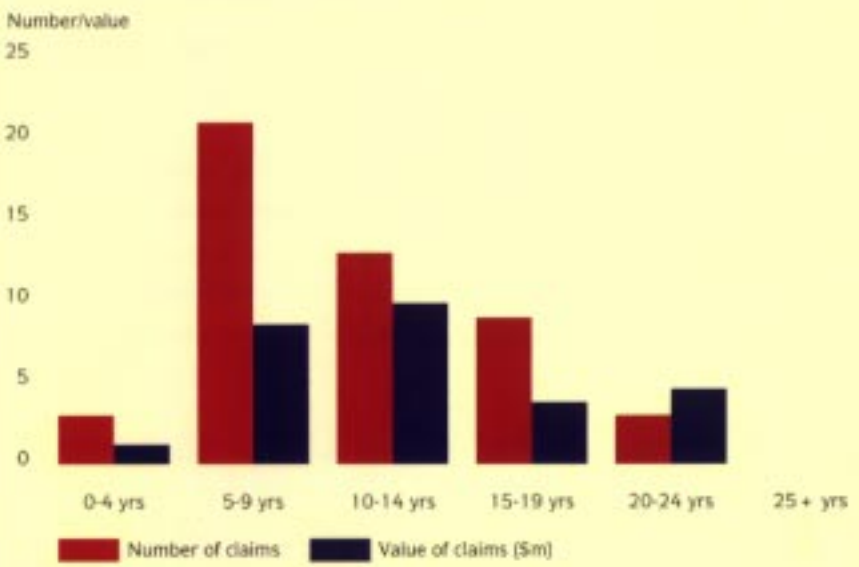


BULK CARRIER PROPERTY CLAIMS

Bulk carries were involved in 49 claims for property damage, valued at $28 million, representing 12 per cent of total number of bulk carrier claims and contributing 16 per cent to the total value.

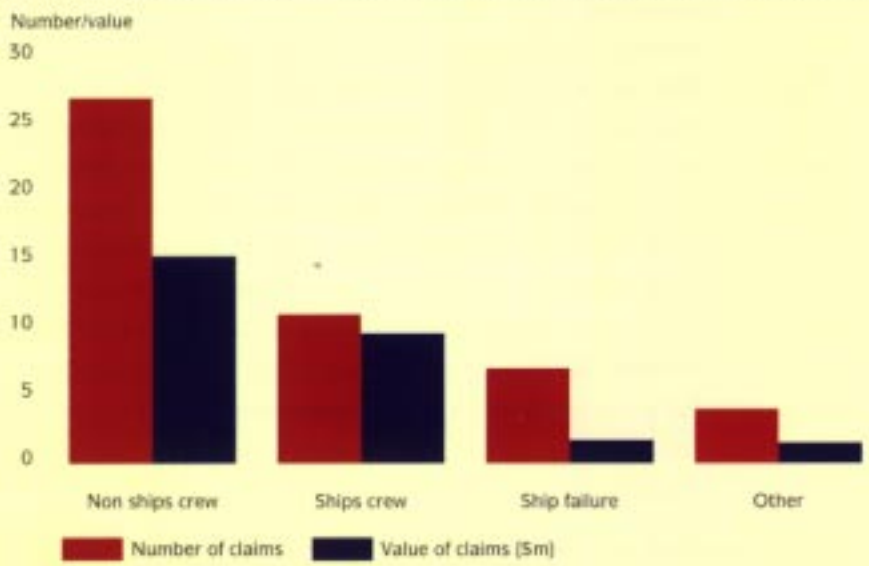
Bulk carriers along with tankers cause most of the Association's property claims. Analysed by age, it is 5-9 year old bulk carriers which are most conspicuous (Table 56). This does not follow the Club average for all types of vessels which highlights the 10-14 year age group as most often involved in property damage claims.

TABLE 56 - BULK CARRIER PROPERTY DAMAGE CLAIMS - AGE BANDS



The main cause of these claims is human error by persons other than ship's crew - with pilot error a factor in 21 out of the 50 property damage claims. This is a higher involvement proportionately than found in other types of ship, another indicator of the extent to which bulk carriers are worked hard. Tugs were a factor in 14 of the claims; of these seven involved insufficient tugs.

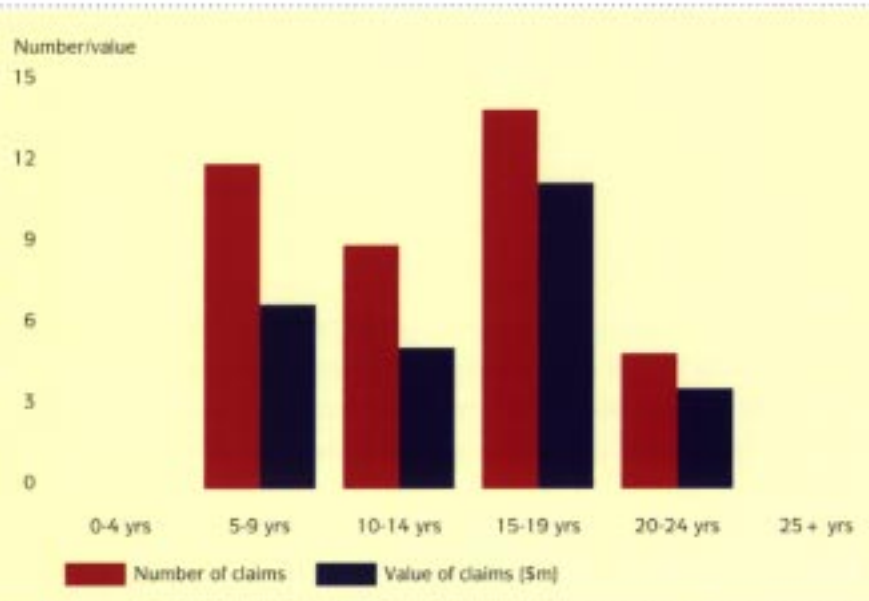
TABLE 57 - BULK CARRIER PROPERTY DAMAGE CLAIMS - MAIN CAUSE



BULK CARRIER COLLISION CLAIMS

There were 41 claims totalling $27.1 million arising from collisions, representing 10 per cent of the total number of bulk carrier claims and 15 per cent of the value. Banded by size, ships in the range 14,000 to 17,000 grt were most commonly involved. Banded by age, 5 to 9 year old vessels have a disproportionate number of collisions (Table 58) underlining the manning implications and continuing pressures on officers of modern ships.

TABLE 58 - BULK CARRIER COLLISIONS - AGE BANDS



Bulk Carrier Pollution Claims

Bulk carriers were involved in 17 major pollution claims valued together at $30.2 million; these represented only four per cent of total number of bulk carrier claims but 17 per cent of the total value. This substantial value is distorted by one particularly expensive claim in California which cost $16 million. This arose from spillage of between 20 and 50 tonnes of fuel oil during bunkering, and illustrates the environmental risks faced by all owners. Setting this one claim aside, however, the average of the remaining 16 claims is almost $1 million, underlining the need for sound procedures and practices together with unrelenting vigilance during bunkering. It is also of interest that during the period 1987-89 there were only one or two incidents each year, whereas in the latter half of the period analysed the norm is four or five.

Summary of Bulk Carrier Claims

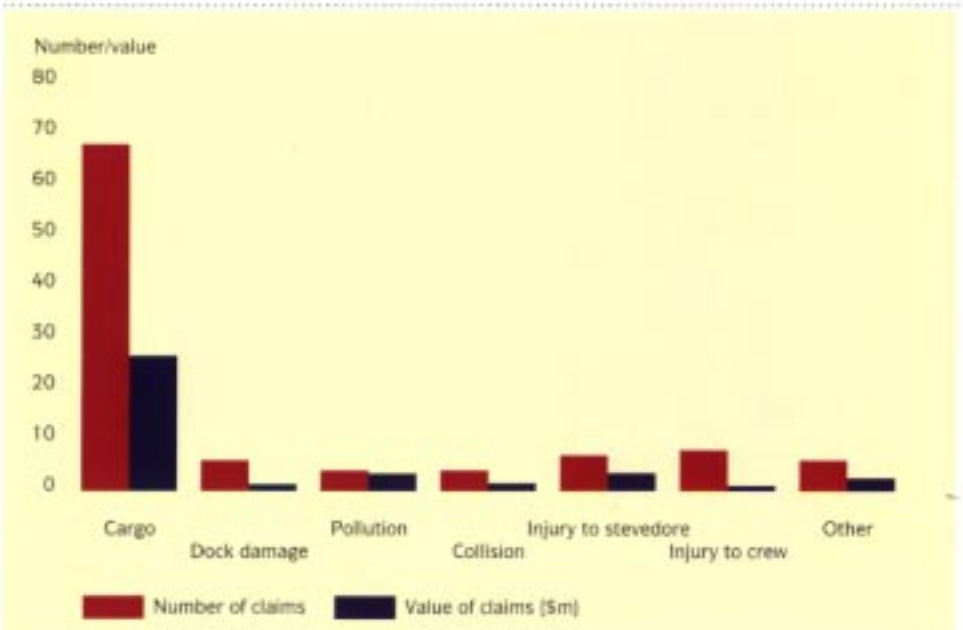
Bulk carriers feature across the spectrum of the types of claim, which arise most often from hatch cover failures, bad stowage and berth damage. Age and the structural consequences of age are factors but by no means the only important contributors - human error still causes most claims. 13,000 to 15,000 grt ships are most often involved in major claims, rather than larger vessels. The USA and Houston in particular feature as a location where claims arise, indicating the importance of close liaison between members trading there and the Club (with its US correspondent Transport Mutual Services) if these claims are to be minimised. This would benefit the club as a whole as well as assisting those Members most directly involved.

3.3 REFRIGERATED CARGO SHIPS (REEFERS)

Refrigerated cargo ships (reefers) have accounted for 103 major claims, valued together at $39.5 million, that is five per cent by number and only four per cent by value of the major claims analysed. Although this is a relatively small trading category in the overall Club membership, it is capable of producing a significant total of claims particularly because of the temperature sensitive nature of its cargo. It also serves as a useful illustration of trade types other than those considered in greater detail elsewhere in Section 3 of this report.

The largest category of claims comprises 68 cases related to cargo, totalling $26.5 million. There are also 15 personal injury claims, valued together at $4.5 million. Although these are evenly divided between stevedore and crew injury, the former category are valued at $3.5 million, reflecting the difficult position of owners defending claims by shore-based personnel in the jurisdiction of the plaintiff's country.

TABLE 59 - REEFER SHIPS - TYPES OF CLAIM



It is possible that the reduction in reefer crews has changed the appreciation of safety standards and the ability to respond effectively to an accident. It is for instance regrettably common to see reefer ships in port without guard rails erected around hatch squares. The need to maintain a careful focus on safety despite reduced resources on board is ever present, and reduced manning may increase the need for clearer safety procedures and working practices than has hitherto been the case, particularly covering periods in port when personnel other than ship's crew are active on board.

RATE OF CLAIM

With the exception of the 1990 policy year, there has been a relatively steady 10 to 15 large claims per year from reefers. The 1991 year, although only still developing as claims are still being notified or negotiated, has already had 19 cases which it is estimated will cost the Club $5.2 million. Of these, claims caused by carrying the cargo at an incorrect temperature are expected to exceed $2 million.

CAUSES OF REEFER CLAIMS

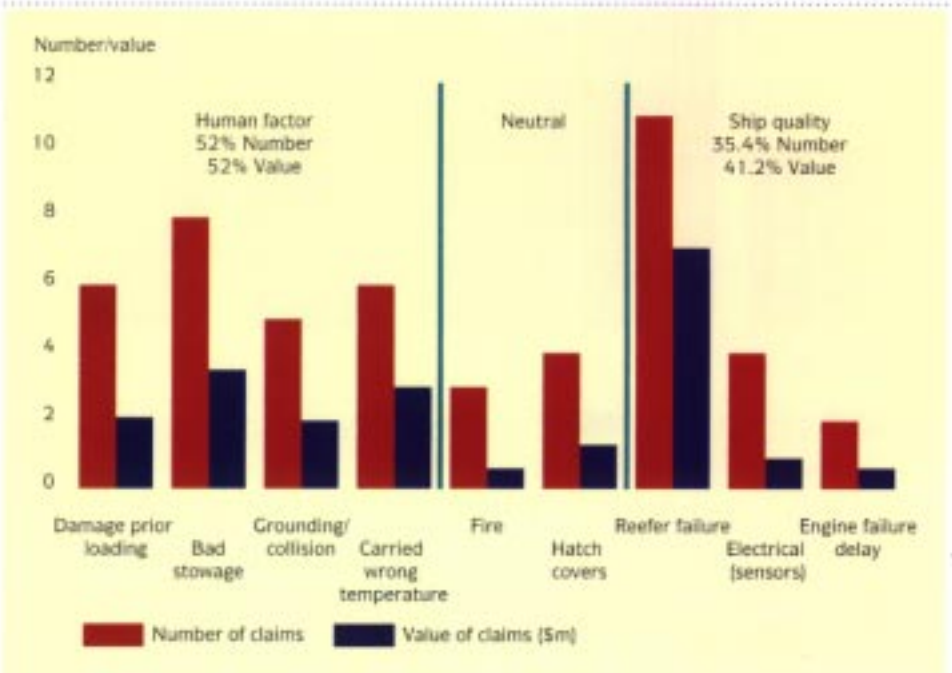
As shown in Table 60, human error is a factor in 52 per cent of claims, which together are valued at around $13 million. In this category, shore person error includes a failure by the office of either charterers or owners to communicate correct temperature requirements to the master, which has resulted in serious claims - in one case costing $3 million. It is usually the responsibility of shipowners to provide the master with sufficient instructions to enable him to carry and deliver the cargo safely, even if no instructions or inadequate information is received by the owner from shippers or charterers.

TABLE 60 - REEFER SHIPS - MAIN CAUSE OF CLAIMS

Bad stowage accounts for claims valued at $3.5 million; the specialist nature of reefer operations requires thorough instructions and training in the management and control of cargo, including careful stowage to meet temperature and ventilation requirements.

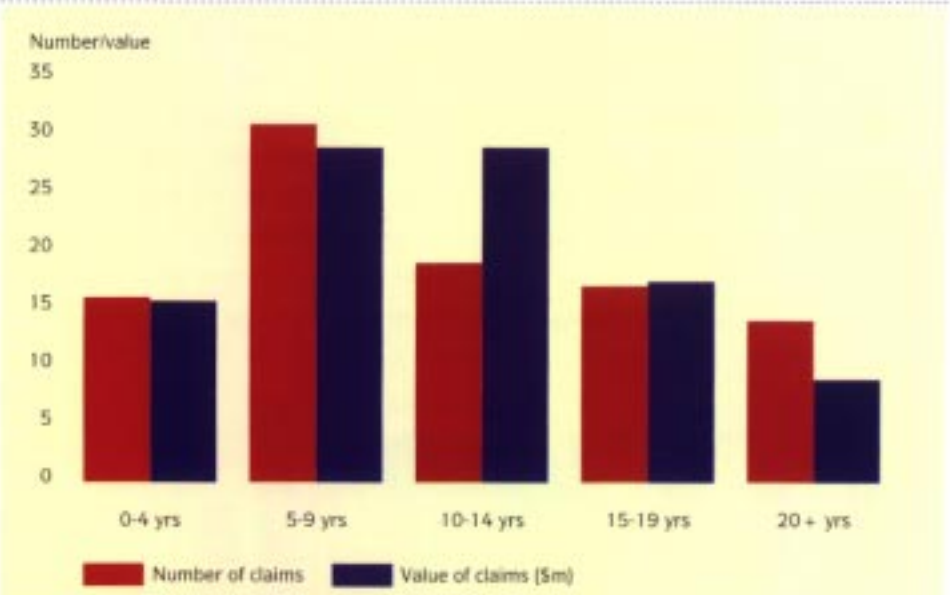
Table 61 analyses reefer cargo claims by reference to the type of incident leading to the damage. The overall ship quality factor includes 11 claims relating to refrigeration equipment failure, totalling $7.1 million. These claims arose partly because of a lack of understanding of recent technological advances in refrigeration techniques and partly as a result of lack of maintenance - and in some cases both. There are signs that the increasing practice of operating reefer ships without a specialist reefer engineer is leading to increased loss and damage to cargo; the position is exacerbated considerably if the chief engineer and his second engineer are not experienced in such vessels.

Table 61 - REEFER SHIPS - DETAILED CAUSE OF CARGO CLAIMS



Reefer ship claims are analysed by age in Table 62. The relatively poor record of ships in the five to nine year age band is disproportionate; these ships comprise only 20 per cent of the Club's reefer fleet, but were involved in 28 per cent of the reefer claims by number and 27 per cent by value. By contrast, ships over 20 years old contribute only 15 per cent of claims and seven per cent of the value of all such claims. This pattern, including the experience of the very new ships in the nought to four year old band, lends further support to the need to ensure the ship's staff fully understand and are capable of maintaining the technology on board.

TABLE 62 - REEFER SHIPS - AGE BANDS



3.4 DRY CARGO CLAIMS

Dry cargo ships, which make up one-third of the Club's entries, were involved in about 20 per cent of the major claims. The main causes of these claims, more than half of which resulted from human error, are shown in Table 63 below. A point worth noting is the number of claims caused by errors on the part of shore personnel, which is higher than in the case of most other types of ship; 95 per cent of such claims relate to cargo, many a result of poor handling or failure properly to secure the stow, but about one in eight the result of deliberate fraud or theft. The human element is also present in the structural failure claims, more than half being due to failure of hatch covers, the remainder being caused by shell plate failures and pipe failures.

TABLE 63 - DRY CARGO SHIPS - MAIN CAUSES OF CLAIMS

Deck officer error constitutes the single most significant cause, and the consequences of those errors are set out in Table 64. One-third of such incidents involved errors in the manoeuvring or navigation of the ship (resulting in property damage, collision or grounding), while more than 40 per cent involved mistakes specifically in the stowage and care of the cargo, including on occasions failure to identify damage caused to cargoes before they had even reached the custody of the carrier.

TABLE 64 - DRY CARGO SHIPS - DECK OFFICER ERROR

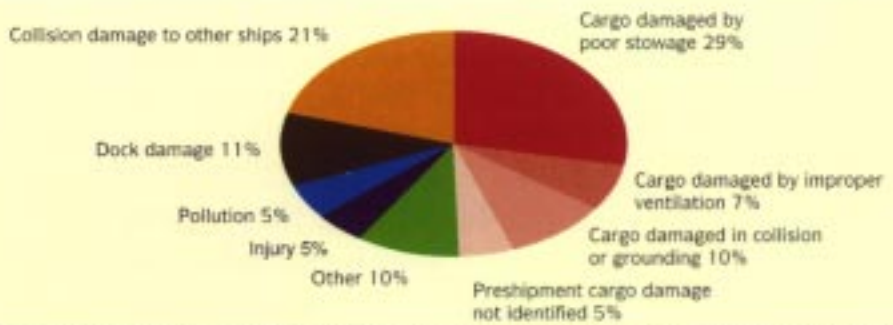


Table 65 shows claims distributed by type of risk involved.

Of the relatively few collision claims, it is worth recording that, as is found in all types of ships, about two-thirds arose from incidents in good or fair visibility, in wind speeds of force three or less, in slight or calm seas, with the master on the bridge, while underway at proper speed. Half occurred by day and half by night, but only six per cent happened between noon and 20:00 hours local time.

By far the most numerous claims on these ships are in respect of cargo and these are also the most expensive in the aggregate. Taken individually, however, the average value of a major cargo claim on these ships was only about $250,000 compared with an average value of about $500,000 for property damage claims and about $3 million for wreck removal claims. The relatively low average value of cargo claims may reflect the fact that more than 85 per cent of the claims arose on small ships of less than 12,000 grt.

TABLE 65 - DRY CARGO SHIPS - TYPES OF RISK

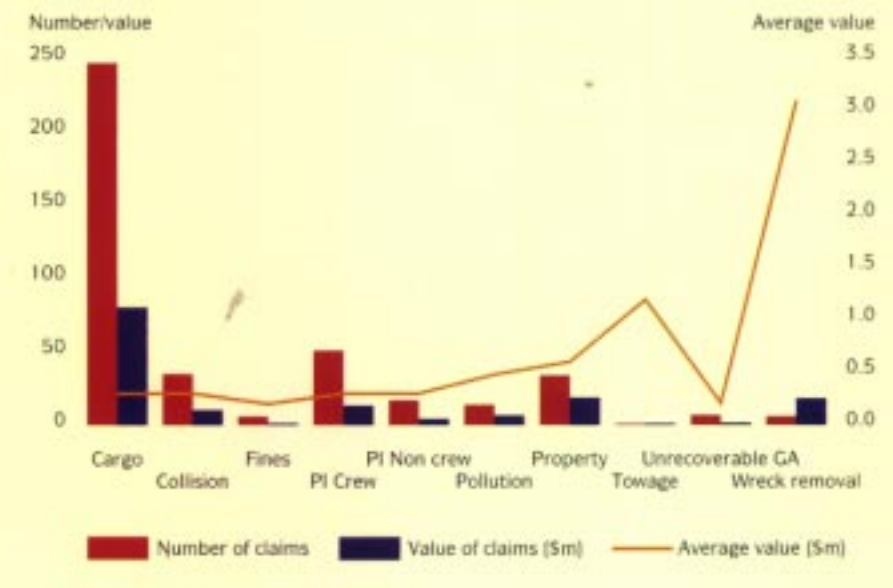
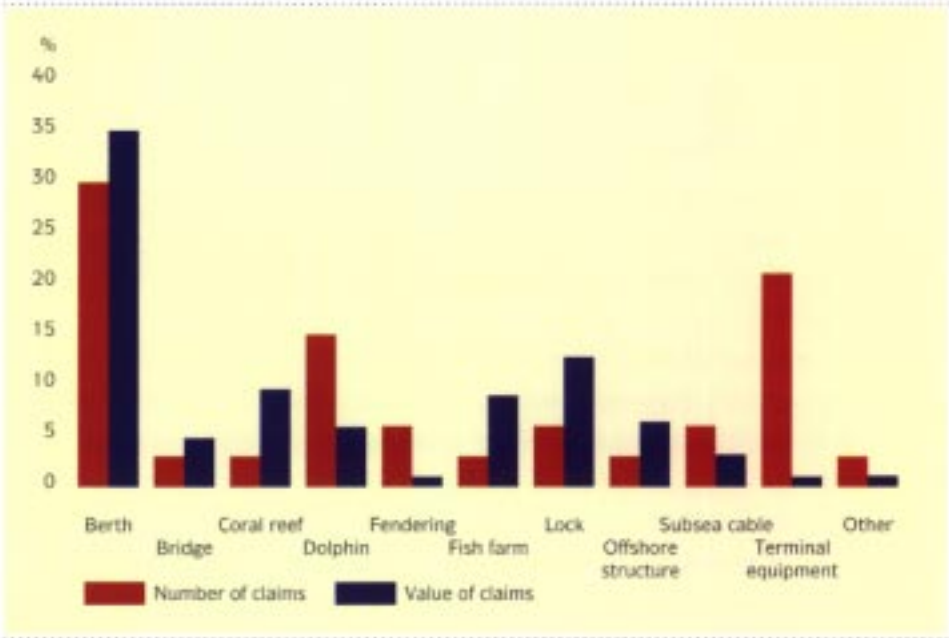


Table 66 below shows property damage claims analysed by location of loss. More than 70 per cent of these incidents occurred in good visibility, in the absence of strong tides or winds, and without assistance from tugs. About one-third were the result of pilot error. About two-thirds occurred while berthing or unberthing; the average cost of berth damage claims was $700,000. The most expensive individual property claims involving dry cargo ships were those of an environmental nature, involving alleged damage to coral and to fish farms.

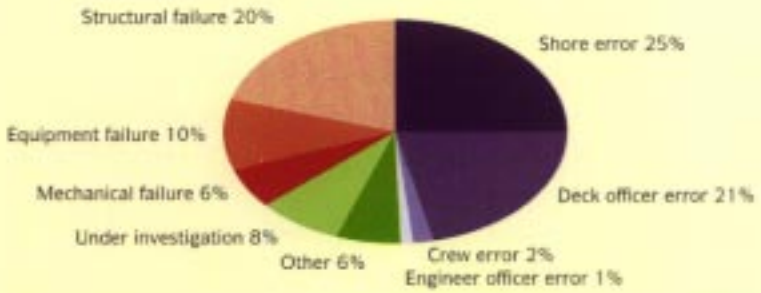
TABLE 66 - DRY CARGO SHIPS - TYPE OF PROPERTY DAMAGED



The main cause of cargo claims is shown in Table 67 below, the single most significant factor being error on the part of shore personnel. Although, as noted above, some of these losses result from deliberate fraud or theft, most arise from poor quality stevedoring, or poor standards of care while cargo is in shore terminals, or in the custody of land carriers while moving under a through bill of lading. Loss prevention in this area requires education of shore based personnel, care in choosing sub-contractors and in preserving and exercising, whenever possible, rights of recourse against them.

The cargo claims were almost equally divided amongst those involving ships on time charter, those involving ships on voyage charter, and those where the ship was not chartered. The statistical significance of this is not known because the distribution of these features amongst dry cargo ships in the Club as a whole is not known.

TABLE 67 - DRY CARGO SHIPS - MAIN CAUSE OF CARGO CLAIMS

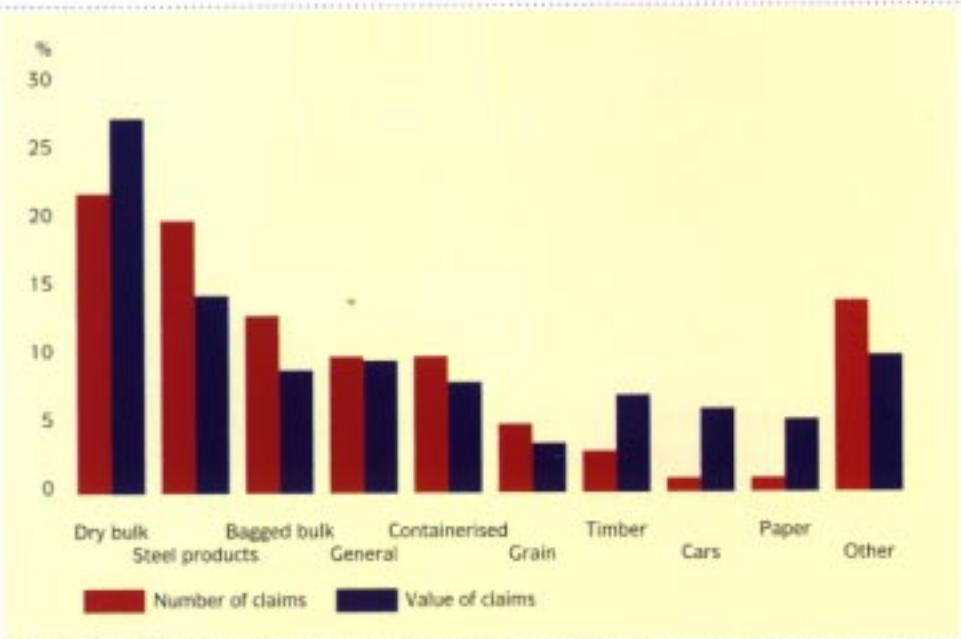


The types of cargo most frequently involved are shown in Table 68. Cars, paper and timber all show disproportionately high values compared with the numbers of such claims, but in each case this is because the figures have been inflated by a single very costly accident; interestingly, in all three cases the accident was a grounding.

Dry bulk and steel products claims are more numerous, and although there were similar numbers of each, the average value of the former ($400,000) was twice that of the latter ($200,000). Many of the dry bulk claims were caused by contamination; for this class of cargo and this type of damage the average claim value is $700,000; it is therefore well worth taking extra care to ensure that cargo separation is properly planned and is well executed. The remainder of dry bulk claims, and most of the steel claims, are in respect of wet damage, in both cases costing on average $200,000 per incident. Claims in respect of general cargo are mostly for physical damage such as that caused by crushing, bending, and breakage.

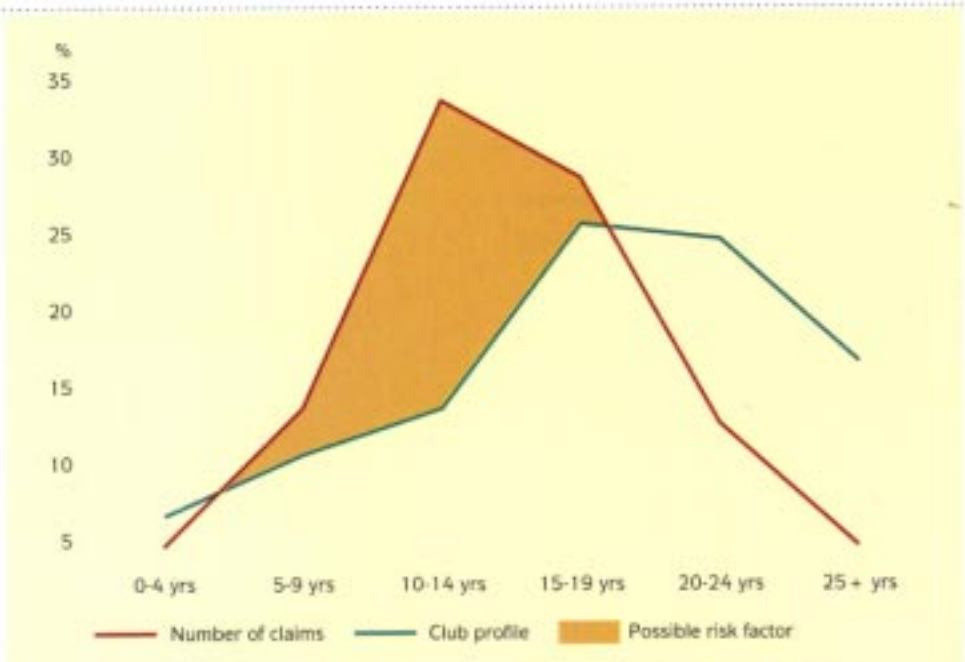
On dry cargo ships, most major shortage claims are the result of theft or fraud involving containerised cargo. In one instance, drums of sand were substituted for fishing reels; in another, geological examination of rocks substituted for a machinery cargo enabled the transshipment port at which the switch was made to be identified.

TABLE 68 - DRY CARGO SHIPS - CARGO TYPE



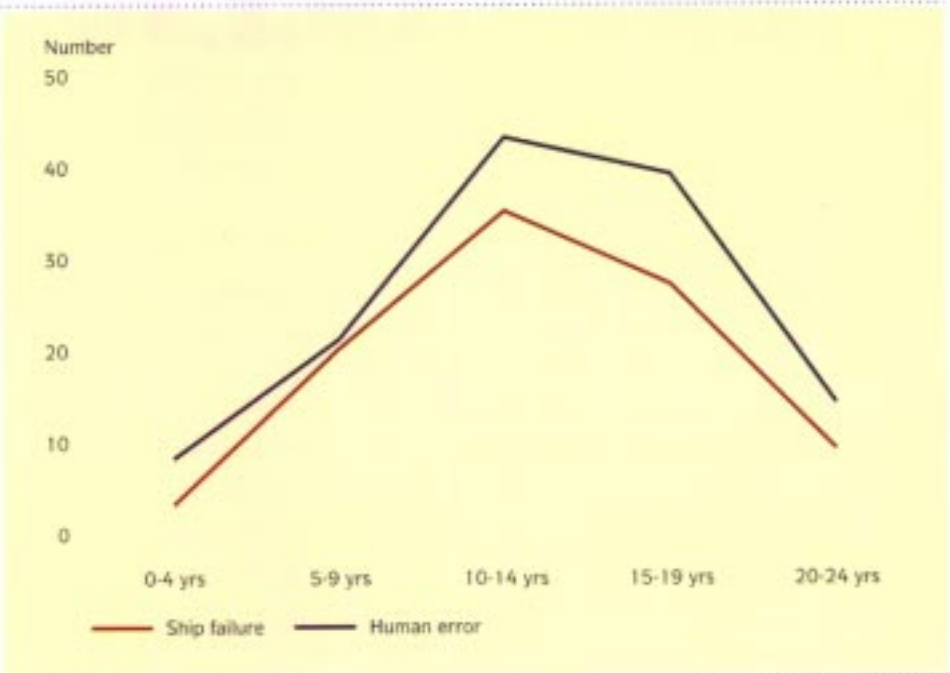
Last year's analysis of claims on dry cargo vessels identified ships aged 10 to 14 years as bringing significantly more major claims to the Club than their entry would justify. Table 69 below shows a similar pattern this year.

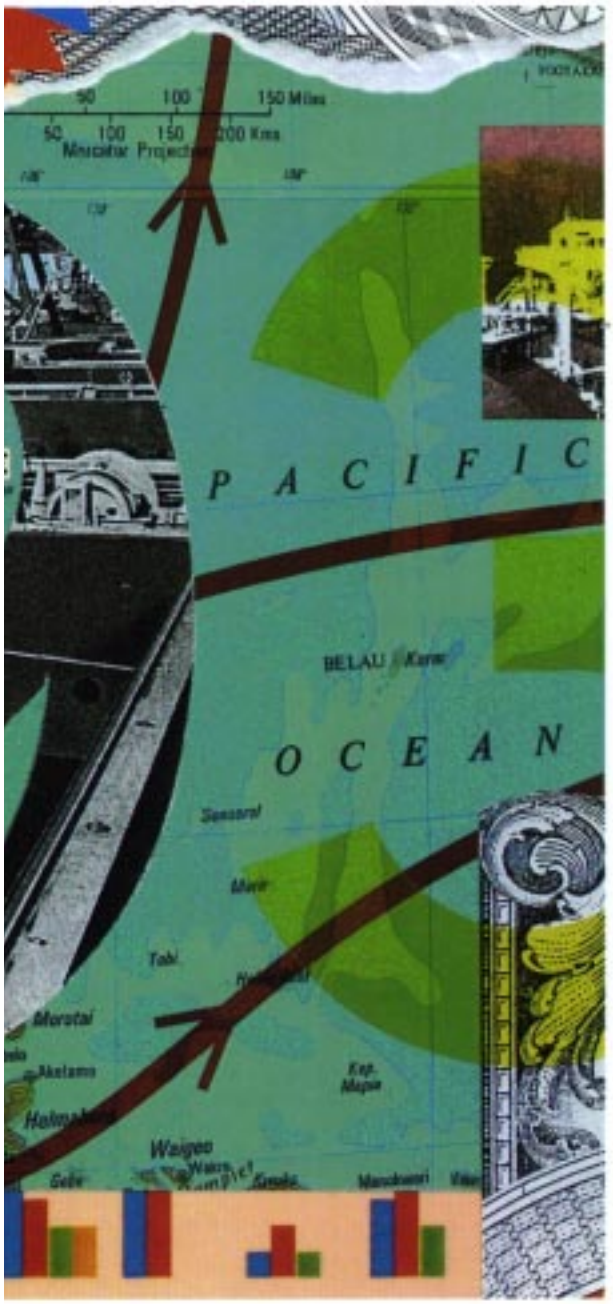
TABLE 69 - DRY CARGO SHIPS - AGE BANDS



In Table 70, the distribution by age band of claims caused by ship failure is compared with that for claims caused by human error. The overall pattern is largely unchanged from that seen in last year's analysis, with both types of claim peaking in ships aged 10-14 years, and declining a little in the 15-19 year band. However, for the 1991 and 1992 policy years the percentage of claims involving ships aged 10-14 years has declined, while that for the 15-19 year age band has increased, and this has not been accompanied by any increase in the number of claims due to ship failure rather than human error. This trend, which reflects the ageing of the world fleet, underlines the key role of the human factor in the causation of loss on ships of any age.

TABLE 70 - DRY CARGO SHIPS - HUMAN ERROR AND SHIP FAILURE





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