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## 1. BACKGROUND

Since 1974, ITOPF has maintained a database of oil spills from tankers, combined carriers and barges. This covers all **ACCIDENTAL** spillages except those resulting from acts of war.

The database contains information on both the spill itself (amount and type of oil spilt, cause and location) and the vessel involved. For historical reasons, spills are generally categorised by size (<7 tonnes, 7-700 tonnes and >700 tonnes) although the actual amount spilt is also recorded. Information is now held on nearly 10,000 incidents, the vast majority of which (84%) fall into the smallest category i.e. <7 tonnes.

Information is gathered from both published sources, such as the shipping press and other specialist publications, and also from vessel owners and their insurers. Not surprisingly, information from published sources generally relates to large spills, often resulting from collisions, groundings, structural damage, fires and explosions, whereas the majority of individual reports relate to small operational spillages. Complete reporting of this latter type of spill is clearly difficult to achieve.

It should be noted that the figures for amount of oil spilt in an incident include all oil lost to the environment, including that which is burnt or remains in a sunken vessel. There is considerable annual variation in both the incidence of oil spills and the amounts of oil lost and so the figures in the following tables, and any averages derived from them should be viewed with caution.

## 2. NUMBERS AND AMOUNTS SPILT

### 2.1. NUMBER OF OIL SPILLS

The incidence of large spills is relatively low and detailed statistical analysis is rarely possible, consequently emphasis is placed on identifying trends. Thus, it is apparent from the table below that the number of large spills (>700 tonnes) has decreased significantly during the last thirty years. The average number of large spills per year during the 1990s was less than a third of that witnessed during the 1970s.

**TABLE 1: NUMBER OF SPILLS OVER 7 TONNES**

Year	7-700 Tonnes	>700 Tonnes
1970	6	29
1971	18	14
1972	48	27
1973	27	32
1974	89	28
1975	95	22
1976	67	26
1977	68	17
1978	58	23
1979	60	34
1980	52	13
1981	54	7
1982	45	4
1983	52	13
1984	25	8
1985	31	8
1986	27	7
1987	27	10
1988	11	10
1989	32	13

Year	7-700 Tonnes	>700 Tonnes
1990	51	14
1991	29	7
1992	31	10
1993	31	11
1994	26	9
1995	20	3
1996	20	3
1997	28	10
1998	25	5
1999	19	6
2000	19	4
2001	16	3
2002	12	3
2003	15	4
2004	16	5
2005	21	3
2006	11	4
2007	10	3

## 2.2. QUANTITIES OF OIL SPILT

The vast majority of spills are small (i.e. less than 7 tonnes) and data on numbers and amounts is incomplete. However in most years it is probable that they make a relatively small contribution to the total quantity of oil spilled into the marine environment as a result of tanker accidents.

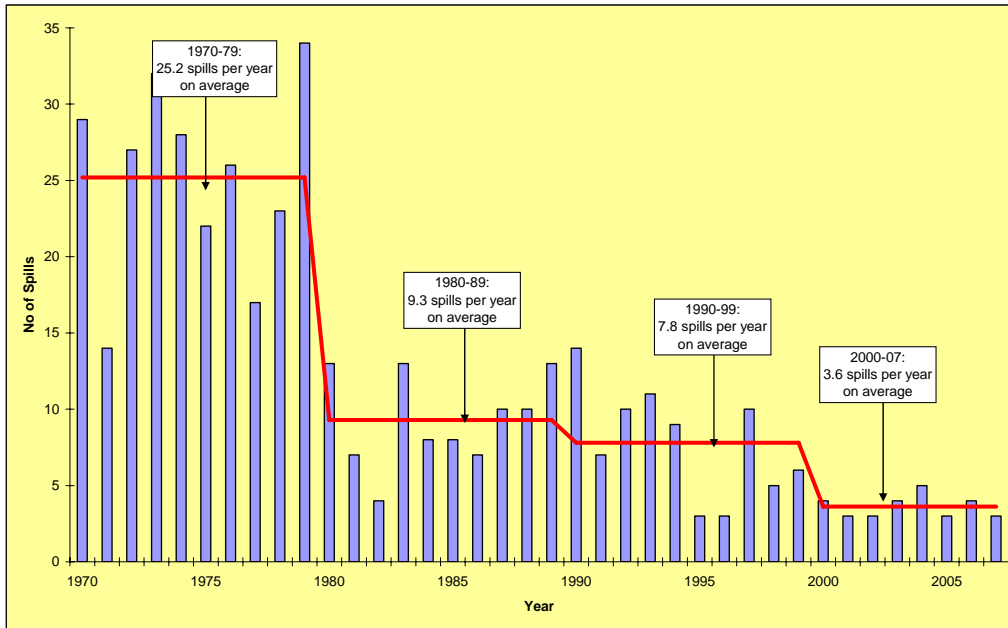
Reliable data on spills 7 tonnes and above is held and the amounts of oil spilt during these incidents have been added to give a series of annual estimates of the total quantity spilled for the years 1970-2007.

**TABLE 2: ANNUAL QUANTITY OF OIL SPILT**

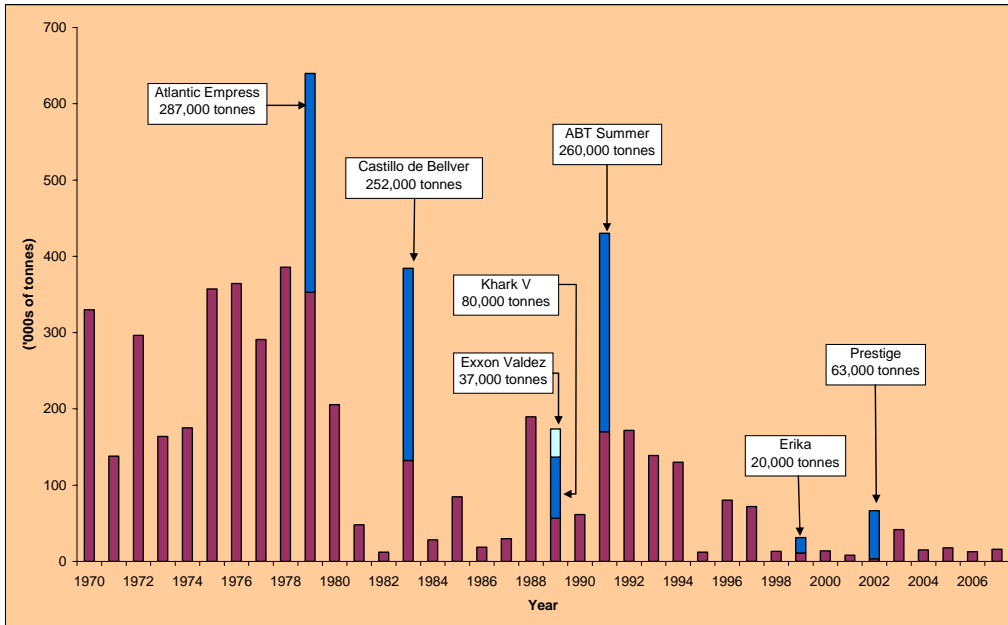
Year	Quantity (tonnes)
1970	330,000
1971	138,000
1972	297,000
1973	164,000
1974	175,000
1975	357,000
1976	364,000
1977	291,000
1978	386,000
1979	640,000
<b>1970s Total</b>	<b>3,142,000</b>
1980	206,000
1981	48,000
1982	12,000
1983	384,000
1984	28,000
1985	85,000
1986	19,000
1987	30,000
1988	190,000
1989	174,000
<b>1980s Total</b>	<b>1,176,000</b>

Year	Quantity (tonnes)
1990	61,000
1991	430,000
1992	172,000
1993	139,000
1994	130,000
1995	12,000
1996	80,000
1997	72,000
1998	13,000
1999	29,000
<b>1990s Total</b>	<b>1,138,000</b>
2000	14,000
2001	8,000
2002	67,000
2003	42,000
2004	15,000
2005	17,000
2006	13,000
2007	16,000

It is notable that a few very large spills are responsible for a high percentage of the oil spilt. For example, in the ten-year period 1990-1999 there were 358 spills over 7 tonnes, totalling 1,138 thousand tonnes, but 830 thousand tonnes (73%) were spilt in just 10 incidents (just under 3%). The figures for a particular year may therefore be severely distorted by a single large incident. This is clearly illustrated by 1979 (*Atlantic Empress* - 287,000 tonnes), 1983 (*Castillo de Bellver* - 252,000 tonnes) and 1991 (*ABT Summer* - 260,000 tonnes).



**FIGURE 1: NUMBERS OF SPILLS OVER 700 TONNES**



**FIGURE 2: QUANTITIES OF OIL SPILT**

### 3. MAJOR OIL SPILLS

The table below gives a brief summary of 20 major oil spills since 1967, and the map overleaf shows where they occurred. A number of these incidents, despite their large size, caused little or no environmental damage as the oil did not impact coastlines, which is why some of the names will be unfamiliar to the general public. The *Exxon Valdez* is included because it is so well known although it is not the twentieth largest spill but rather the 35<sup>th</sup>.

TABLE 3: MAJOR OIL SPILLS SINCE 1967

Position	Shipname	Year	Location	Spill Size (tonnes)
1	<i>Atlantic Empress</i>	1979	Off Tobago, West Indies	287,000
2	<i>ABT Summer</i>	1991	700 nautical miles off Angola	260,000
3	<i>Castillo de Bellver</i>	1983	Off Saldanha Bay, South Africa	252,000
4	<i>Amoco Cadiz</i>	1978	Off Brittany, France	223,000
5	<i>Haven</i>	1991	Genoa, Italy	144,000
6	<i>Odyssey</i>	1988	700 nautical miles off Nova Scotia, Canada	132,000
7	<i>Torrey Canyon</i>	1967	Scilly Isles, UK	119,000
8	<i>Sea Star</i>	1972	Gulf of Oman	115,000
9	<i>Irenes Serenade</i>	1980	Navarino Bay, Greece	100,000
10	<i>Urquiola</i>	1976	La Coruna, Spain	100,000
11	<i>Hawaiian Patriot</i>	1977	300 nautical miles off Honolulu	95,000
12	<i>Independenta</i>	1979	Bosphorus, Turkey	95,000
13	<i>Jakob Maersk</i>	1975	Oporto, Portugal	88,000
14	<i>Braer</i>	1993	Shetland Islands, UK	85,000
15	<i>Khark 5</i>	1989	120 nautical miles off Atlantic coast of Morocco	80,000
16	<i>Aegean Sea</i>	1992	La Coruna, Spain	74,000
17	<i>Sea Empress</i>	1996	Milford Haven, UK	72,000
18	<i>Katina P.</i>	1992	Off Maputo, Mozambique	72,000
19	<i>Nova</i>	1985	Off Kharg Island, Gulf of Iran	70,000
20	<i>Prestige</i>	2002	Off the Spanish coast	63,000
35	<i>Exxon Valdez</i>	1989	Prince William Sound, Alaska, USA	37,000

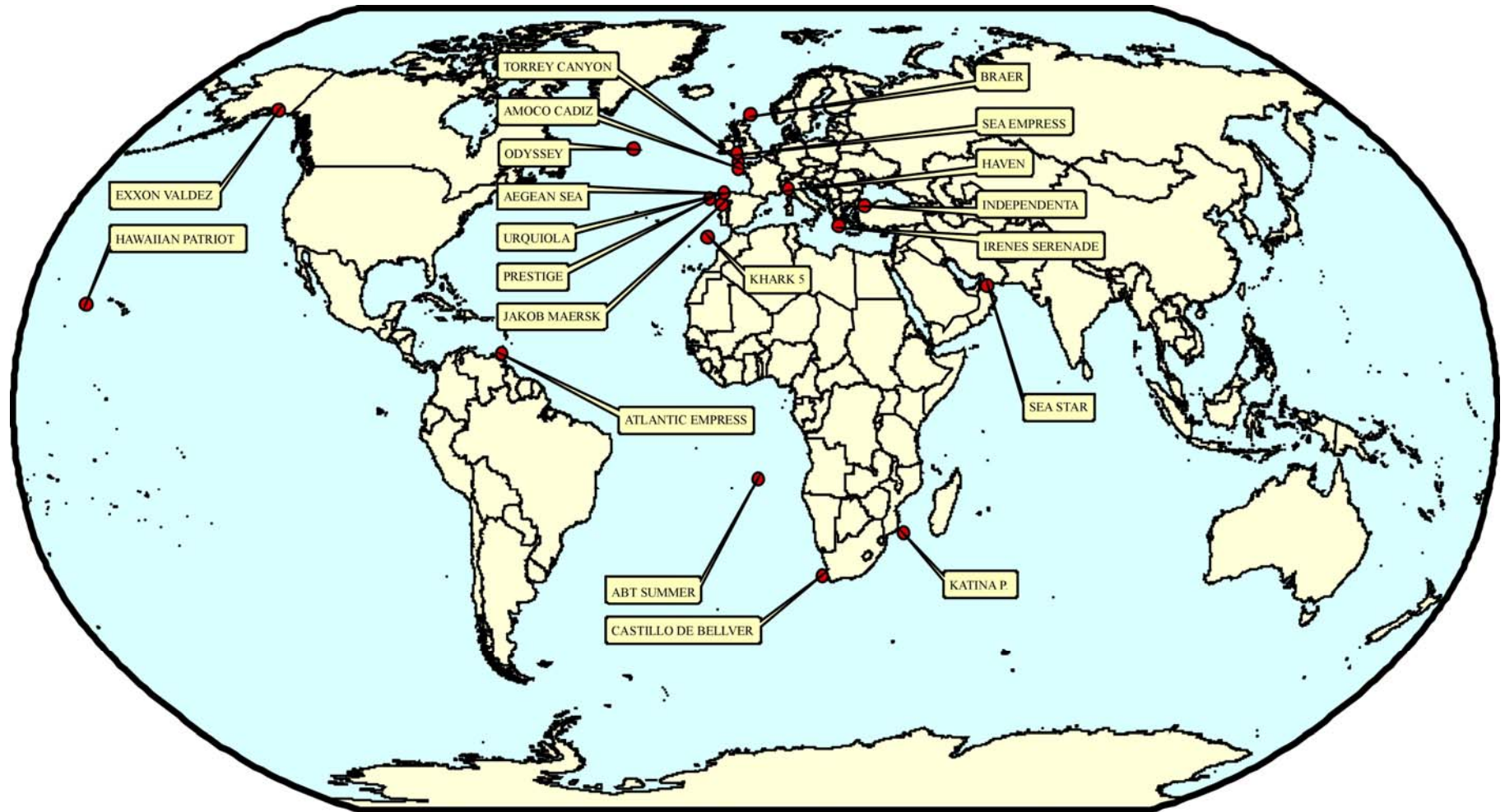


FIGURE 3: LOCATION OF SELECTED SPILLS

## 4. CAUSES OF SPILLS

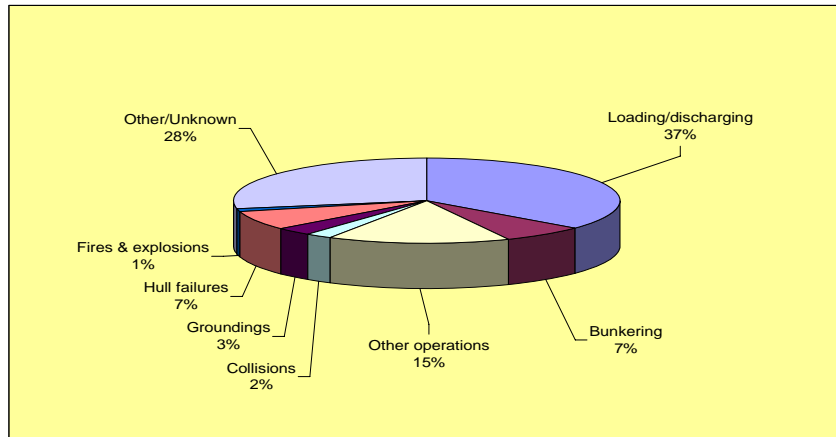
Most incidents are the result of a combination of actions and circumstances, all of which contribute in varying degrees to the final outcome. The following analysis explores the incidence of spills of different sizes in terms of the primary event or operation in progress at the time of the spill. These "causes" have been grouped into "Operations" and "Accidents". Spills for which the relevant information is not available or where the cause was not one of those given are listed under "Other/unknown".

It is apparent from the table that:

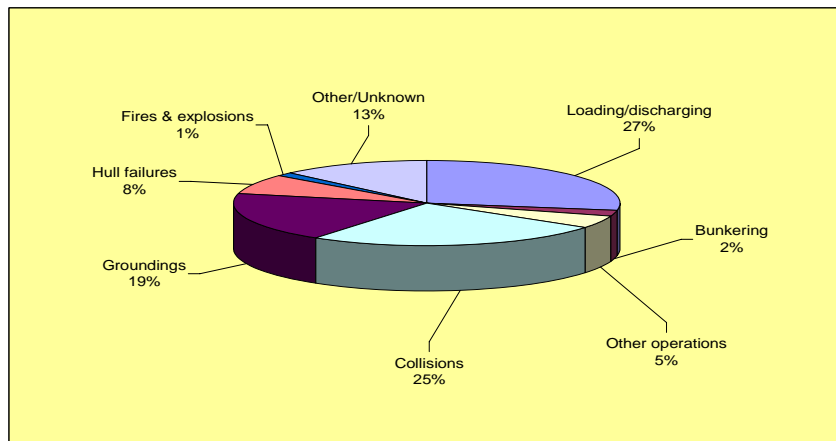
- most spills from tankers result from routine operations such as loading, discharging and bunkering which normally occur in ports or at oil terminals;
- the majority of these operational spills are small, with some 91% involving quantities of less than 7 tonnes;
- accidental causes such as collisions and groundings generally give rise to much larger spills, with at least 84% of incidents involving quantities in excess of 700 tonnes being attributed to such factors.

**TABLE 4: INCIDENCE OF SPILLS BY CAUSE, 1974- 2007**

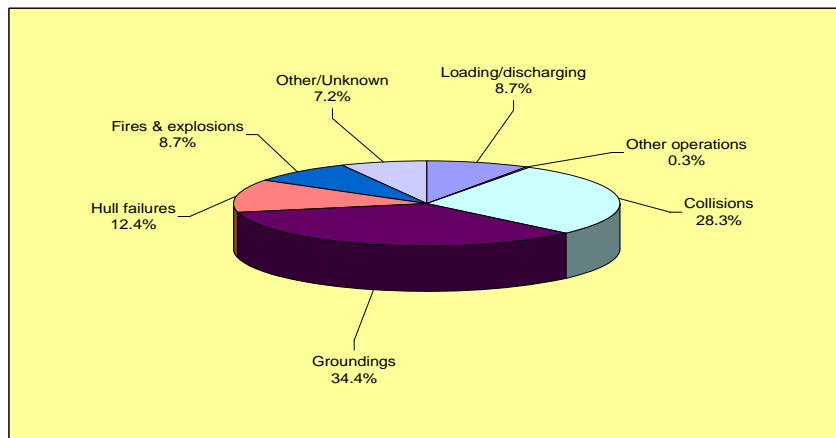
	<7 Tonnes	7-700 Tonnes	>700 Tonnes	Total
<b>OPERATIONS</b>				
Loading / Discharging	2823	333	30	3186
Bunkering	548	26	0	574
Other Operations	1178	56	1	1235
<b>ACCIDENTS</b>				
Collisions	175	300	98	573
Groundings	235	226	119	580
Hull Failures	576	90	43	709
Fire & Explosions	88	15	30	133
Other/Unknown	2186	150	25	2361
<b>TOTAL</b>	<b>7809</b>	<b>1196</b>	<b>346</b>	<b>9351</b>



**FIGURE 4: INCIDENCE OF SPILLS < 7 TONNES BY CAUSE, 1974-2007**



**FIGURE 5: INCIDENCE OF SPILLS 7-700 TONNES BY CAUSE, 1974-2007**



**FIGURE 6: INCIDENCE OF SPILLS > 700 TONNES BY CAUSE, 1974-2007**