Casulaties to Fishing Vessels and Deaths Of Fishermen

A Review up to 1985

December 1986
(retyped December 2006)

TR295

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Seafish Technical Report No 295

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Date: December 1986 – retyped December 2006

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Summary:

This paper examines the data on casualties to fishing vessels and the deaths of fishermen published by the Department of Transport up to 1985 with a view to establishing whether the various measures taken in the 1970's to improve safety are having a beneficial effect. While the nature of the data which is available presents certain difficulties it does seen clear that there has occurred, during the last few years, a significant reduction in losses of vessels covered by the 1975 Safety Rules. In contrast, losses of vessels not covered by the Rules have more than doubled in the same period. It is concluded that the Rules are a positive influence in reducing the incidence of vessel losses but in any revision special attention should be paid to strengthening the provisions applying to vessels below 12 metres registered length.

There has also been a reduction in the number of deaths onboard fishing vessels. However this has been restricted to only those associated with the loss of vessels while no improvement has been realised in those occurring in the normal course of duty. Thus, while the position with respect to vessel losses is encouraging, it is proposed that a review is undertaken by interested parties to jointly determine the steps to be taken to improve preventive safety measures.

The data also suggests that when vessels are lost a greater proportion of men are now being saved. This indicates that improved life saving appliances, better search and rescue facilities, particularly on the east coast, coupled with the more widespread availability of survival training are having a beneficial effect.

The Sea Fish Industry Authority has been involved in various aspects of safety from supporting the D.Tp with survey effort to developing and funding training. The Authority has recently reaffirmed its commitment to safety and a summary is given of the policy in this area, agreed by the Board.

Introduction

The catching of fish has long been recognised as a hazardous occupation and those involved have come to accept the risks as an inevitable consequence of earning a livelihood from the sea. While the mercantile fleet has been regulated, for many years, by statutory requirements aimed at providing a safe operational regime the fishing fleets were without this protection until recently save for the need to comply with manning regulations. The fact that there were so many small specialised vessels involved was one aspect and the recognition that they had to work at sea was another, coupled with the feeling that this was a man's business.

From time to time a disaster would occur that would cause people to focus on the risks being faced and this would sometimes result in action being taken by responsible owners. For instance, the loss of two vessels off Greenland in 1955 due to icing led to an investigation of this hazard by the British Ship Research Association (1) which resulted in recommended changes in the design of mast structures which were taken up. The distant water owners, in consultation with the unions, also took a number of steps to improve safety through the provision of training and safety officers and medical facilities. But it was the loss of three vessels and 56 men in a period of a few days in the winter of 1968 that had the greatest impact, resulting in the setting up of the Committee of Inquiry into Trawler Safety under the chairmanship of Admiral Sir Deric Holland-Martin.

For the first time a wide ranging study of casualties to fishing vessels was undertaken which led to a report, published in 1969, containing recommendations for improvements (2). While these were mainly concerned with vessels in excess of 80 feet registered length some applied to smaller vessels. The immediate effect was to create a better climate for safety and stability checks were made on larger vessels while the process of drafting legislation was begun which resulted in the 1975 Safety Rules. Codes of practice were also drawn up covering the safety of fishermen and by 1980 training in survival was being offered to crew men.

In 1974 the White Fish Authority carried out a study, for the Herring Industry Board, into the safety of vessels of less than 80 feet which made recommendations on design features and commented on the risks in the working environment (3). At the same time various investigations were carried out on safety features which led notably to the introduction of the shelterdeck in the late 70's (4).

Against this background it was disturbing to find that no improvement to the safety record of either vessels or men was apparent. The position for the period 1961/1980 was analysed by Reilly (5) who concluded that the measures adopted in the 1970's, as a result of the Enquiry, had had little effect since the casualty rate was increasing; that older vessels appeared to be at greatest risk; and that the rate of fatalities among fishermen at sea continued at a high level subsequent to the Enquiry.

Data are now available up to 1985 and given that some of the safety measures introduced in the mid 70's, resulting from the Enquiry, did not become fully effective until after 1980, it is useful to examine whether the accident rates and trends noted in that study still apply in the 80's.

Mention should also be made of a very comprehensive study, still in progress, by Tvedt and Reese, a summary of which was presented to the Department of Transport (D.Tp) Fishing Industry Safety Group (FISG) in early 1986 (6). The object of this investigation is to "determine the factors of prime importance in influencing the casualty rate for fishing vessels". While the various contributing factors are being analysed in great depth, using unpublished data provided by D.Tp, the summary made no observations on whether the safety regulations introduced in the mid 70's have been effective in reducing the casualty rates. This is a matter of prime importance and is the principle issue addressed in this paper.

Impact of the Enquiry into Trawler Safety (1969)

Stability Investigations on Larger Vessels

One of the most important immediate consequences of the Enquiry of 1969 was the investigation of the stability characteristics of all fishing vessels in excess of 80 feet registered length. These distant and middle water vessels constituted an important element of the UK fishing fleet and, indeed, it was the loss of three such vessels in 1968 which caused the Enquiry to be set up. At that time the risk to smaller vessels was thought to be less serious and the available manpower resource precluded a similar exercise being carried out on the much larger number of vessels involved. Unknown, of course, was the coming decline in the distant and middle water fleets, so much effort was expended on vessels which were soon to be withdrawn from fishing service. However it should be noted that the stability characteristics of many vessels was found to be inadequate and remedial action had to be taken to bring such vessels to the minimum standard required. Since a large number of these vessels had been built in the 1950's and 60's this may be an important factor in support of Reilly's conclusion that older vessels faced greater risk during the period up to 1980.

The 1975 Safety Rules

Of more lasting benefit was the impetus given to establishing legislation covering the safety of fishing vessels. This bore fruit when, on 1st May 1975, "The Fishing Vessels (Safety Provisions) Rules 1975" came into effect covering the safety features which had to be incorporated into all fishing vessels in excess of 12 metres registered length with some provisions applying to smaller vessels. These were the first comprehensive safety rules to apply to UK fishing vessels but the extent of the requirements made it impossible to make all vessels subject to their provisions on that date. Instead, a phasing-in programme was incorporated, starting with the oldest vessels and designed to cover all vessels by 1st April 1981.

In the event the process of surveying all existing and new vessels took longer than anticipated and the programme was not completed until the mid-80's. Even then, vessels had been surveyed only once with the required re-surveys every four years having been missed and the intermediate inspections never having been undertaken. Thus, the planned progressive introduction of safety standards was only partially complete by 1980; the end of the period of Reilly's analysis, and the 1975 Safety Rules will have had only a limited impact on his data.

Other Factors

It is also worth noting that, since the late 70's, features such as the shelterdeck have been incorporated into many vessels bringing improved safety both to the ship and for the men. At the same time, greater attention has been paid to safety in general and to safety training in particular. Both prevention and awareness have therefore received some attention.

From the foregoing it is clear that some important factors affecting the safety of fishing vessels have changed significantly since the period of the earlier analysis. In particular the distant and middle water fleets have continued to decline in the 1980's so that the composition of and pattern of risk to the UK fishing fleet has altered and a consistent safety regime now applies to the physical aspects of vessels. It is often said that the inshore fleet is now venturing further afield so, while these two factors may pull in opposite directions, it would be surprising if the trends noted by Reilly had continued, unaltered, and for the same reasons, into the 1980's. It would also be disappointing if, despite the delay in fully applying the 1975 Safety Rules, some indication of an improvement in the casualty rates was not evident.

Analysis of Casualty Data

Source of Data

The source of information used in this paper is "Casualties to Vessels and Accidents to Men" published annually by the D.Tp. The format of the published data has not always been consistent from one year to another but D.Tp now present vessel length in metres, subdivided into below 12 metres, 12 metres to 24 metres and above 24 metres and this series is available from 1974 onwards. This allows a comparison to be made between casualty rates for vessels which fall within the jurisdiction of the 1975 Safety Rules and those that do not have to comply.

Casualty Data 1974/1985

Casualty data are published by D.Tp in three categories, total losses, serious casualties and minor casualties. "Total losses" is self explanatory but "serious casualties" is defined as where

a) the vessel is in danger of becoming a total loss, for instance where salvage assistance is required; or

b) serious damage is sustained so as to affect the seaworthiness of the vessel; or

c) the vessel sank, but is known to have been subsequently raised and repaired; or

d) human life is lost; or

e) serious financial loss occurs in relation to the size and value of the vessel.

"Minor casualties", although not defined by D.Tp, clearly are those which do not meet the criteria set out above and are not considered in this paper.

Table 1 shows the total loss and serious casualty data for all vessels from 1974 to 1985 together with the rates per 1000 vessels on the register. The corresponding data are shown in tables 2, 3, 4 and 5 for vessels in the size ranges under 12 metres, over 12 metres, 12-24 metres and over 24 metres. The rates for all these categories for losses, for serious casualties, and for losses and serious casualties combined are presented in figures 1 to 5.

Observations

Before considering the results comment must be made on the use of the number of vessels on the register as a means of assessing vessels at risk. This is obviously not very satisfactory but no better measure is currently available although Tvedt and Reese recommend a method of qualifying for inclusion on the register which reflects serious fishing activity. Until more appropriate data is available it has to be accepted that while reasonable estimates of numbers may be possible for vessels in the range 12 to 24 metres underestimates of risk to both larger and smaller vessels will result since not all the former are deployed and many of the latter are operated on AL part time and seasonal basis. Comparative judgements should still be possible but-the position, in absolute terms, may be worse than indicated.

Mention should also be made of the large variations which occur in the number of vessels registered, particularly of those below 12 metres. This data is published annually by the Ministry of Agriculture, Fisheries & Food (MAFF) in their "Sea Fisheries Statistical Tables" and it is understood that the 1986 edition, containing the number of vessels at 31st December 1985 will show an increase over 1984 of nearly 1,100 vessels below 12 metres. These vessels have clearly not suddenly been built so there is a substantial number of vessels which may be registered or de-registered from time to time. It also seems unlikely that this increase represents vessels engaged full time in fishing and must be mainly part time activity brought about by better economic conditions in the industry. This serves to show that any statistics in which the total number of vessels below 12 metres is a factor should be regarded with caution. Accordingly, a total of 5,400 vessels below 12 metres have been used in this paper for 1985 to be consistent with 1984 and to avoid introducing a favourable bias in the loss and casualty rates.

Total Losses

It is important to notice that, compared with later years, the data for 1974 shows much lower rates of total loss and serious casualties for vessels in the range 12 to 24 metres and this is reflected in the combined data for all vessels. At that time the number of casualties was on the increase and mention should therefore be made of the general level which had been experienced previously. Reilly showed that prior to 1972 the combined total loss and serious casualties of vessels of all sizes had been between 2 and 4 per 1,000 but in the period 1972 to 1975 it rose to about 7 per 1,000 before settling at between 5 and 6 per 1,000 for the rest of the decade. The serious casualty rate, on the other hand was fairly constant from 1961 to 1980. The data for the period 1961 to 1980, reproduced from reference 5, are shown in figure 6.

Considering the period from 1981 onwards it is striking that the total loss rate for all vessels rose still further to a maximum of 7.4 per 1,000 in 1982 before falling to 5.4 per 1,000 in 1985, a value achieved in 1984 but not previously since 1978. However, the subdivision of data by vessel size reveals that this hump, particularly after 1980, was almost entirely due to a significant increase in the rate for vessels of less than 12 metres while the rate for vessels in excess of 12 metres has fallen from a maximum of 15 per 1,000 in 1978 to 10.2 in 1985, a reduction of 32%. The data for vessels in the 12 to 24 metre range shows the same trend, falling from 14.3 per 1,000 in 1978 to 9.2 per 1,000 in 1985, a reduction of 35%. Some increase has occurred for vessels in excess of 24 metres but the number of such vessels is now so low that a difference of 1 loss results in a change in the rate of 5 per 1,000. Thus, it may be said that the increase has been confined to vessels which do not fall within the 1975 Safety Rules while for those that do the loss rate has improved for the major segment of the fleet consisting of vessels in the range 12 to 24 metres. This is not to say that the position is now satisfactory since the rate for these vessels is still significantly greater than that which applied up to the early 70's and further improvement should be sought. However, it is reasonable to assume that the 1975 Safety Rules are having some impact and offer a basis on which to improve safety provision in the future.

The rise in the loss rate since 1981 for vessels below 12 metres is a matter for concern. Even though the number of vessels at risk may be difficult to access the average number of vessels lost annually from 1981 to 1985 is 20.6 against 9.3 for the period 1974 to 1980, an increase of 120%. The data provided do not define the various types of vessels involved but a greater proportion of vessels of less than 10 gross registered tons appear in the casualty lists of the past few years indicating that more open boats are being lost. Some of these may be used primarily for angling and their inclusion could be distorting the data as far as vessels seriously engaged in fishing are concerned.

The majority of the vessels lost founder, but the data provided by D.Tp does not permit the underlying cause, ie human error, physical defect or overwhelming force, to be determined. Even so, it seems reasonable to assume that the less stringent Safety Rules under which vessels of less than 12 metres are permitted to operate coupled with the master being able to assume command without the necessity of a certificate of competency will contribute to the risk to be faced. It is the policy of the Authority to seek to introduce a certificate of competency for those in command of smaller vessels not covered by the present manning regulations, albeit initially on a voluntary basis, and this appears to be reinforced, but there is also a case for the Safety Rules which apply to vessels of less than 12 metres to be strengthened.

Older Vessels

Reilly showed that up to 1980 older vessels were more at risk than their younger counterparts. If the 1975 Safety Rules are having any effect this bias should be reduced. Table 6 gives the total number of vessels, in excess of 12 metres, lost according to age for 1981 to 1985 together with the average distribution of the fleet by age for this period. The difference between the two distributions is not statistically significant and therefore does not support the view that older vessels are more at risk for this period. However the ratio of the expected number of losses, based on the fleet distribution and assuming equal likelihood of occurrence, suggests that vessels up to 15 years old are about 25% less likely to be lost than those which are older. A result of this type is to be expected since older vessels should be more vulnerable, due to the ageing process, but the data do not indicate that the additional risk is very great. An examination of the data for losses due to foundering or flooding, given in table 7, indicates a more pronounced trend, however. Once again the differences between the two distributions is not significant in the overall sense but the ratio of expected to actual losses shows a steady increase with age, as illustrated in figure 7. While such a result should be expected the data indicate that vessels in excess of 25 years of age are about twice as likely to be lost from these causes as are vessels up to 15 years of age. Reilly also came to this conclusion although he used a different approach involving the mean age of casualties. Both studies, therefore, suggest that the precise cause of foundering or flooding should be studied with a view to establishing whether any specific features of age and the ageing process are responsible.

The position for vessels below 12 metres cannot be determined since the age distribution of this fleet is not available. For those casualties for which the age is stated, 59.2% of losses are vessels of up to 10 years old and 69.8% are up to 20 years old. However, if it is assumed that all those vessels for which the age was not known are at least over 20 years old then 48.2% of losses would be vessels up to 20 years old and 51.8% of even older vessels.

Serious Casualties

The rate of serious casualties for all classes of vessels is now significantly greater than in the early 70's. The largest increase has been for vessels below 12 metres where a 5 fold rise has occurred although the number involved is still very small, and data for 1985 suggests a return to previous very low levels. For larger vessels the rate increased in the mid-seventies and remained fairly constant up to 1983 since when some improvement has occurred.

Major Hazard

Defining total losses and serious casualties combined as a measure of most serious hazard the rate appears to be falling for all vessel size categories except over 24 metres. However, the ratio of total losses to serious casualties appears to have remained fairly constant over the five year periods 1976/1980 and 1981/1985 although its value varies with size class of vessel. For all vessels about 75% of all major hazard cases result in a total loss while for those under 12 metres 85% will be lost. About 73% of vessels in the range 12 to 24 metres become losses but for vessels in excess of 24 metres this falls to about 60%. Thus the proportion of total losses among cases of major hazard falls with increasing size of vessel, a not unexpected result especially where severe weather is a prime factor.

Death of Fishermen

In a second paper (7) Reilly analysed the deaths of fishermen onboard fishing vessels for 1961/1980 and concluded that the death rate per 1,000 at risk was much higher than in other industries. Over the last decade, not only have the 1975 Safety Rules been introduced but search and rescue services have provided improved cover, particularly in the North Sea, and training in survival and firefighting has become more widespread. Some reduction in the death rates since 1980 should therefore be expected, particularly those associated with the total loss of vessels since these have reduced.

Reilly pointed out that not all deaths which originated through events onboard fishing vessels are recorded as such. This is very much a matter of where the death actually occurs since men brought ashore and subsequently dying may not be included among the deaths recorded at sea. Thus, the number of deaths arising out of incidents at sea may be under recorded and some element of doubt arises in any comparisons made between different periods.

The annual data published by D.Tp refers to deaths on board vessels above and below 24 metres and no further sub-division is made at 12 metres. It is not, therefore, possible to make a precise distinction between fatalities on vessels subject to the 1975 Safety Rules and those which are not. This would not preclude a comparison being made between one period and another provided the proportion of deaths occurring on vessels below 12 metres was constant. Unfortunately, this is unlikely to be the case given the rise in the loss of small vessels in recent years and consideration should be given to providing data on fatalities using 12 and 24 metre break points.

A distinction is made in recording fatalities between those that occur when a vessel is a total loss and those which occur in other circumstances. The latter, described as personal accidents include not only those occurring in the course of duty but also natural causes, suicide and homicide although these categories amount to only a small minority of the total.

Fishermen at Risk

Considerable doubt exists as to the number of fishermen at risk and the death rates must be treated with some caution. D.Tp calculates the number of berths but, as Reilly pointed out, this assumes that they are all filled all of the time. Even so, while the 1984 Return estimates 14,855 berths the Sea Fisheries Statistical Tables for 1984 give 16,151 men regularly employed and 5,794 part time indicating that there are considerably more men than berths.

To overcome this difficulty Reilly assumed that the number of men at risk was equal to the total number of full time fishermen plus half the part time men, as recorded by the various Fishery Departments. Although the details are not included in his paper the average number of men annually at risk was about (8):

	Vessels >24m	Vessels <24m	All Vessels
1961/1970	8,700	13,520	22,220
1971/1980	5,170	16,000	21,170

Current data would indicate a total at risk of about 19,000, using Reilly's method, but it has been assumed in calculating death rates for 1981/1985 that the annual average was 1,500 men in vessels over 24 metres and 16,000 men in vessels less than 24 metres. This should provide a reasonable comparative base and ensure no favourable bias is introduced for 1981/1985. The total is still greater than the number of berths recorded in the D.Tp Return and the way in which the number of berths is calculated may need to be reconsidered.

Observations

Reilly analysed death rates among fishermen according to cause for the periods 1961/1970 and 1971/1980. He concluded that the death rates associated with the loss of vessels were higher in the second decade on vessels both above and below 24 metres and that the death rate due to personal accidents on board vessels rose for vessels in excess of 24 metres and fell for those below 24 metres. Overall, he found that the death rate from all causes rose by nearly 40% onboard vessels above 24 metres and fell by 4% for smaller craft.

Data are now available for the period 1981/1985 and a similar analysis shows that the position has improved in some respects. Table 8 gives the rates for the periods 1961/1970, 1971/1980 and 1981/1985, the data for the two earlier periods being reproduced from reference 7. While the death rate for personal accidents onboard vessels in excess of 24 metres has shown no improvement for 1981/1985 over 1971/1980 that associated with the loss of vessels has fallen dramatically from 1.75 per 1,000 men at risk to 0.27 per 1,000 men.

This has, in turn, reduced the annual death rate from all causes on these vessels from 3.21 per 1,000 men for 1971/1980 to 1.74 per 1,000 men for 1981/1985, an improvement of 46%.

For vessels below 24 metres a similar, if less striking, improvement has occurred. The rate of deaths due to personal accidents has remained constant since 1971 while that due to vessel losses has fallen by some 13% in 1981/85 compared with 1971/80. This has been achieved despite a virtual doubling of the number of vessels of less than 12 metres lost annually from 1981 onwards so it is reasonable to assume that a greater improvement has resulted in vessels covered by the 1975 Safety Rules. In overall terms the death rate has fallen from about 1.7 per 1,000 men, which prevailed throughout the period 1961 to 1980, to 1.18 per 1,000 men for 1981 to 1985, a reduction of 30%. While this result is encouraging it should not be forgotten that these rates are exceptionally high in relation to other occupations.

Table 9 gives the number and rates of deaths, against cause, when vessels are lost. For vessels in excess of 24 metres the number of deaths has fallen to such a low level in the period 1981/1985 that detailed comparison with the earlier periods yields little. Deaths on vessels below 24 metres are almost totally accounted for by founderings and floodings and vessels going missing. The combined rate for these categories in 1981/1985 is virtually unchanged from 1971/1980 and still about double that which prevailed in 1961/1970.

Survival of Men when Vessels are Lost

An alternative method of examining the data suggests that a greater proportion of men are now surviving when vessels are lost. For instance, in the period 1971/1980 a total of 40 vessels in excess of 24 metres where lost resulting in 89 deaths. It is estimated that the total number of men onboard these vessels at the time of loss was about 650 indicating that 13.7% died and 86.3% survived. For 1981/1985 14 vessels in excess of 24 metres were lost with an estimated 140 men onboard of whom 2 died giving a survival rate of 98.6% and a death rate of only 1.4%, or one tenth that which prevailed in the 1970's. Clearly, the withdrawal from Iceland and other northern waters has been a major factor influencing this result but death associated with the loss of larger vessels now appears to be a much less likely prospect. However a cautionary note should be sounded since the loss of just one such vessel with all hands would significantly alter the position.

A similar, if less dramatic picture, emerges for vessels below 24 metres. For 1971/1980 a total of 256 such vessels were lost resulting in 103 deaths. Of these vessels, 201 were between 12 and 24 metres and 55 were smaller. Assuming that the average number of men onboard was 6 on those vessels between 12 and 24 metres and 3 on those below 12 metres, the total number onboard vessels lost was 1,371 of which 103 died, or 7.5%. For the period 1981/1985 109 vessels between 12 and 24 metres and 103 vessels below 12 metres were lost giving 931 men onboard, on the same assumptions. Of these 46 died, or 4.9%. Thus the rate of survival of those onboard vessels of less than 24 metres which were lost has risen from about 92.5% in 1971/1980 to about 95.1% in 1981/1985.

Using this approach for all vessels the survival rate for 1971/1980 was about 90.5% and for 1981/1985 about 95.4%, so that the probability of death resulting from the loss of a vessel has fallen from 9.5% to 4.6% of those onboard, an improvement of about 50%. While this will be due, in part, to the larger vessels operating in less hazardous conditions it has to be remembered that the inshore fleet is now going further afield and accepting greater risk. However the results indicate that the life saving appliance requirements of the Safety Rules, improved search and rescue services and more widespread training in survival are having a beneficial effect, although still better cover and a greater take up of training should secure further benefit.

General

In overall terms, the death rates associated with the period 1961/1980 have not been maintained while that associated with vessel loss has fallen significantly, particularly for vessels in excess of 24 metres despite a rise in the rate of loss of these larger vessels in recent years. The results would appear to indicate that loss of life is now less likely due to the loss of vessels both because the loss rate has fallen for vessels in excess of 12 metres and a higher proportion of men onboard are likely to be saved. On the other hand the probability of death due to personal accident has remained constant since 1971. This cause now accounts for more deaths than are associated with the loss of vessels and points to the need for the preventative aspects of safety to be given greater attention.

While the accident statistics cover deaths the only data relating to non fatal accidents refers to vessels in excess of 24 metres which are now a small minority of the fleet. More comprehensive data should be available in the future as a result of a new accident reporting procedure introduced by D.Tp in late 1985. In the meantime it can only be inferred that if the number of fatalities onboard vessels in normal operating conditions has remained high then no improvement in the non-fatal accident rate has been achieved.

A number of parties are interested in carrying out work on the prevention of deaths and injuries occurring onboard fishing vessels in normal operating circumstances. The difficulty in establishing such programmes lies in a lack of data relating cause to the accident but the new reporting procedure referred to above should provide vital information in this respect. The data for 1986 will not ordinarily be published until late 1987 but D.Tp should consider allowing interested bodies access to the data as soon as possible. Further, in view of the importance of accident prevention a meeting between the various organisations interested in this topic should be convened to discuss what needs to be done and what contribution each could make.

Conclusions

This paper does not purport to provide a detailed analysis of fishing vessel casualties or the cause of fatalities to fishermen. That is a subject on which much more effort is required, not least to secure data which is more satisfactory to the purpose. The study being undertaken by Tvedt and Reese should improve the position significantly but for the present all attempts to analyse the situation

are limited to some extent by deficiencies in the available data. For instance, no analysis of the physical risk has been attempted either here or by Reilly and that makes comparisons between different years suspect where the underlying influences are changing. Merely using the number of vessels on the register is unsatisfactory since it takes no account of utilisation and only a general estimate of the number of men at risk can be made. Nevertheless, the data for the last 11 years suggests the following general conclusions:

1 While the major hazard rate for all vessels is still much higher than it was 10 years ago there is some evidence that it may be falling. However, the current rate must still be cause for serious concern.

2 Over the last few years the total loss rate for vessels covered by the 1975 Safety Rules has decreased by about 32%. While other factors may be involved this encouraging result indicates that the legislation is having a beneficial effect and the 1975 Safety Rules form a sound basis on which to build.

3 In contrast, the total loss rate for vessels below 12 metres has increased significantly in the 1980's and indicates a growing problem. There are grounds for thinking that much of this increase is due to a greater incidence of losses among open boats but the data does not permit this to be verified. This trend underlines the need for a review by D.Tp of the safety requirements which apply to vessels below 12 metres and for certificates of competency to be introduced.

4 While the ratio of total losses to serious casualties has remained broadly constant it falls with increasing vessel size.

5 The evidence suggests that vessels in excess of 15 years of age have a 25% greater risk of being lost, from all causes, than younger vessels. However a progressive ageing effect is indicated for losses due to foundering and flooding the cause of which should be investigated.

6 A comprehensive analysis of risk should be undertaken covering the physical, human and economic factors involved.

7 Death rates due to vessel losses are lower in 1981/85 than in 1971/1980 for vessels above and below 24 metres. Death rates due to personal accidents, however, show little or no improvement and indicate that more attention needs to be paid to preventative measures. A meeting between interested parties is proposed to help establish programmes of work in this field.

8 The probability of men surviving when a vessel is lost appear to have improved significantly, underlining the benefits of improved life saving appliances, search and rescue services and survival training. The latter activities should be intensified to secure further improvement.

9 Some aspects of the published data are unsatisfactory. Neither the number of vessels on the register nor the numbers of full and part time fishermen recorded allow the risk of vessel casualty or the death of men to be properly evaluated. While casualty data is presented by three size categories of vessel, deaths are given only for vessels above and below 24 metres and a further break point at 12 metres should be introduced by D.Tp

Policy Of Seafish

Seafish has been involved in various aspects of safety from undertaking some parts of the survey required by the 1975 Safety Rules, under delegation from D.Tp, to developing and funding survival and firefighting training. The Board of Seafish have recently given consideration to their future policy in this area and have resolved to:

1) Continue to provide survey effort to support D.Tp in implementing the 1975 Safety Rules.

2) Continue to support the revision of the 1975 Safety Rules currently being undertaken in FISG.

3) Press for a review of the 1975 Safety Rules as they affect vessels below 12 metres.

4) In consultation with other interested parties, explore the possibilities of establishing an R & D programme covering personal accident prevention.

5) Continue to advocate the need for certificates of competency for those in command of vessels below 16.5 metres and to develop the required training material.

6) Continue to place emphasis on all aspects of safety training and seek to fund it to a satisfactory level.

P.D. Chaplin
September, 1986

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TABLE 1

TOTAL LOSS AND SERIOUS CASUALTIES - ALL VESSELS

YEAR	REGISTERED* VESSELS	TOTAL LOSS		SERIOUS CASUALTIES		LOSS + CASUALTIES	
		VESSELS	PER 1000	VESSELS	PER 1000	VESSELS	PER 1000
1974	6916	28	4.0	8	1.2	36	5.2
1975	6691	47	7.0	5	0.7	52	7.8
1976	6740	35	5.2	12	1.8	47	7.0
1977	6953	37	5.3	14	2.0	51	7.3
1978	7067	38	5.4	13	1.8	51	7.2
1979	7242	42	5.8	11	1.5	53	7.3
1980	6890	39	5.7	13	1.9	52	7.5
1981	7351	52	7.1	11	1.5	63	8.6
1982	6797	50	7.4	12	1.8	62	9.1
1983	7010	43	6.1	18	2.6	61	8.7
1984	7584	41	5.4	16	2.1	57	7.5
1985	7354**	40	5.4	10	1.4	50	6.8

***Sea Fisheries Statistical Tables MAFF**
***Estimated**

TABLE 2

TOTAL LOSS AND SERIOUS CASUALTIES - VESSELS UNDER 12 METRES

YEAR	REGISTERED* VESSELS	TOTAL LOSS		SERIOUS CASUALTIES		LOSS + CASUALTIES	
		VESSELS	PER 1000	VESSELS	PER 1000	VESSELS	PER 1000
1974	4083	12	2.9	1	0.2	13	3.2
1975	4153	11	2.6	0	0	11	2.6
1976	4307	10	2.3	1	0.2	11	2.6
1977	4601	8	1.7	1	0.2	9	2.0
1978	4732	3	0.6	1	0.2	4	0.8
1979	4878	11	2.3	1	0.2	12	2.5
1980	4512	10	2.2	3	0.7	13	2.9
1981	4970	24	4.8	4	0.8	28	5.6
1982	4485	20	4.5	1	0.2	21	4.7
1983	4806	20	4.2	5	1.0	25	5.2
1984	5433	20	3.7	6	1.1	26	4.8
1985	5400**	19	3.5	1	0.2	20	3.7

***Sea Fisheries Statistical Tables MAFF**
****Estimated**

TABLE 3

TOTAL LOSS AND SERIOUS CASUALTIES - VESSELS OVER 12 METRES

YEAR	REGISTERED* VESSELS	TOTAL LOSS		SERIOUS CASUALTIES		LOSS + CASUALTIES	
		VESSELS	PER 1000	VESSELS	PER 1000	VESSELS	PER 1000
1974	2833	16	5.6	7	2.5	23	8.1
1975	2538	36	14.2	5	2.0	41	16.2
1976	2433	25	10.3	11	4.5	36	14.8
1977	2352	29	12.3	13	5.5	42	17.9
1978	2335	35	15.0	12 -	5.1	47	20.1
1979	2364	31	13.1	10	4.2	41	17.3
1980	2378	29	12.2	10	4.2	39	16.4
1981	2381	28	11.8	7	2.9	35	14.7
1982	2312	30	13.0	11	4.8	41	17.7
1983	2204	23	10.4	13	5.9	36	16.3
1984	2151	21	9.8	10	4.7	31	14.4
1985	2054**	21	10.2	9	4.4	30	14.6

***Sea Fisheries Statistical Tables MAFF**

****Estimated**

TABLE 4

TOTAL LOSS AND SERIOUS CASUALTIES - VESSELS 12 TO 24 METRES

YEAR	REGISTERED* VESSELS	TOTAL LOSS		SERIOUS CASUALTIES		LOSS + CASUALTIES	
		VESSELS	PER 1000	VESSELS	PER 1000	VESSELS	PER 1000
1974	2378	10	4.2	3	1.3	13	5.5
1975	2139	32	15.0	2	0.9	34	15.9
1976	2087	23	11.0	9	4.3	32	15.3
1977	2023	21	10.4	11	5.4	32	15.8
1978	2033	26	12.8	6	3.0	32	15.7
1979	2092	30	14.3	9	4.3	39	18.6
1980	2132	29	13.6	7	3.3	36	16.9
1981	2136	26	12.2	6	2.8	32	15.0
1982	2073	28	13.5	9	4.3	37	17.8
1983	1973	20	10.1	12	6.1	32	16.2
1984	1934	18	9.3	8	4.1	26	13.4
1985	1855**	17	9.2	6	3.2	23	12.4

***Sea Fisheries Statistical Tables MAFF**

****Estimated**

TABLE 5

TOTAL LOSS AND SERIOUS CASUALTIES - VESSELS OVER 24 METRES

YEAR	REGISTERED* VESSELS	TOTAL LOSS		SERIOUS CASUALTIES		LOSS + CASUALTIES	
		VESSELS	PER 1000	VESSELS	PER 1000	VESSELS	PER 1000
1974	455	6	13.2	4	8.8	10	22.0
1975	399	4	10.0	3	7.5	7	17.5
1976	346	2	5.8	2	5.8	4	11.6
1977	329	8	24.3	2	6.1	10	30.4
1978	302	9	29.8	6	19.9	15	49.7
1979	272	1	.3.7	1	3.7	2	7.4
1980	246	0	0	3	12.2	3	12.2
1981	245	2	8.2	1	4.1	3	12.2
1982	239	2	8.4	2	8.4	4	16.7
1983	231	3	13.0	1	4.3	4	17.3
1984	217	3	13.8	2	9.2	5	23.0
1985	199**	4	20.1	3	15.1	7	35.2

***Sea Fisheries Statistical Tables MAFF**

****Estimated**

TABLE 6

VESSELS ABOVE 12 METRES
LOSSES BY AGE 1981/85
ALL CAUSES

VESSEL AGE YEARS	LOSSES 1981/85		FLEET DISTRIBUTION BY AGE 1981/85 %	EXPECTED LOSSES	ACTUAL EXPECTED
	NUMBER	%			
0-5	10	7.0	7.7	10.9	0.91
6-10	18	12.7	15.6	22.2	0.81
11-15	21	14.8	16.5	23.4	0.90
16-20	18	12.7	11.4	16.2	1.11
21-25	31	21.8	15.7	22.3	1.39
26+	44	31.0	33.1	47.0	0.94
TOTAL	142	100.0	100.0	142.0	
Not Known	10				
TOTAL	152				

TABLE 7

VESSELS ABOVE 12 METRES
LOSSES BY AGE 1981/85
FOUNDERING AND FLOODING

VESSEL AGE YEARS	LOSSES 1981/85		FLEET DISTRIBUTION BY AGE 1981/85 %	EXPECTED LOSSES	ACTUAL EXPECTED
	NUMBER	%			
0-5	2	3.9	7.7	3.9	0.51
6-10	5	9.8	15.6	8.0	0.63
11-15	6	11.8	16.5	8.4	0.71
16-20	6	11.8	11.4	5.8	1.03
21-25	8	15.7	15.7	8.0	1.00
26+	24	47.0	33.0	16.9	1.42
TOTAL	51	100.0	100.0	51.0	
Not Known	3				
TOTAL	54				

TABLE 8

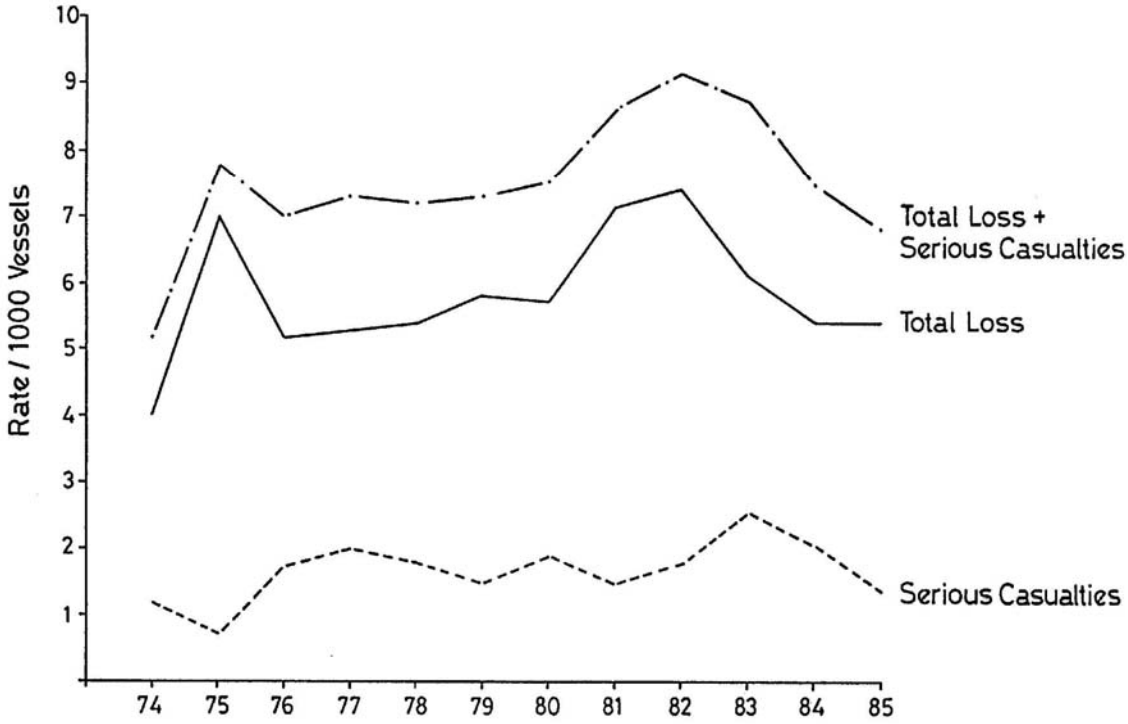
ACCIDENT DEATH RATES PER 1000 MEN AT RISK

CAUSE OF DEATH GROUP	VESSEL LOSSES			PERSONAL ACCIDENTS			ALL CAUSES		
	1961/70	1971/80	1981/85	1961/70	1971/80	1981/85	1961/70	1971/80	1981/85
On Vessels >24 Metres	1.33	1.75	0.27	0.98	1.46	1.47	2.31	3.21	1.74
On Vessels <24 Metres	0.44	0.67	0.58	0.84	0.56	0.55	1.28	1.23	1.13
All Fishermen	0.78	0.93	0•55	0.89	0.77	0.63	1.67	1.70	1.18

TABLE 9

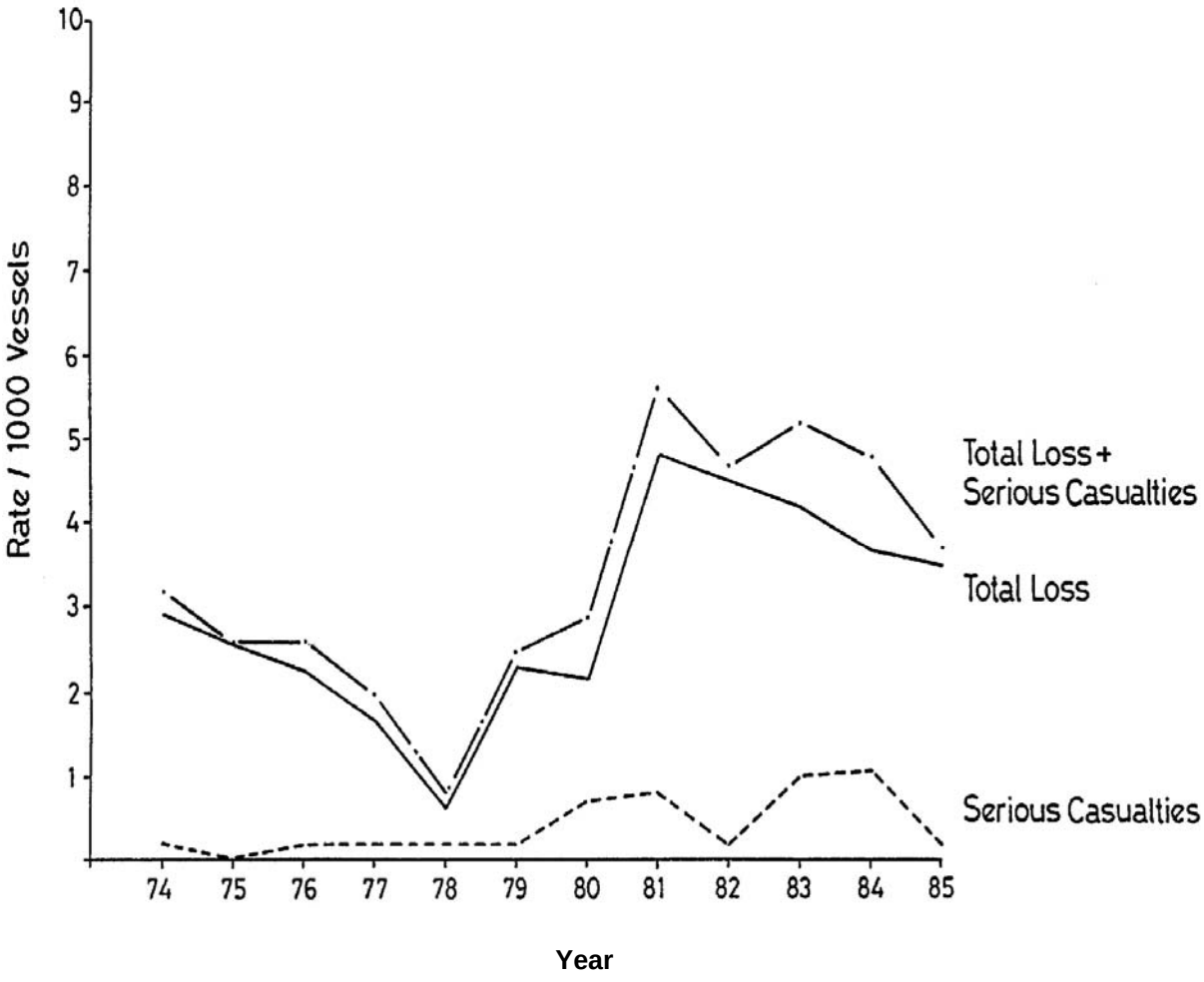
ACCIDENT DEATH RATES PER 1,000 MEN AT RISK VESSEL LOSSES

CAUSE OF LOSS CONTRIBUTING IN DEATH	ON VESSELS > 24 METRES						ON VESSELS<24 METRES						ALL FISHERMEN					
	1961-70		1971-80		1981-85		1961-70		1971-80		1981-85		1961-70		1971-80		1981-85	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Foundering	43	0.55	18	0.46	1	0.13	10	0.08	25	0.16	22	0.28	53	0.26	43	0.21	23	0.26
Fire/Explosion	17	0.18	23	0.43	1	0.13	4	0.03	8	0.06	1	0.01	21	0.09	31	0.15	2	0.02
Stranding	9	0.09	0	0.00	0	0.00	8	0.07	7	0.04	0	0.00	17	0.09.	7	0.03	0	0.00
Collision	0	0.00	3	0.05	0	0.00	8	0.05	9	0.06	0	0.00	8	0.04	12	0.05	0	0.00
Other	0	0.00	0	0.00	0	0.00	3	0.03	1	0.01	3	0.04	3	0.01	1	0.01	3	0.03
Missing	42	0.51	45	0.81	0	0.00	25	0.18	53	0.34	20	0.25	67	0.29	98	0.48	20	0.23
All causes	111	1.33	89	1.75	2	0.27	58	0.44	103	0.67	46	0.58	169	0.78	192	0.93	48	0.55



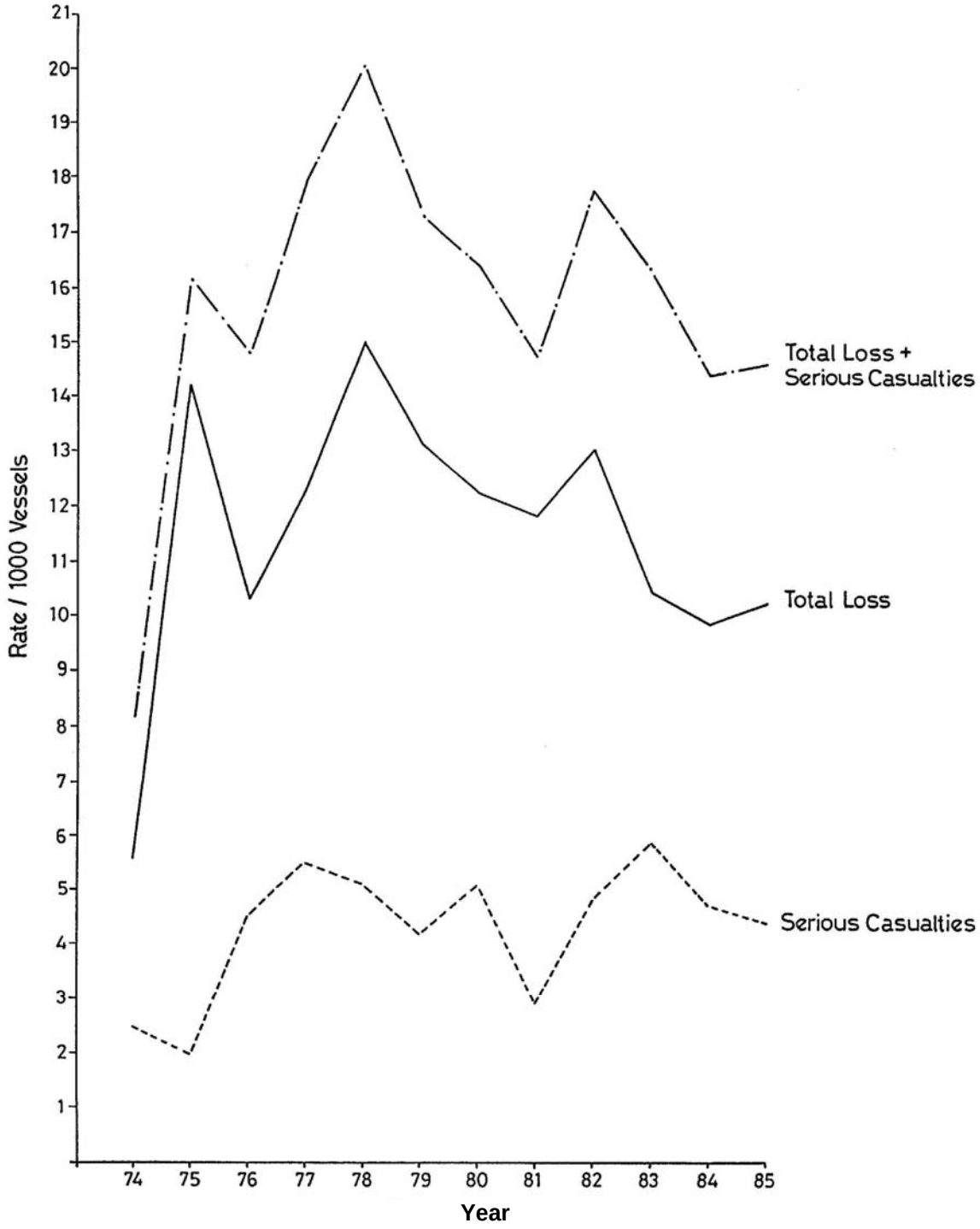
All Vessels

Fig 1



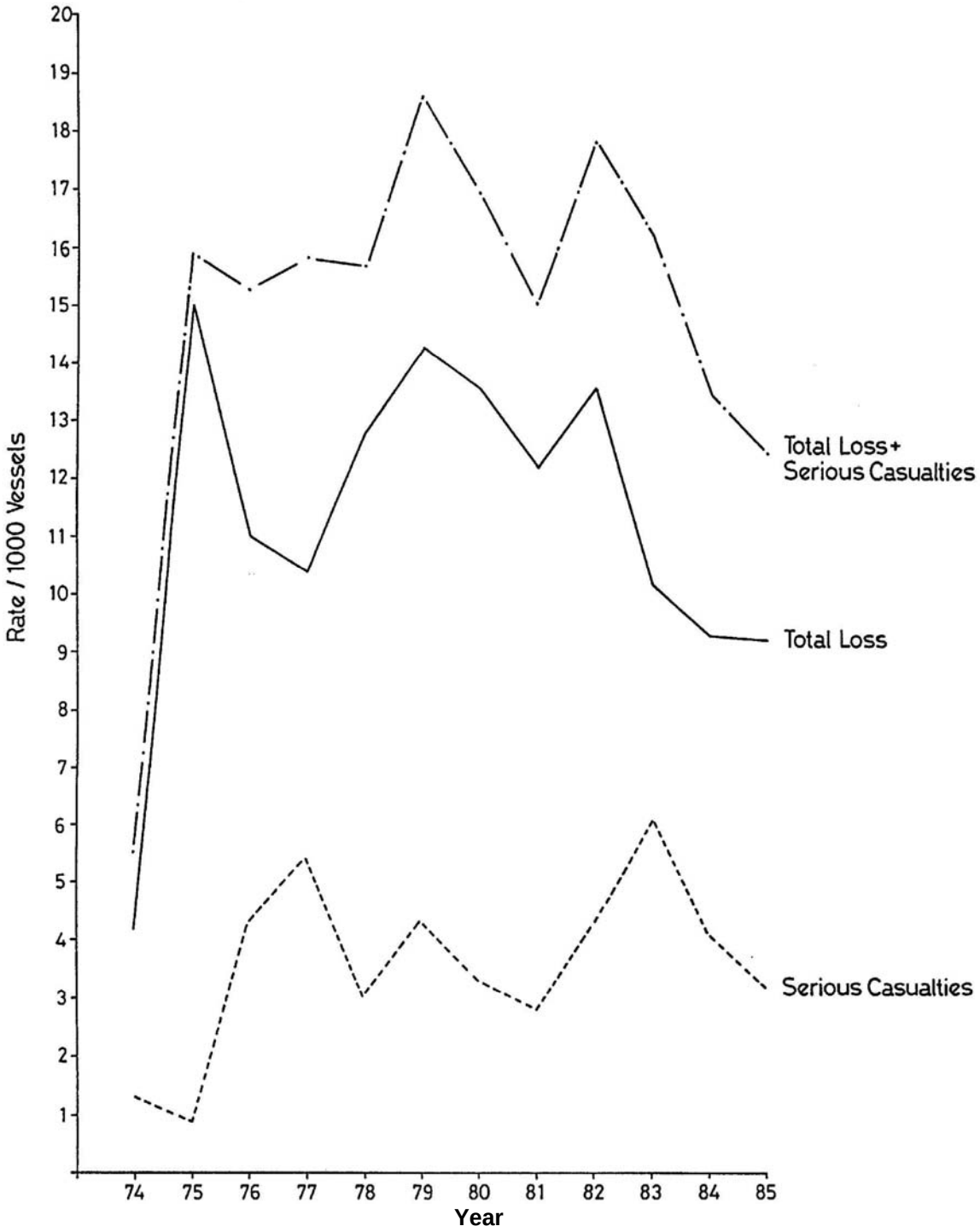
Vessels Below 12 metres

Fig 2



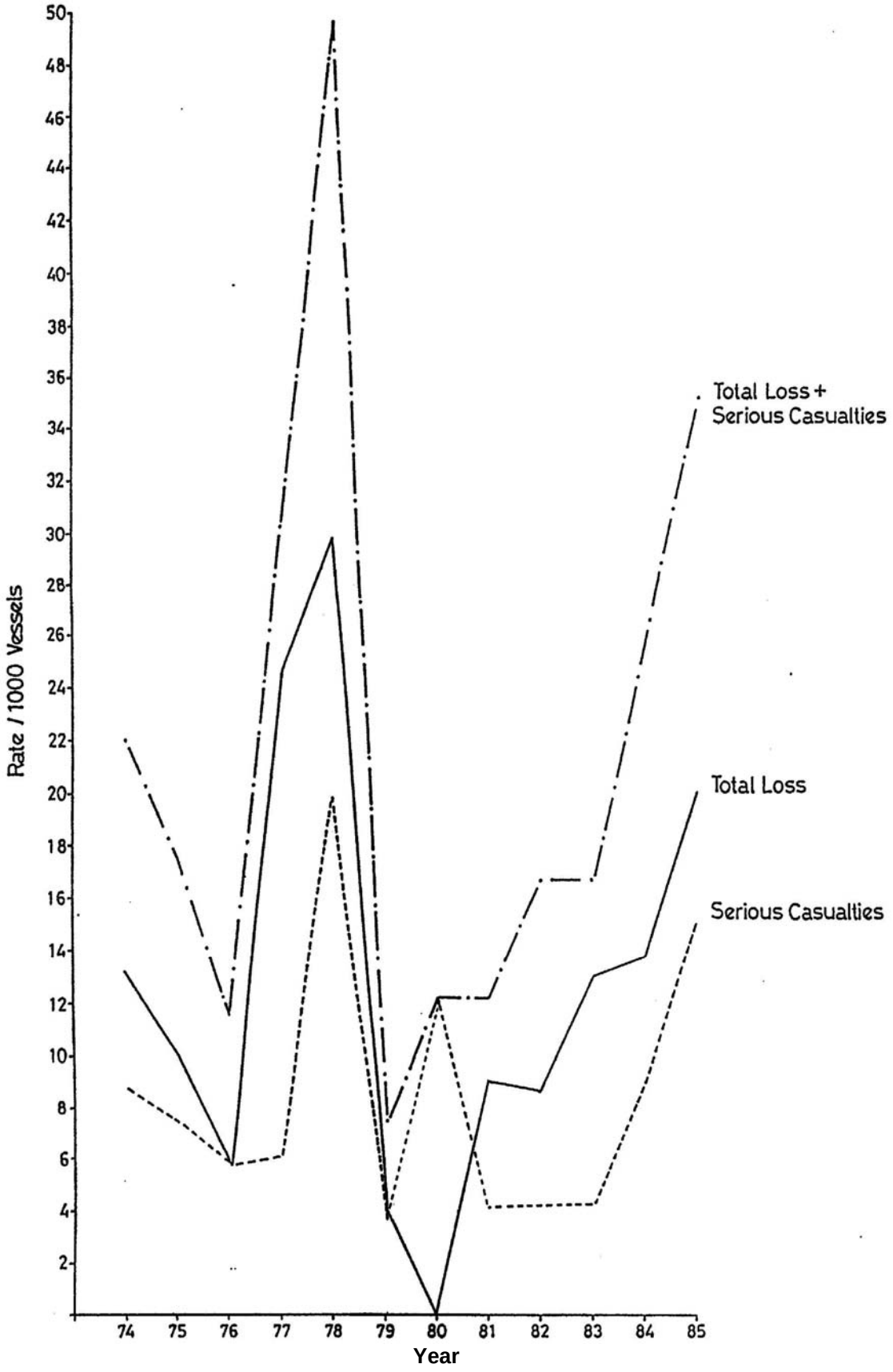
Vessels Over 12 metres

Fig 3



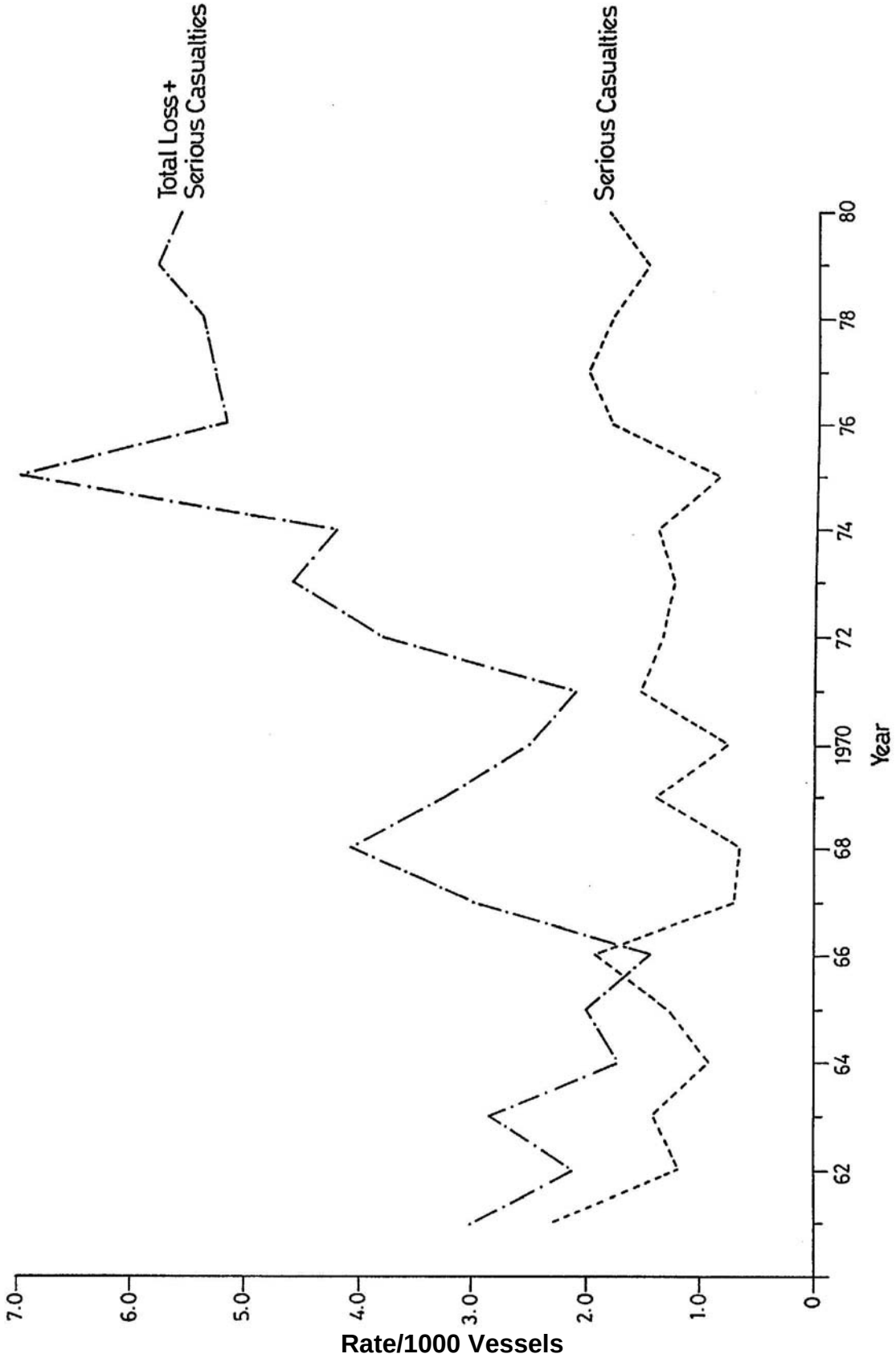
Vessels From 12 to 24 metres

Fig 4



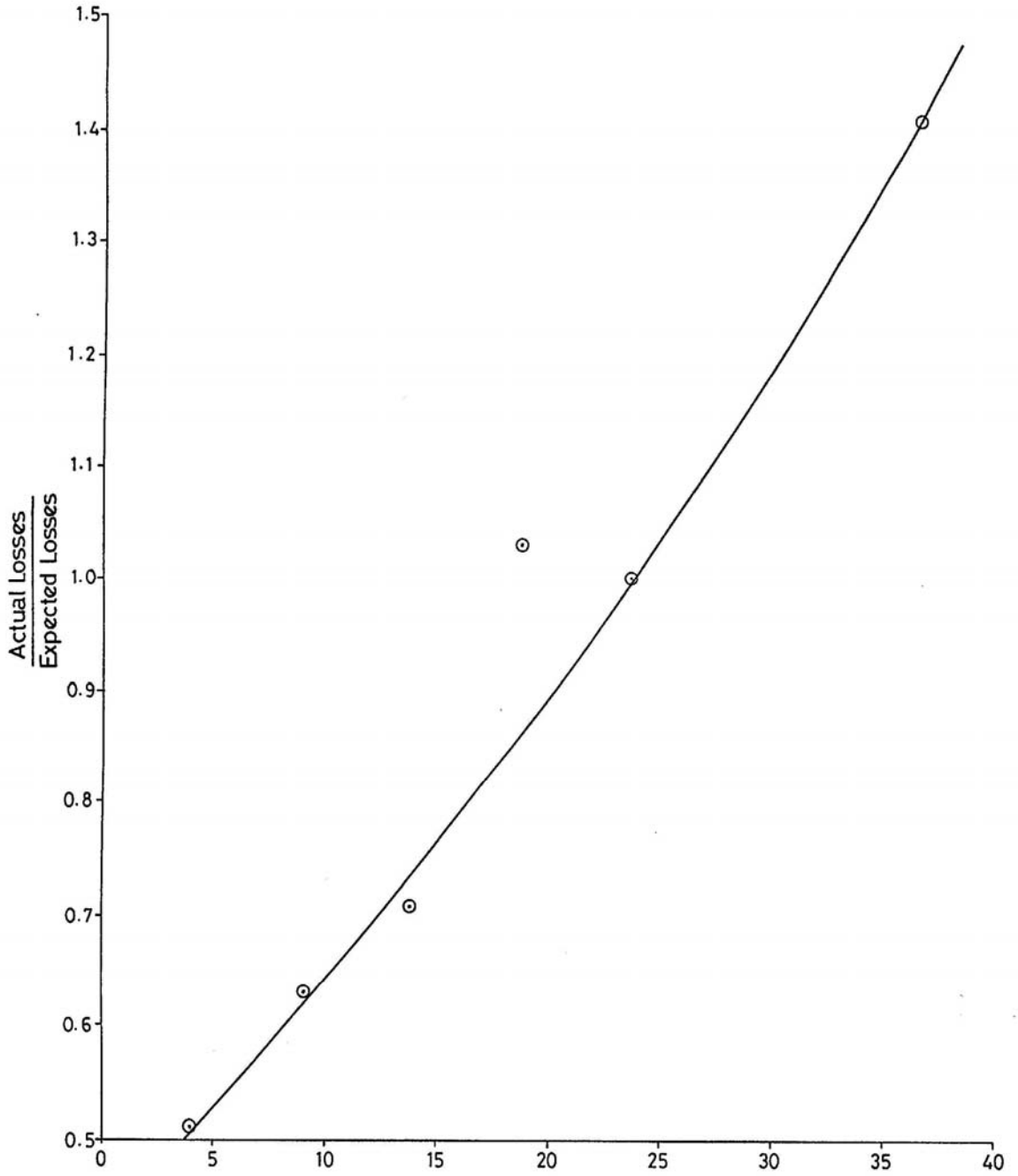
Vessels Over 24 metres

Fig 5



Total Loss and Serious Casualty Rates for 1961/80 All Vessels

Fig 6



Losses Due to Foundering and Flooding: Vessels > 12 metres

Fig 7