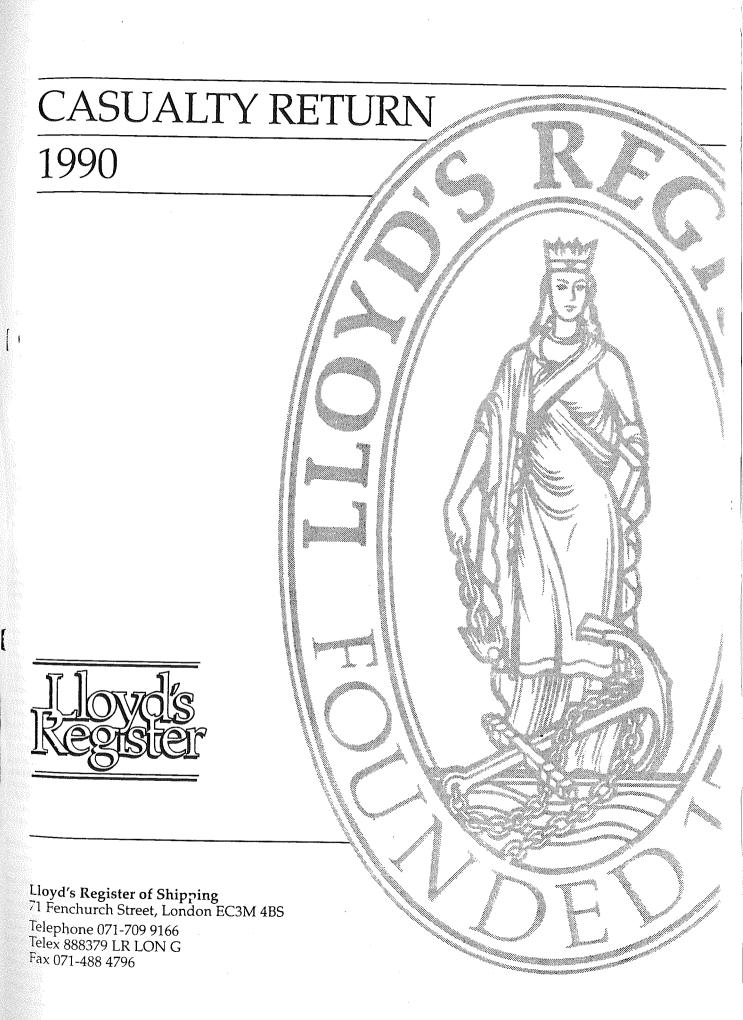
APROXIMACION AL ESTUDIO DEL RIESGO DEL BLEVE Y SUS EFECTOS EN LOS GENERADORES MARINOS DE VAPOR Y LOS TANQUES DE CARGA DE LOS BUQUES LNG-LPG. APLICACION COMPARATIVA DE LAS NORMAS QUE LO REGULAN Y PREVIENEN.

Autor: German de Melo Rodriguez Director: Emilio Eguia López

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ANEXO 2



Summary of Total losses during 1990

The 188 ships reported as losses during 1990 is eleven per cent less than the figure for 1989 (and in fact is the lowest since 1960). In terms of gross tonnage, the 1990 total 1,126,026 is an increase of almost sixty-nine per cent on the previous year's total. Most of this increase can be attributed to missing or foundered bulk or bulk/oil carriers (bulk, ore, bulk/oil, ore/oil carriers), as shown in Table 3.

BROKEN UP, ETC.	701	1,806,599	
TOTAL	188	1,126,026	100.00
Lost, etc.	4	23,098	2.05
Wrecked/Stranded	44	262,720	23.33
Contact	9	71,856	6.38
Collision	21	33,762	3.00
Fire/Explosion	32	162,700	14.45
Missing	6	186,128	16.53
Foundered	72	385,762	34.26
	No.	Tonnage	Lost
		Gross	Tonnage
			% of

(For an analysis of total losses by category 1939-1990 see Table 8).

The largest ship totally lost during year was the Liberian motor ore/oil carrier ALGARROBO (89,178 GT, built 1973) which was declared missing one month after her last reported position on September 18th.

Foundered The number of ships which foundered during 1990 (72) was twenty-nine less than the previous year. Seventy-four per cent of these were fifteen years old or more. Tonnage lost in this category showed an increase of 157,256 to a figure of 385,762 gross tonnage. The largest ship lost in this category was the People's Republic of China flag bulk carrier TAO YUAN HAI (64,920 GT, built 1977) which was abandoned by the crew following heavy weather damage. Pumps failed to prevent the 122,734 deadweight carrier sinking with her cargo of iron ore.

Other notable casualties in this category included the Panamanian registered ore/oil carrier ALEXANDRE P (54,566 GT, built 1967) laden with 88,500 tonnes of iron ore whilst on her maiden voyage for new owners. Following an extensive air and sea search, an oil slick, flotsam and two bodies in a liferaft were all that were found belonging to this twenty-three year old vessel. The Liberian registered bulk carrier ORIENT PIONEER (57,506 GT, built 1971) sprang a leak during heavy weather and was abandoned by her crew. She was also carrying iron ore when she foundered in the Indian Ocean bound for Kaohsiung. Four men were missing following the loss of the South Korean ore carrier AZALEA (44,276 GT, built 1969) which suddenly capsized and sank whilst in tow. This twenty-one year old vessel laden with iron ore had earlier been holed and a salvage team placed on the stricken vessel. These four vessels alone accounted for 215,268 of all tonnage lost in this category.

All nineteen crew of the Greek registered cement carrier FLAG THEOFANO (2,818 GT, 1970) died when their vessel was believed overwhelmed by force 10 winds and heavy seas whilst seeking safe anchorage near the Isle of Wight. Fifteen people died when the Italian roro cargo vessel ESPRESSO TRAPANI (2,719 GT, built 1983) capsized in calm weather off Trapani. The vessel is reported to have sank in less than lifteen minutes.

Missing Six ships were reported as missing during the year. Tonnage in this category totalled 186,126 gross, the highest total recorded in post war years. This high total is accounted for by the loss of two elderly ore/oil carriers both laden with iron ore. The Greek registered PASITHEA (80,225 GT, built 1971) sailed from Kashima in August during typhoon Vernon with a crew of thirty-one. The second carrier, the seventeen year old Liberian flagged ALGARROBO (89,178 GT, built 1973) had a crew of thirty-two when she sailed from Chile with a cargo of iron ore destined for Japan.

Other losses in this category included the Cypriot bulk carrier CHARLIE (10,673 GT, built 1975) which disappeared with her crew of twenty-seven during heavy weather in January. She

was six days out from Montreal bound for Mozambique with a cargo of grain when she last reported. The Panamanian general cargo ship ALPHARD (4,264 GT, built 1972) claimed another twenty-two lives when she went missing on a voyage from China to Bangkok with a cargo of iron billets. One other elderly vessel lost was the Maltese bulk cement carrier SCANTRADER (1,591 GT, built 1964, which sailed from Bilbao for Sharpness in February.

Fire/Explosion Gross tonnage totally lost in this category during 1990 was 162,700, a slight increase over tonnage recorded for 1989. Fourteen of the losses were fishing vessels, seven general cargo ships and six tankers.

The most notable loss was the Norwegian (NIS) registered oil tanker MEGA BORG (68,459 GT, built 1975) which caught fire after a pump room explosion whilst lightering off the Coast of Texas. An estimated 12,000 tons of crude oil spilled, but most was burnt or evaporated in the subsequent fire. The casualty claimed four lives and the burnt-out vessel was towed to Pakistan for demolition.

Another Norwegian registered vessel, the chemical tanker BOW REIDUN (17,641 GT, built 1975) broke in two after an explosion sixty miles South-West of Kaohsuing. The cause of the blast which killed two crew members remains a mystery. Other losses included the Finnish passenger/roro/ferry SALLY ALBATROSS (14,330 GT, built 1980) which caught fire whilst under repair at Stockholm. The vessel was subsequently scrapped down to the lower car deck at Mantyluoto. The hulk was towed to Naantali where machinery and other usable sections will be used in the construction of a replacement vessel

Other losses in this category included the Panamanian tanker CARIBICA (19,460 GT, built 1975) which sprang a leak after an explosion and fire in September and the United States Great Lakes tanker JUPITER (4,263 GT, built 1976) which exploded whilst discharging at Bay City, Michigan. The Italian liquefied gas carrier VAL ROSANDRA (2,999 GT, built 1980) caught fire whilst discharging at Brindisi and was towed out of port and scuttled.

Collision Losses resulting from collision decreased both in number of incidents and tonnage lost. There were twenty-one ships of 33,762 gross tonnage in 1990, compared with twentynine ships of 58,527 gross in 1989.

The largest ship lost was the Panamanian general cargo ship REGENT KAUPAS (5,654 GT, built 1985) which sank after colliding with the container ship OCEAN BLESSING in poor visability. Other notable losses included the Portuguese fishing vessel ILHA DE SAO VICENTE (418 GT, built 1954) which sank following collision with a bulk carrier, again in poor visability. Only ten of the thirty crew survived the incident. The Panamanian liquefied gas carrier BLUE BIRD I (1,750 GT, built 1975) claimed seventeen lives when she collided with the SIN HUA in heavy seas. Thirteen people died when the Tanzanian passenger/general cargo ship MTWARA (639 GT, built 1972) sank after a collision with a tank barge West of Tumbatu Island, Zanzibar.

Contact Nine ships were lost during the year, amounting to 71,856 gross tonnage, more than double the tonnage recorded in 1989. Over ninety per cent of all tonnage lost was accounted for by the loss of the Panamanian builk carrier GALLANT DRAGON (64,967 GT, built 1976) which struck a submerged object off Tubarao. The cargo hold became flooded and 2,000 tonnes of steelwork was required for renewal. It was decided to scuttle the vessel owing to the high cost of repair. All twelve members of the crew of the British registered supply ship VULCAN SERVICE (1,366 GT, built 1975) were rescued following contact with the drilling platform ARCH ROWAN. Little damage was sustained by the platform, but the supply ship sank in the heavy seas.

Wrecked/Stranded The tonnage lost in this category increased to 262,720 gross, the highest tonnage recorded since 1987. As with the other categories, one ship can account for a large percentage of the total. The largest loss in this category occured when the Norwegian (NIS) ore/oil carrier COMBI STAR (84,348 GT, built 1972) stranded at Huasco whilst laden with a

cargo of iron ore. Side shell plating was ripped on both sides of the hull and following part discharge, the vessel was refloated with tug aid. She was subsequently sold, renamed and broken up at Kaohsiung. In July the Vanuatu registered bulk carrier PETINGO (38,999 GT, built 1967) stranded off Durnford Point, South of Richards Bay following heavy weather damage. Another loss, the Liberian flag SILIMNA (32,508 GT, built 1978) sustained a crack in her hull during heavy weather. The twelve year old vessel stranded at Ras Fartak, refloated two months later but foundered under tow.

Lost, etc. Two war losses were recorded for the year. The most significant being the Polish general cargo ship BOLESLAW KRZYWOUSTY (8,146 GT, built 1970) which was struck by missiles and caught fire off Massawa, Ethiopia. The other loss being the KHADIJA II a Moroccan fishing vessel which caught fire after being fired upon by a patrol vessel off Nouadhibou.

The other two vessels in this category both sustained main engine damage whilst on voyage which resulted in the vessels being demolished.

Distribution The geographical distribution of total losses during the year is shown on page 7.

Types The total number of 188 ships lost during 1990 included 8 tankers, gross tonnage 138,209 (12.3 per cent), 15 ore/bulk carriers, gross tonnage 686,715 (61.0 per cent) and 50 fishing vessels. The number of general cargo vessels lost was 87 accounting for 201,864 gross tonnage (17.9 per cent). (For an analysis of losses by type see Table 3).

Size Nearly forty-eight per cent of ships reported lost were under 500 gross tonnage of which twenty per cent were in the

foundered category. Twenty-three vessels with a gross tonnage of 10,000 and above were lost.

Age Seventy-four per cent of all tonnage lost during the was more than fifteen years of age. The youngest ship los during 1990 was the Japanese flag MYOJIN MARU No. 8 II GT, built 1989) which foundered in heavy weather. The old vessel lost was the British Virgin Islands registered sailing vessel EDNA (132 GT, built 1918) which stranded in the Co. Islands.

Lives Lost The number of persons reported killed or miss as a result of total losses during the period 1985–1990 is indicated below. Six ships sustained twenty or more hum, casualties during 1990. Of the 188 total losses, forty-sever incidents recorded some loss of life.

	1990 No.	1989 No.	1988 No.	1987 No.	1986 No
Foundered	149	443	561	523	431
Missing	128	26	29	78	82
Fire/Explosion	40	57	83	29	29
Collision	72	76	63	3,156	448
Contact	0	42	0	0	7
Wrecked/Stranded	0	34	23	34	27
Lost, etc.	0	10	4	21	43
TOTAL LIVES	389	688	763	3,841	1,067

Registration Panama and Japan suffered the highest number of losses with 25 and 18 respectively. Panama also suffered the highest gross tonnage loss with 234,534 (20.8%) followed by Liberia with 180,219 (16.0%) and Norway 171,887 (15.3%) the only countries to lose over 100,000.

Summary of ships Broken up, etc., reported during 1990

Tonnage broken up reported during 1990 decreased by 670,787 to a figure of 1,806,599 gross tonnage and is the lowest total for more than twenty-five years. The number of vessels involved (701) is the lowest recorded since 1975. Comparisons over a period of six years are shown in Tables 6 and 7.

The largest ship broken up during the year was the Panamanian flag ore/oil carrier WALCOTT (69,788 GT, built 1974) which was demolished at Port Alang, India. The oldest ship reported broken up was the Norwegian dry cargo barge GRUSGUBBEN (298 GT, built 1907) which was broken up at Stavanger.

One notable disposal was the scuttling of the Honduras registered SALTON SEA (190 GT, built 1973) which was arrested for drug smuggling and escorted to Ramsgate in September 1988. The vessel was disposed of by the British Royal Navy as a floating target.

Countries sending most tonnage to the breakers during the year were as follows:

	Gross	
	tonnage	No.
Saint Vincent	342,467	44
Panama	190,268	14
U.S.S.R.	187,821	79
United States of		
America	133,319	14
Liberia	120,967	5
Japan	120,396	357
India	64,560	10
Korea (South)	56,103	2
Malta	51,629	4
Cyprus	47,251	5
Honduras	44,472	13
Canada	40,008	7
Romania	37,451	8
Greece	36,414	4

Japan demolished the highest number of ships, mostly is domestic tonnage. Figures for the U.S.S.R. could be mislest owing to the late reporting of disposals from their fleet and habit of flagging out tonnage, particularly to Saint Vincent, to demolition. This is clearly demonstrated by the fact that Wincent registered vessels accounted for almost nineters cent of all tonnage broken up.

India dominated the market as the principal place of dispose with sixty per cent of all tonnage. Bangladesh emerged in second place taking twenty—one vessels (216,717 gross tonnage). Turkey followed in third spot with twenty—six vessels. (101,619 gross tonnage) both some way behind help but the only other countries to demolish more than 100,000 gross tonnage during the year. (For an analysis of demolition by country of disposal see Table 7).

India now appears to be the only destination capable of demolishing the larger units. Breakers are now allowed to purchase directly from sellers, indeed the State of Gujarat now encouraging expansion at Port Alang, near Bhavnagat Republic of China (Taiwan) which has dominated the shipbreaking market for almost twenty years took just one vessel of 2,373 gross tonnage.

Tanker tonnage disposed of (280,410 gross tonnage) amount to 15.5 per cent of the total sold for demolition, compared 26.6 per cent in 1989. The average size of tanker broken up was 3,949 gross tonnage.

The volume of ore/bulk carrier tonnage sold to breakers increased 76,856, or eighteen per cent of the 1989 levels. Twenty-eight ore/bulk carriers were demolished, three me than 1989. Two hundred and sixty-seven general cargo carriers were broken up, thirteen fewer than 1989.

Table 2a Size of Total losses during 1990 (Numbers of ships in divisions of Gross tonnage)

How lost	100 -499	500 -999	1,000 ~1,999	2.000 -3.999	4,000 -5,999	6,000 ~7,999	8,000 -9.999	10,000 -14,999	15,000 -19,999	20.000 -29.999	30,000 8 soods &	101
Foundered	37	7	2	11	5	1	1		2	2	4	7
Missing	1		1		1			1			2	
Fire/Explosion	18	3	1	3	1	1		2	2		1	3
Collision	7	4	6	1	3							2
Contact	4		4								1	
Wrecked/Stranded	22	4	3	2	3	2	3	1		1	3	4.
Lost, etc.	1	, ,		1			1	1				
Total Losses	90	18	17	18	13	4	5	5	4	3	11	18

Size of ships Broken up, etc. during 1990

How last	100 -499	500 -999	1,000 -1,999	2.000 -3.999	4,000 -5,999	6.000 -7,999	8,000 -9,999	10,000 -14,999	15,000 ~19,999	20,000 -29,999	30,000 & above	TOTAL
Broken up, etc.	447	47	32	39	35	13	36	32	8	7	5	70°.

Table 2b Age of Total losses during 1990 (Number of ships in divisions of Age)

How lost	Nat known	0-4 years	5-9 years	10-14 years	15-19 years	20-24 years	25-29 years	30 years & over	TOTAL
Foundered		3	6	6	22	17	6	12	72
Missing					4	1	1		6
Fire/Explosion		1	1	6	9	6	3	6	32
Collision		1	2	4	2	7	2	3	21
Contact		2		4	3				9
Wrecked/Stranded		2	3	7	8	10	5	9	44
Lost, etc.	• •	1			1	2			4
Total Losses		10	12	27	49	43	17	30	188

Age of ships Broken up, etc. during 1990

How lost	Not known	0-4 years	5-9 years	10-14 years	15-19 years	20-24 years	25-29 years	30 years & over	TOTAL
Broken up, etc.		1	3	19	146	255	150	127	701

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Table 3 Analysis by type of st	hip an	of ship and category,	y, of T(of Total losses	es dur	during 1990										•
Type of ship	Foun No.	Foundered Gross Tonnage	Missing No.	ng Gross Tonnage	Fire/Exp No.	ire/Explosion Gross Tonnage	How lost Collision No. To	OSt on Gross Tonnage	Contact No.	tact Gross Tonnage	Wrecked No.	Wrecked/Stranded Gross No. Tonnage	Lost, etc	ite. Gross Tonnage	Tc	Total Gross Tonnaye
Tankers																
under 1,000 GT 1,000–9,999	- :	427	: :	: :	:~	7,635	::	: :	::	::	; - -	5,999	::		 ₩	13,634
10,000-19,999	:	:		:	7	32,230		:	:	•	; -	22.450	:		~-	32,230
ZU,UUU~44,933 50,000-99,999	: :	::	: :		;~	68,459	::	: :	::	: :	- :	£0 ,40 4	::	. ,		68,459
100,000-139,999 140,000 GT and over	: :	: :	: :	: :	::	: :	::	::	::	: :	: :	: :	::	: :	. :	
Total	-	427			2	108,324					2	29,458		:	8	138,209
Ore/Bulk Carriers under 15,000 GT	•	:	-	10,673	:	•	:	:	:	:	-	10,123	:	:	7	20,796
15,000-19,999	۰- ر	15,892	:	:	:	:	:	:	:	:	:	:	:	•	- c	15,892
20,000-23,333 30,000-49,999	1 -(44,276	::	::	::	::	::	::	: :•	: ::	:7	71,505	: :	: :	400	115,781
50,000 GT and over	7 9	721 130	-	10.673					-	64,967		81628			2 2	378 398
	, 	2011		2 (2/2)												
under 50,000 GT 50,000-99,999	:-	54,566	<u>;</u> 8	169,403	: :	: :	: :	: :	: :	::	; 	84,348	::		4	308,317
		1									-	. 04.04.0		-	:	000
lotal	-	54,566	7	169,403							-	84,348			4	308,317
General Cargo under 1,000 GT	22	9,392		197	დ <i>-</i>	2,179	œι¢	4,537	:	:	10	3,355	; -	7 061	46	19,660
5,000-6,999	20	12,563	١:		- :	, ,	20	11,198	: :	: :	· — ·	6,471	- ;	7,30	ស	30,232
7,000~9,999 10,000~12,999	- :	8,911		: :	- :	7,695	: :	: :	: :	: :	4]	34,249		8,146 11,540	<i>د</i> د	59,001 11,540
13,000 GT and over	40	80 193	: 6	6.052	:	12 059	: 12	24 592			. 61	56.321	: 64	22 647	87	201 864
Container Ships			1													
2,000 GT and over	; ; (•	: :	: :	:	: :	: :	: :	: :	: ·	6			•	0
Roll On/Roll Off	m ,	23,900	•	:	: -	666 6	: -	1.750			_	2,307			4 0	26,207
Chemical Tankers		: :		: :			٠;	3 :	: :				• •		· ~	17,641
Fishing (all types)	14	2.786			10	2.189	,	418	4	855	=	2.243	-	451	41	8.942
500-999	-	685	· :	: :		2,818	٠ ;•		· ;•	7	-	652	• :	<u>:</u>		4,155
1,000-1,999 2,000 GT and over	: :	: :		: :	- :	1,200	- :	1,489	- :	1,6/9	:	2,654	• •		w 	4,368 2,654
Tugs	ო	673	•	:	:	:	:	•	-	1,599	-	312	:		ហ	2,584
Supply Ships	:		:	:	:	:	: -	7.630	7	2,756	:	:	:	:	~ ~	2,756
Ferries	: ო	1,402	: :	: :	; m	15,314	- :		: :	: :	: -	1,232	: :	•	- 7	17,948
Passenger Vessels (incl. Pass. cargo) Miscellaneous	; :		: :	: :	; 	156	; 7 4	874	: :	: :	<u>;</u> ω	1.565			9	2.595
TOTAL-ALL TYPES	72	385,762	9	186,128	32.	162,700	21	33,762	6	71,856	44	262,720	4	23.098 1	188 1	1, 126,026

Table 4 Analysis by type and age, of ships Broken up, etc. during 1990

Tankers of the control of the contro	Total To	Gross No. Tonnage No. 55	Gross 908 908 908 908 908 908 908 908 908 908	1,882 1,595 1,595 17,949 31,026 61,932 69,788 69,788	1	2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Š \ \ \ \	Vears 6	1900 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	11.2 36.1 88.9
Fig. 1000 GT Fi	Fer 1,000 GT 1000 GT 1000 GT and over Total 11 268 2 228 8 1999 10 GT and over Total 12 200 GT 13 399 14 4 15 5 6 7 8 9 16 15 15 15 15 15 15 15 15 15 15 15 15 15			1,882 1,595 1,949 31,026 31,026 61,932 69,788 8,281	29,58 1,29,58 1,29,58 2,33,27 2,33,27 40,71 39,72 1,39,72 2,39,72 1,55,53		1,594 7,221 3,667 0,986 3,467 5,255	2 2 2 3 3 4 2 2 3 3 4 5 5 3 3 4 5 5 3 3 4 5 5 4 5 5 5 3 5 6 5 6 5 6 5 6 5 6 5 6 5 6 5 6	300 4 273 1 332 460	1,22 6,15 8,99 4,03
Continue of the continue of	rer 1,000 GT and over Total To			1,882 1,595 3,477 17,949 31,026 61,932 69,788 69,788	7 3,54 6 15,06 6 15,06 7 29,58 8 91,90 2 33,27 40,71 1 39,72 1 55,53		3,667,7221 3,667,00,986 3,467,00,00	3 45 3 74 4 44	300 4 273 1 332 1 460	1,22 6,15 8,99 4,03
Control Cont	000 -13,939 000-13,939			3,477 12,957 17,949 31,026 61,932 69,788 69,788	2 29.58 8 91.90 2 33.27 4 48.19 2 33.27 40.71 39.72 1 55.53 1 55.53		3,46,	1 2 3 4 4 5 7 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	332	8,99
000 CT and over Total Carriers Total Carriers Total Carriers Total Carriers	000-439.999 000-439.999 000-139.999 000-139.999 000-29.999 000-29.999 000-29.999 000-29.999 000-59.999 0000-59.999 0000-59.999 0000-59.999 0000-59.999 000			3,477 12,957 17,949 31,026 61,932 69,788 69,788	29,58 4 48,19 2 33,27 2 40,71 39,72 1 55,53 1 55,53		0,988 3,467 5,253	3 74	460	4,03
ODG OF Table States	000 GT and over Total To			3,477 12,957 17,949 31,026 61,932 69,788 8,281	2 48,19 2 33,27 2 40,71 2 165,89 1 55,53		3,46	3 7		1
Note Color	Total			3,477 12,957 17,949 31,026 61,932 69,788 8,281	4 48,19 8 91,90 2 33,27 2 40,71 1 55,89 1 55,53		3,467	3 7	: :	
Out Carriers Total 1 12,957 2 91,906 5 45,253 4 4,8193 17 15,3467 18 19,3467	Total		7 "	3,477 12,957 17,949 31,026 61,932 69,788 8,281	8 91,90 2 33,27 2 40,71 2 165,89 1 55,53 8 16,94		3,467	3 4 4		
Total Discrete Total Discrete Total Discrete Total Discrete Total Discrete	Univ Carriers Univ Carrier			31 31 69 69 8	8 91,90 2 33,27 2 165,89 1 55,53 8 16,94		5,25%	4	365 7	80,4
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1 310.28 310.28 1 310.28	000 GT and over Total uulk/Dil Carriers for 50,000 GT 300-99,999 1,000 GT and over Total ral Cargo 6,999 300-6,999 300-6,999 300-12,999 300 GT and over Total fied Gas Carriers ical Tankers ig fall types) 1 268 2 228 8 10-1,999 300 GT and over 1 2,000 GT 300 GT and over 2,000 GT 300 GT and over 300 GT 300 GT and over 300 GT 300			15 99 33 33 34 35 35 35 35 35	2 165,89 1 39,72 1 55,53 2 95,25			•	? :	40,71
Total Cargo CT Total Total Total Total Total Total Total Types Total Tot	Total Tulk/Oil Carriers for 50,000 GT 300-99,999 300-4,999 300-12,999			69 68 8	2 165,89 1 39,72 1 55,53 2 95,25 8 16,94			:	,	31,02
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Total	Total ral Cargo fer 1,000 GT 30-4,999 300-9,999 300-12,999 300-12,999 300-12,999 300-1,2999 300-1,2999 300-1,2999 300-1,999		2.	8	2 95,25 8 16 94		: :			76,621
Color Colo	ral Cargo for 1,000 GT for 1,000 GT 00-4,999 00-6,999 000-12,999 000 GT and over for 2,000 GT 00 GT and over bn/Roll Off fied Gas Carriers ical Tankers g (all types) for 500 GT 1		2 .	co ·	16 94					165,
1	100 GT and over Total Total Tankers 101 (1999) 102 (1999) 103 (1999) 104 (1999) 105 (1999) 106 (1999) 107 (1999) 108 (1999) 109 (· : : · : : : : : : : : : : : : : : : :	4.	o ·	1		000	,	270	, 04
10	00-6.999 00-12.999 000-12.999 000 GT and over For a condition of the field Gas Carriers it cal Tankers gg (all types) ler 500 GT 1 268 2 228 8 ler 500 GT 1 268 2 228 8 ler 500 GT 1 368 2 228 8 ler 500 GT 1 4888	2		•	30.24		3,23	75	835 4	124.3
Total According State	100 GT and over Total Inner Ships ler 2,000 GT In 268 2 228 8 In 269 2 00 GT In 3 2 B B B B B B B B B B B B B B B B B B	2 : : :		•	6,45		7,68	70	565 1	61,7
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Total Total Types	Inner Ships ler 2,000 GT ler 2,000 GT 30 GT and over In/Roll Off fied Gas Carriers ical Tankers gig (all types) gig (all types) 1 268 2 228 8 10-1,999 00-1,999 00 GT and over y Ships pers	9)	, , ,			17,	504	17,5
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B Figure	75.266 75.240 75.680 76,100 78.336	73.832 73.864 75.151 76.106 76.068 76.395	63.724 65.887 67.945 69.020 71.129	50.276 52.444 55.041 57.391 59.606 61,194	39.571 40.859 41.865 43.0:4 44.375	33.804 35.202 35.202 36.321 36.311 37.792 38.661	31,226 31,461 31,797 31,798 32,358 32,492 33,052	29,340 30,248 30,852	29,763 ving to wa	No.	Merch
as published Contact' prior	404,910,267 403,498,122 403,406,079 410,480,693 423,627,198	419.910.651 420.834.813 424.741.682 422.590.317 418.682.442 416.268.534	342,162,363 371,999,926 393,678,369 405,001,979 413,021,426	211,660,893 227,489,864 247,202,634 268,340,145 268,340,145 311,322,626	145,863,463 152,999,621 160,391,504 171,129,833 182,099,644 194,152,378	110,246,081 118,033,731 124,935,479 129,769,500 135,915,958 139,979,813	87,245,044 90,180,359 93,351,800 97,421,526 100,568,779 105,200,361	80,291,593 82,570,915 84,583,155	29,763 68.509,432 owing to war, statistics were not compiled for the years 1940-1947	Gross Tonnæge	Merchant fleets
in Annual S to 1981	1986 1987 1988 1988 1989	1980 1981 1982 1983 1984 1985	1975 1976 1977 1977 1978 1979	1969 1970 1971 1971 1972 1973	1963 1964 1956 1956 1966 1968	1957 1958 1959 1960 1961 1961	1951 1952 1953 1954 1955 1956	1945 1946 1947 1948 1949 1950	1939 1940 1941 1942 1943		Year
ww.	99 101 105 101 72	152 120 142 127 131 108	125 111 129 169 164	108 129 140 156	917 917 917	550 8 4 3 64 3 5 6 6 4 3	445 445 445 445 445	29 29 29 49	24 33 30 21 20 26	No	Foundered
*N B Figures as published in Annual Summaries **Including Contact' prior to 1981 WW II Losses not included in total.	182,985 395,217 169,575 228,506 385,762	504.934 243.822 223.459 160.191 212.936 242.234	189,174 165,159 197,424 258,585 336,904	152 102 234 948 180.871 218.819 206,204 121,106	36,343 99,436 114,256 168,964 133,571 146,697	38, 135 79, 125 45, 646 68, 181 65, 155 62, 098	68,306 31,252 49,318 47,380 30,083 59,524	25.896 41.291 23.376 26.204 21.568 25,928	13,699 43,539 31,979 30,425 44,397 39,062	Gross Tonnage	red
cluded in t	V4488	8 O C - 4 C	4 ወ ພ ወ ፋ	7 7 7	7 4 0 4 70 0	1173224	10 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ပေနယ်ဆစင်	21 108 108 194 19	N _O	Missing
otal	10,341 40,994 16,459 12,679 186,128	184,721 24,545 19,950 2,995 15,767 28,570	13.949 54.182 7.969 14.734 17.734	10,637 22,102 1,539 34,445 19,860	21,998 1,983 11,193 1,202 1,202 23,133 10,764	14,384 1,763 1,657 6,295 535 12,372	1,445 11,479 12,056 22,964 4,827 4,422	8,945 1,795 7,631 13,989 4,797 2,399	17,847 161,301 328,382 348,694 260,957 23,736	Gross Tonnage	g
	47 27 31 32 32	55 67 79 58 57	60 57 85 83	55 0 0 55 0 54 0 54 0 54 0 54 0 54 0 54	55 49 55 55 55	114 117 24	18 33 18 13	19 16 27 28 28	22 17 21 16 16	No.	Fire/E
	304,061 95,672 95,529 125,229 150,251 162,700	647, 116 469,222 570, 126 675,076 364,729 276, 126	322, 131 229, 354 477, 409 586, 367 752, 499	266, 498 87, 144 227, 707 304, 086 331, 507 233, 077	69.287 68,920 204,356 256,547 147,039 175,963	56,933 65,608 21,416 74,054 109,749 54,085	41,537 39,202 60,005 35,140 10,249 19,203	83,959 45,833 76,594 33,313 34,537 46,295	88,425 63,295 81,970 41,492 54,964 109,941	Gross Tonnage	Fire/Explosion
	21 24 20 29 21	335 355 355 355	455224 466224	444400 7004470	25 42 23 23	20 23 22 19 23	21 33 34 20	19 17 17 11 14	448 488 488	, No.	Collision
	32, 158 96,031 17,671 58,527 33,762	67,661 123,015 46,543 51,493 65,990 89,481	119,107 53,225 58,041 140,306 507,659	139,846 48,432 83,977 211,241 44,904 137,137	55,711 86,177 38,724 105,199 62,436 61,343	37,839 55,944 49,352 46,544 75,889 25,036	20,564 28,391 61,857 10,093 51,379 57,833	57,683 23,671 17,245 8,138 17,739 14,969	59,550 130,842 103,459 116,526 145,265 107,010	Gross Tonnage	on
	00075		CONTACT No.					307 25	236 1,107 1,069 1,536 1,536 940 695	No	WW II Losses
	31,605 21,341 14,942 32,010 71,858	19,669 7,961 14,074 29,573 13,670	Gross				* *	1,258,379 52,209	912,102 4,332,942 4,167,286 7,841,286 7,841,286 2,701,496 2,701,930	Gross Tonnage	Losses
	4 2 5 4 5 4 6 2 2 2 -	127 100 108 93 69	107 132 112 144 153	107 93 93 121 101 101	116 108 121 120 146 146	73 566 73 72 80 123	106 81 89 84 75	67 88 92 96 94	123 152 110 112 86 91	No.	Wrecked/** Stranc
	528,256 298,209 227,364 151,119 262,720	277.536 232.029 391.930 453.872 360.648 257,429	315,428 600,997 327,360 681,798 514,587	231.175 239.349 439.215 202.982 278.817 352.695	297.503 298.424 367.384 276.139 464.608 358.927	110.795 114.718 1158.023 160.297 235.698 297,082	143,765 136,960 121,884 140,802 145,662 101,403	180,732 207,589 227,056 126,923 146,647 150,423	222,722 328,395 205.695 313.432 225.336 196,601	Gross Tonnage	ked/** Stranded
		32 20 32 30		21 21 82 71	ემ დენ ე დ	17 7 6 6 6 9	1 33752	5752 6752 675 675 675 675 675 675 675 675 675 675	ដួత్తి చెర్	N o	Lost
	1.519.329 336.697 293.430 34.202 23.098	122.059 125.948 371.961 114.910 1.304.298 743.700	35.472 53.192 4.924 29.023 80,876	24,720 2,746 82,688 10,669 23,977 5,783	15,963 3,260 3,891 14,487 2,016 6,753	12.877 30.388 5.429 2.809 4.071 30.425	15.266 2.932 17.102 5.990 12.458 6.150	9.769 7.703 36.521 13.934 18.832 20,012	31.941 6.104 30.501 5.547 6.982 21.016	Gross Tonnage	
	265 219 231 211 188	387 359 402 340 327 327 307	336 345 473	327 352 377 371 363 311	254 249 277 312 337 326	163 160 171 189 249	218 188 226 182 178 163	156 155 200 196 220 220 222	238 371 341 300 247	Z o	TOTAL LOSS
	2.508.735 1.284.161 864.670 667.294 1.126.026	1.804.027 1.238.250 1.631.930 1.472.611 7.753.941 1.651.210	995, 261 1, 156, 109 1, 073, 127 1, 710, 813 2, 210, 259	824.978 612.619 1,030.560 949.336 919.854 869.658	496.805 558.200 739.804 822.538 832.803 760.447	270.963 347.546 281,523 358,180 471,097 481,098	290 883 250 216 322,222 262,369 254 658 248,535	366,984 327,882 388,423 22,501 244,120 260,026	435.566 733.476 781.986 856.116 856.116 737.901 497.366	Gross Tonnage	LOSSES

·							
ANNIE BUTLER	299	DEN	GENERAL DRY CARGO	AAHEIM-HONFLEUR	MAGNESITE '	WRECKED OFF STORDOY AT 2310HRS ON 18/3/89	ws
ANTONIO PASCOAL	1 200	PTG	FISHING	FISHING GROUNDS- AVEIRO	• •	CAUGHT FIRE IN ENGINE ROOM AND SANK N W OF THE AZORES ON 24/6/90	FX
AQUA ENTERPRISE 1980	171	AST	FISHING	• •	••	STRUCK SUBMERGED OBJECT AND SANK 60 MLS S OF HOBART, TASMANIA ON 13/ 3/90.	ст
ARATO MARU 1970	197	JPN	GENERAL DRY CARGO		••	REPORTED MISSING BETWEEN HAMADA. SHIMANE PREF., AND GOTSU, SHIMANE PREF., ON 27/4/90.	MG
ARCOLA 1987	1 390	ITL	TUG/SUPPLY SHIP (O R.S.V.)	• •	CONTAINERS	STRUCK PLATFORM AND SANK IN LAT. 53 16N., LONG. 03 37E., ON 26/6/90 IN POOR VISIBILITY.	СТ
ARTIBONITE 1946	289	HON	GENERAL DRY CARGO	MIAMI, FL	••	REPORTED 11/5/90; FOUNDERED WHILST ON VOYAGE FROM MIAMI, FL., TO HAITI.	FD
ASSABA I 1973	124	MAU	FISHING	LAS PALMAS	••	CAUGHT FIRE AT LAS PALMAS ON 26/6/ 90. TOWED OUT TO SEA AND SANK SAME DAY.	FX
ASUZAN MARU No. 7 1969	789	JPN	GENERAL DRY CARGO	••	• •	REPORTED 3/7/79; FOUNDERED.	FD
ATERPE-ALAI 1975	988	SPN	FISHING	PORT VICTORIA	FISH	DAMAGED BY EXPLOSION AND FIRE IN ENGINE ROOM AT PORT VICTORIA. SEY IN LAT. 04 36S., LONG. 55 28E., ON 18/10/ 90; SUBSEQUENTLY SANK ON 19/10/90.	FX
AVAJ 1975	162 029	IRN	TANKER .	KHARG ISLAND	CRUDE OIL	CAUGHT FIRE AFTER BEING ATTACKED AT KHARG ISLAND ON 19/3/88; SUBSEQUENTLY TAKEN TO DUBAI. LATER TOWED TO ZHONGSHAN FOR BREAKING UP.	ŁΤ
AWDAL	350	IND	FISHING	DUBAI	• •	FOUNDERED 4KM. OFF BOMBAY ON 23/8/89.	FD
· AZALEA 1969	44 276	KRS	ORE CARRIER	NARVIK-BREMERHAVEN	IRON ORE	REPORTED SINKING 21 MLS W. OF UTSIRA IN LAT. 59 23N., LONG. 04 07E., ON 22/3/90 AFTER CRACK IN NO. 1 BALLAST TANK. SUBSEQUENTLY CAPSIZED AND SANK 12 N MLS N.W. OF HAUGESUND WHILST IN TOW.	FD
BARTOLOME II 1986	156	ECU	LAUNCH	GALAPAGOS ISLA	PASSENGERS	BURNT AND SANK OFF SEYMOUR ISLAND, GALAPAGOS ISLANDS ON 26/10/90 AFTER GAS CYLINDER EXPLOSION.	FX
BASSAM B 1963	398	LEB	GENERAL DRY CARGO	SIDON	CONTAINERS	REPORTED 21/8/89: SUNK DURING HOSTILITIES AT SIDON.	LT
BEATRIZ 1965	197	SPN	FISHING	•••	••	REPORTED 31/5/89; LOST.	ХX
BELINDA JO 1956	¸381	DIS	GENERAL DRY CARGO	NYKOBING- SOLVESBORG	••	REPORTED 21/6/90; TOUCHED BOTTOM OFF SOLVESBORG. DRYDOCKED AT SOLVESBORG. TOWED TO GRAASTEN AND BROKEN UP.	ws
BEN NGHE 1965	2 948	VNM	GENERAL DRY CARGO		••	STRANDED OFF FUJIAN PROVINCE, P. R. OF CHINA, 20/10/89.	ws
BENN 1965	346	svc	GENERAL DRY CARGO	PORT OF SPAIN	••	CAUGHT FIRE AT PORT OF SPAIN ON 11/ 4/90 WHILST UNDER REPAIR. TAKEN IN TOW FOR CASTRIES ON 14/1/91. PRESUMED FOUNDERED IN LAT. 11 20N., LONG. 65 00W., AFTER BREAKING TOW ON 17/1/91 IN HEAVY WEATHER	FX
BIRGITTE THOMAS	117	DEN	FISHING	••	• •	REPORTED FOUNDERED.IN LAT. 56 23N., LONG. 07 29E., ON 11/7/89.	FD
BJAL JUNIOR 1965	104	GRN	FISHING		SCALLOPS	EXTENSIVELY DAMAGED BY FIRE OFF NARSSAQ. GREENLAND ON 8/4/90 IN GOOD WEATHER AND BEACHED AT MALENA BAY SUBSEQUENTLY REFLOATED AND TAKEN TO NUUK HARBOUR TO BE SCUTTLED	FX
BLUE BIRD I 1965	1 750	PAN	LIQ GAS CARRIER	BINTULU-PORT KELANG	LIQ. AMMONIA	SANK AFTER COLLISION WITH MV 'SIN HUA' OFF TANJUNG DATU, WEST KALIMANTAN IN LAT 01 50N., LONG. 108 31E., ON 25/9/90 IN HEAVY WEATHER.	CN
BOLESLAW KRZYWOUSTY 1970	8 146	POL	GENERAL DRY CARGO	PORT SUDAN- MASSAWA	CERAMICS & COTTON	STRUCK BY MISSILES AND CAUGHT FIRE 50 MLS OFF MASSAWA ON 3/1/90. SUBSEQUENTLY STRANDED IN LAT. 16 23 30N., LONG. 39 12 12E.	LT
BOQUERON 1968	1 992	PAR	GENERAL DRY CARGO	PORTIMAO- REQUEJADA	TIMBER	STRANDED AND BROKE IN TWO AT CABO QUINTRES ON 25/1/90 AFTER SPRANG LEAK AND CARGO SHIFTED IN HEAVY SEAS.	ws
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TENJIN MARU 1968	197	JPN	GENERAL DRY CARGO	KOMATSUSHIMA, TOKUSHIMA-GOBO. WAKAYAMA P	LOGS	FOUNDERED IN LAT 33 SON LONG 134 SEE ON 10-11 90 IN HEAVY WEATHER
TIEN FU 1970	3 379	PAN	GENERAL DRY CARGO	KAOHSIUNG GUANGDONG	TIMBER & PAPER PRODUCTS	CAPSIZED AND SANK IN LAT 22 17N LONG 114 21E . ON 17 6-90 AFTER DEVELOPING LIST AND TAKING WATER ON 16-6-90 DURING TROPICAL STORM NATHAN
TINDALO 1960	9 174	PHI	GENERAL DRY CARGO	PIRAEUS		STRANDED IN LAT 40 35 54N LONG 12 52 42E . PREVIOUS TO 18/12/85. SUBSEQUENTLY REFLOATED. TAKEN TO ALIAGA. SOLD AND BROKEN UP
TOLEDO 1978	9 999	SNG	GENERAL DRY CARGO	SAINT JOHN, N.B FREDERICIA	POTASH	SPRANG LEAK IN NO 4 HOLD IN LAT 48 51N LONG 14 01W ON 20/2/90 IN HEAVY WEATHER TAKEN IN TOW 21/2/ 90 TOW-LINE PARTED 26/2/90 TOW RECONNECTED 2/3/90 BEACHED AT GERRANS BAY, FALMOUTH, SUBSEQUENTLY REFLOATED SCUTTLED
TRADER 1963	462	PAN	RORO CARGO/FERRY	DOUALA-MALABO	PASSENGERS. CONTAINERS & BEER	CAPSIZED AND SANK OFF DOUALA ON IT. 7/90 IN HEAVY WEATHER
TRAMONTANA 1984	1 174	MEX	FISHING			CAUGHT FIRE AND SANK 460 MILES SW OF MANZANILLO. MEXICO ON 1/12/89
TRIO ACE 1973	9 059	PAN	GENERAL DRY CARGO	AQABA-BOMBAY	MURIATE OF POTASH	STRANDED ON PRONGS REEF, OFF BOMBAY, IN LAT 18 52N LONG, 72 4TE ON 2/5/90 REFLOATED WITH ASSISTAND 9/5/90 AFTER PART CARGO DISCHARGED TOWED INTO PORT SUBSEQUENTLY SOID AND BROKEN UP
TRITON TRADER 1960	3 132	HON	GENERAL DRY CARGO	NEW YORK, NY- ASHDOD	FIBREBOARD	DEVELOPED LIST IN APPROXIMATELY LAT 39 00N . LONG . 60 30W ON 14/12/87 AFTER CARGO SHIFTED IN HEAVY WEATHER. VESSEL TOWED TO SHELBURNE . 1.S. ARRIVED SYDNEY, N.S. SUBSEQUENTLY TOWED TO PORT ALANG SOLD AND BROKEN UP
TURIAMO 1967	488	VEN	GENERAL DRY CARGO	••	PAPER	CAUGHT FIRE IN ENGINE ROOM IN LAT. IS 21N., LONG. 62 54W., ON 16/2/90, VESSEL ABANDONED BY CREW AND PRESUMED TO HAVE FOUNDERED
UNGGULI IV 1957	449	IDA	GENERAL DRY CARGO	••	COFFEE BEANS 423 T	CAPSIZED AND SANK OFF BELAWAN ON 9/4/84 IN HEAVY WEATHER
UNILAXMI 1969	2 924	IND	GENERAL DRY CARGO	BOMBAY-PENANG	SALT 2,000 TONNES	SPRANG LEAK WHILST ANCHORED OFF TUTICORIN 10/11/85 AND SUBSEQUENTI SANK 18/11/85.
VAIHERE 1967	200	FPO	GENERAL DRY CARGO	••	• •	FOUNDERED 45 MILES E. OF PAPEETE, N LAT. 17 28S., LONG. 148 33W., ON 20/1/ 90
VAL ROSANDRA 1980	2 999	ITL	LIQ. GAS CARRIER	BRINDISI	PETROCHEMICALS	CAUGHT FIRE IN WAY OF COMPRESSOR ROOM AND NO. 3 CARGO TANK WHILST DISCHARGING AT BRINDISI 28/4/90. TOWED INTO ROADS AND THENCE TO APPROXIMATELY 31 MILES OFF PORT. SUBSEQUENTLY SCUTTLED.
VIRGEN DE LA PAZ 1968	997	PHI	GENERAL DRY CARGO	MANILA-BUTUAN	GENERAL	SANK AFTER COLLISION WITH RO-RO MY 'NEN JIANG' OFF CORREGIDOR ISLAND. MANILA BAY ON 28/4/90.
VULCAN SERVICE 1975	1 366	GBI	SUPPLY SHIP (O.R.S.V.)	••	CONTAINERS	STRUCK SELF-ELEVATING DRILLING PLATFORM 'ARCH ROWAN' IN LAT. 52 56.22N., LONG. 03 01.57E., ON 25/12/99 HEAVY WEATHER; SUBSEQUENTLY SAMI IN LAT. 53 02.76N., LONG. 03 01.92E, LATER SAME DAY.
WAKAMIYA MARU 1976	699	JPN	GENERAL DRY CARGO	MUTSU, AOMORI PRE- OKAYAMA, OKAYAMA PR	SAND 2,000 TONNES	SANK AFTER COLLISION WITH MV "YAMATO MARU No 8" IN LAT. 33.55%. LONG. 136 32E., ON 13/5/90 IN DENSE FOG
WALTER LEONHARDT 1966	23 570	CYP	BULK CARRIER	TAMPA. FL-ANTWERP	PHOSPHATE ROCK	FOUNDERED IN LAT 34 ISN. LONG 47 17W. ON 18/2/90 AFTER SUSTAINING HULL DAMAGE AND NO 2 HOLD FLOODED
WICKHAM 1972	312	AST	TUG	CAPE LAMB	••	WRECKED ON ROCKS AT CAPE LAMBER WESTERN AUSTRALIA, ON 27/1/90 AFT BREAKING MOORINGS DURING CYCLON TINA
WILCON III 1966	2 185	PHI	GENERAL DRY CARGO	NASIPIT-CEBU	••	CAUGHT FIRE IN ENGINE ROOM WHILST ON VOYAGE FROM NASIPIT TO CEBUOT 25,2/90, SUBSEQUENTLY SANK IN LAT 26N, LONG 125 THE ON 26/2/90
WINTER HAWK 1977	101	USA	FISHING	• •	••	FOUNDERED 150 MILES W OF ST GEOF ISLAND ON 25/11/90 DURING A STORN THE BERING SEA.