CHAPTER 4

ANALYSIS OF SHIP LOSSES

4.1 Introduction

Particulars of world losses of merchant ships consequent upon casualty have been recorded by Lloyd's Register since the end of last century. The proportion of such losses, in relation to the total tonnage owned, has steadily decreased, the casualties are normally recorded under four main headings of "Wrecked" ; "Foundered" ; "Collision" and "Burnt" as determined by the original cause.

The following definitions are applied for the sake of clarify : -

"Total Loss" _____ The term total loss means "Actual Total Loss" and refers to a merchant ship which, as a direct result of being a marine casualty, has ceased to exist, either by virtue of the fact that the ship is irrecoverable or has been subsequently broken up. Ships which have been declared constructive total losses (CTL) but which are undergoing or have undergone repairs do not appear in this paper.

"Tonnage" _____ All tonnage figures given are in gross tons for the purposes of continuity and consistency.

"Wrecked" _____ Includes ships totally loss through stranding or striking rocks, sunken wrecks, submerged objects etc.

"Collision" _____Includes vessels totally lost through collision with another ship.

"Burnt" _____Includes ships destroyed by fire or explosion. Fire resulting from collision or grounding is recorded as a collision or wrecked loss.

"Foundered" _____Includes ships which sank because of the effects of heavy weather, springing of leaks, etc. and not as a consequence of any of the preceding definitions. Also included in the category are vessels posted as " Missing " or " Lost " which, for want of sufficient information, or for other reasons, cannot be classified.

"At risk" _____ In commission.

Cleary [15] obtained the data from Lloyd's Register Register of Shipping casualty records and made the analysis as shown in Fig. (4.1; 4.2; 4.3).

Investigation of the major categories of causes of loss reveals a definite and quite disturbing pattern. Fig. (4.2; 4.3) show the percentage for categories "foundered" and "burnt" have both increased in recent years; "collision" has remained constant and "wrecked" has

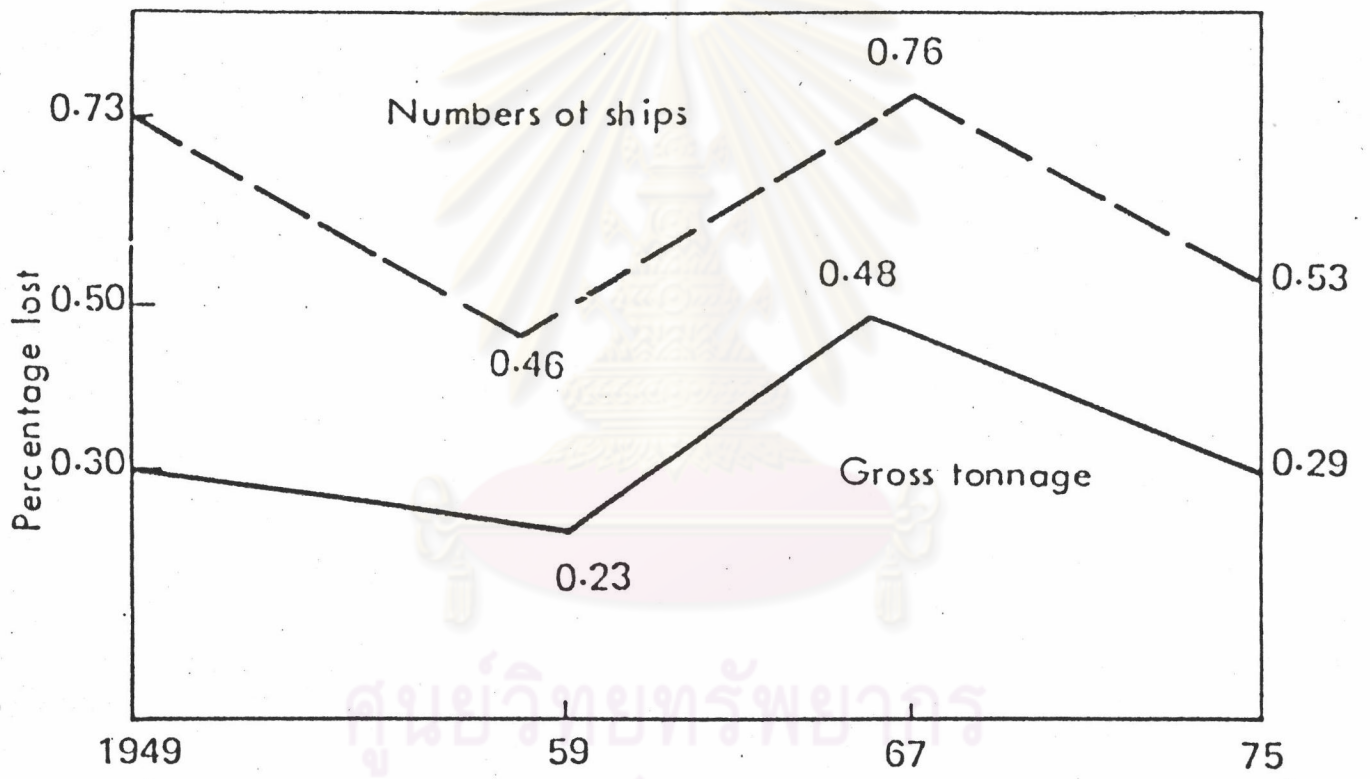

Fig. (4.1) Numbers and Tonnage Lost as a Percentage of Numbers and Tonnage Owned [15]

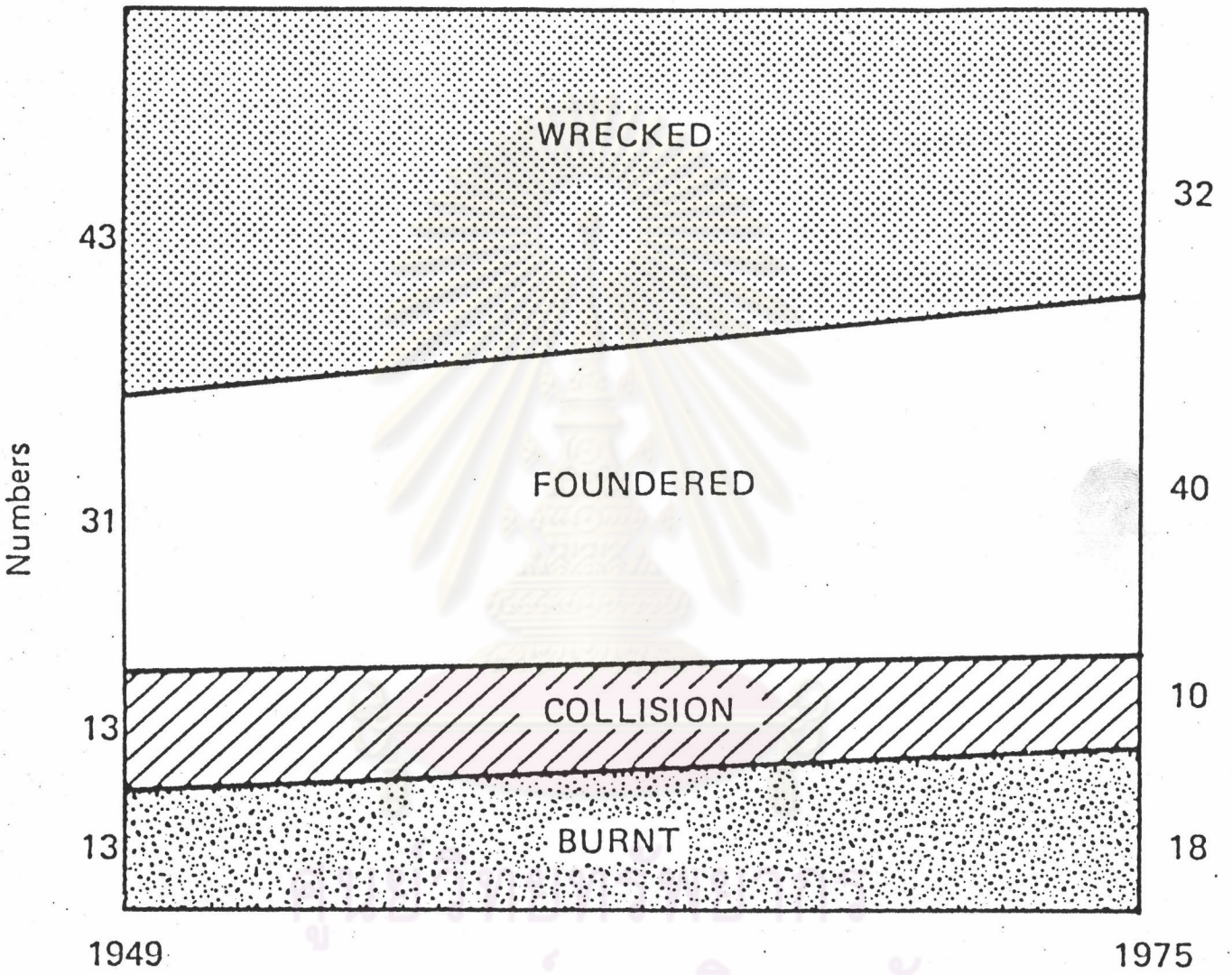

Fig. (4.2) Cause of Loss as a Percentage of all Losses [15] (Numbers of Ships)

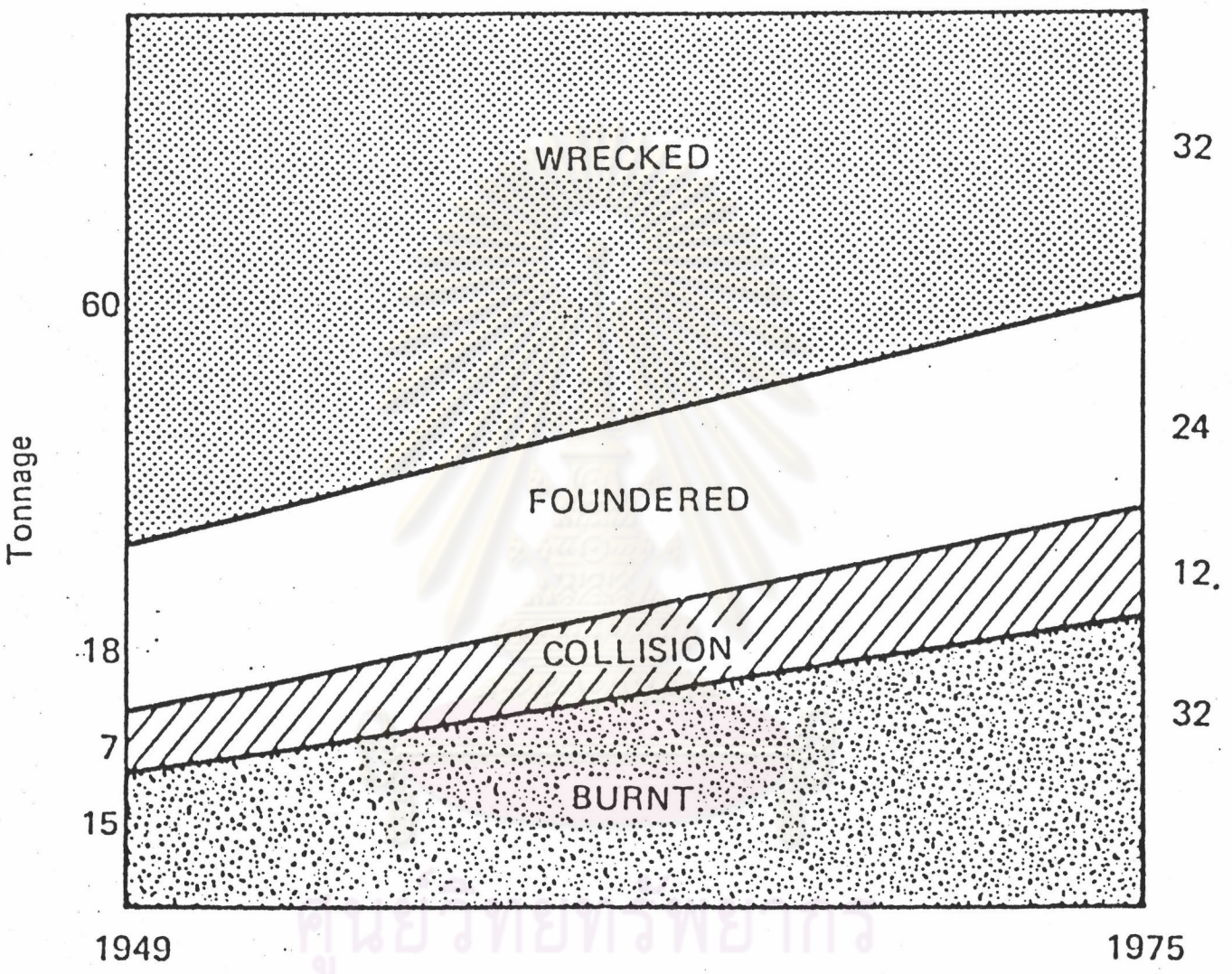

Fig. (4.3) Cause of Loss as a Percentage of all Losses [15] (Gross Tonnage)

decreased appreciably. The information is similar for both number of ships and tonnage.

It should be noted that increasing in the "foundered figures is not easy to establish. Certainly it is clear that during the period 1967 to 1975; 40% of all vessels in number which were totally lost, foundered or were posted missing, the majority were small ships (including fishing vessels) thereby accounting for the sharper rise in number lost than the tonnage. Cleary also showed the geographical areas where the majority of these casualties occurred under review, as reproduce in Table (4.1).

Table (4.1) Geographical Zones with Percentage of Ships Foundered

Zone	Per cent
North Sea, English Channel, UK Coast and Bay of Biscay	23.58
Japanese coastal waters	15.02
Mediterranean	9.65
Grand Bank & USA East coast	6.50
Baltic	5.21
East Indies & Gulf of Tonkin	4.75
South China Sea	4.67
Caribbean	3.85
West African Seaboard	3.62
Pacific Ocean	2.88
North Atlantic Ocean	2.68
South American Pacific Seaboard	2.65
Indian Ocean	2.57
Icelandic Waters	2.41
North American Pacific Seaboard	2.26
South Atlantic Ocean	2.22
Gulf of Mexico	1.67
Australasia	1.60
Others	2.21
Total	100.00

It is important investigate in more detail losses suffered by the smaller ships.* This losses are inclusive of all types of vessel and are compared with those sustained by ships engaged in commercial trade.

It may be considered that the small ship is more more vulnerable because of the nature of its work in close proximity to coasts, its operation in confined waterways and stability in adverse weather conditions, it is necessary to draw attention to the high rate of losses suffered. However, the sharp rise in small ship losses in irrefutable and the following observations are worth to consider : -

(a) Losses of fishing vessels have increased alarmingly with 339 ships foundering and 232 wrecked out of a total of 763. Fire accounted for another 140 vessels and must be a worrying hazard for fishermen the world over. Many of the fishing vessels foundered off the West Coast of North Africa, in the Pacific during typhoon weather and in the bitter Icelandic waters and Grand Banks off Newfoundland.

(b) Losses of coastal cargo ships accounted for 55% of all small ship losses including 615 ships which foundered.

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* For the purpose of the study, ships under 1,000 tons are defined in the category "small ship"

(c) Losses of small tankers was comparatively low at 2-5%

(d) The supply ship is a relatively modern development and 26 have been lost, nine of which sank after striking drilling rigs whilst in attendance during the course of their duties.

Table (4.2) is the summary of loss analysis for small ships by type.

Table (4.2) Analysis of Numbers of Small Ships by Types within Cause of Loss : 1967-1975

Type of Ship	Wrecked	Foundered	Collision	Burnt	Total	Percent
General Cargo	328	615	166	123	1,232	55.40
Tankers	18	16	10	12	56	2.52
Liquefied gas carriers	-	-	1	3	4	0.18
Ferries	11	10	-	3	24	1.08
Tugs & Salvage	24	40	8	9	81	3.64
Supply ships	9	15	1	1	26	1.17
Fishing vessels	232	339	52	140	763	34.31
Other types	11	19	5	3	38	1.70
TOTAL	633	1,054	243	294	2,224	100.00
Percentage	(28.46%)	(47.39%)	(10.93%)	(13.22%)	(100.00%)	

Note : "Other types" of ship included cable ships, draggers, research and survey ships, etc.

In conclusion, it may be said that the fall in the numbers and tonnage lost as a percentage of tonnage owned is due to the enormous volume of new shipping, particularly in the form of large ships. "Wrecked" and "Collision" losses, those which more often involve the human factor, have decreased, perhaps due to improvements in the techniques of usage of navigational aids available. Losses due to foundering and fire show few signs of decreasing. Fire in fishing vessels in service is a serious problem. Enough attention must be paid to small ship losses. Serious readers who want to learn more on this topic are invited to see [11]; [15]; [32]; [33].

It is unfortunately that the author has tried at his best to get statistics of Thai fishing vessel losses but there was no one working in this important aspect. Personnel communication with many boatowners during the past five years reviews that many fishing vessels have been lost at sea in rough weather condition. It should also be emphasized that there has no national regulation concerning stability for Thai flag vessels at all and if there must have any, it should be efficient and simple to be used.

4.2 Fishing vessel losses in view of IMCO

Fishing vessels, particularly in high latitudes such as in North European water, have to operate under rough and adverse weather conditions, away from the normal shipping routes and therefore the business of fishing often becomes especially hazardous both for the fishermen and the vessels. Yet, it is only recently that international requirements on the safety of fishing vessels have been agreed. In 1968 the International Labour Organization (ILO), the Food and Agricultural Organization (FAO) and IMCO adopted an operational safety guide which was supplemented by detailed safety requirements for the construction and equipment of fishing vessels, developed in IMCO, and adopted at a tripartite meeting of the three organisations in 1974. Both documents form the FAO/ILO/IMCO Code for Safety of Fishermen and Fishing Vessels.

As a second step towards enhancing the safety of fishing vessels, IMCO decided to convene a conference in March 1977 for the purpose of adopting an International Convention on this subject. The draft for this convention contains requirements similar to those to be found for cargo ships in the Safety Convention. On the other hand the Sub-Committee on Safety of Fishing Vessels which prepared the draft text took advantage of the latest IMCO recommendations related to cargo ships concerning fire safety and requirements for machinery and electrical

installations including requirements for basic machinery and unattended machinery spaces. The Sub-Committee, when drafting the convention, also broadly included the provisions concerning watertight integrity of the Load Line Convention but no tabulated freeboard for fishing vessels is envisaged. It is believed that if minimum stability requirements are maintained in all operation conditions, adequate freeboard for fishing vessels can be assured together with reasonable safety for men working on deck and from the entry of water into enclosed spaces.

Some problems may arise with vessels at the lower end of the size range concerning stability requirements on the one hand and fire protection on the other, particularly if, in the latter case, such vessels are built of materials other than steel. A number of other requirements such as those for machinery and electrical installations may also not be practicable for small vessels and therefore distinctions are made in the requirements for different sizes of fishing vessels. A general clause for exemptions in particular cases, carefully drafted, was also included in the draft convention to provide the necessary flexibility to permit the practicable design and construction of all types of fishing vessels.

Note that IMCO recommendation on fishing vessels' stability has been summerised in chapter [3].

Rapid advance in technology together with the even present need for industrial efficiency, are leading to the creation of industrial establishments of ever increasing size and complexity. In the marine environment this relates to ships and offshore structures whether fixed or floating. In such circumstances the protection of individuals, the society and the environment from the associated hazards may not be achieved by the traditional safety procedures. New methods must be evolved for the indentification and assessment of risk if such risk is to be eliminated by the provision of improved safety systems. New methods of control must be developed both nationally and internationally which must be more flexible than those identified with restrictive legislation and more suited for dealing with developing and on going situations. It should be noted that a condition of safety exists if the risk is judged to be acceptable and whereas the purist will say there are no degrees of safety, safety itself being absolute and either safe or unsafe.