



International Group of P&I Clubs

**Pilotage Sub-committee
Report on pilot error related claims over US\$100,000
From 20.02.99 to 20.02.04**

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Summary

The Pilotage sub-committee of the International Group (IG) of P&I clubs agreed in October 2004 to pool information on 'pilot error' related claims over US\$100,000 for policy years 1999 to 2003 to determine whether such claims were increasing in frequency and in cost.

The Pilotage Sub-committee are also liaising with the International Maritime Pilots' Association (IMPA) with regard to pilotage standards and training and especially with regard to the implementation of IMO RESOLUTION A.960(23) RECOMMENDATIONS ON TRAINING AND CERTIFICATION AND ON OPERATIONAL PROCEDURES FOR MARITIME PILOTS OTHER THAN DEEP-SEA PILOTS.

Observations

A total of some 260 claims over US\$100,000 believed to be caused by pilot error were reported.

The overall average number of incident per policy year is 52. Pilot error related claims exceeding US\$100,000 are not increasing in frequency.

The overall average cost of each claim over the five year period is US\$850,000. Pilot error related claims exceeding US\$100,000 are not increasing in average cost.

Fixed and floating incidents

Fixed and floating claims account for some 65% by number and 33% by cost of all incidents. There are on average 37 claims per policy year. The average estimated cost of each claim is about US\$400,000

Recommendation: Better or further training or briefing in bridge team management with the pilot on board especially in relation to passage planning berth to berth and the ability of the bridge team to be in a position to judge when there is a departure from the passage plan when berthing and unberthing. Reiterate the master/pilot information exchange process (see Appendix 1)

Collisions

Collisions account for some 24% by number and 24% by cost of all incidents. There are on average 14 claims per year. The average estimated cost of each claim is about US\$800,000.

Recommendations: Bridge teams must understand their primary duty is to keep a proper lookout as per Rule 5 of the collision regulations and the most sophisticated aid they have is their eyes which must '**look out of the window**'.
Better or further training or briefing in bridge team management with the pilot on board especially in relation to the responsibility for collision avoidance. Reiterate the master/pilot information exchange process (see Appendix 1)

Groundings, pollution, general average and salvage

Groundings, pollution and general average/salvage each account for about 3% of all incidents. Groundings account for 35% by cost of all incidents. There are on average 2 claims in each category each year. The average estimated cost of each grounding incident is about US\$7.85 million. The average estimated cost of each pollution incident is about US\$1.8 million.

Grounding are the most expensive pilot error claim. They are more than four times as expensive as pollution claims and almost 20 times more expensive than FFO claims.

Recommendation: Better or further training or briefing in bridge team management with the pilot on board especially in relation to passage planning berth to berth and the ability of the bridge team to be in a position to judge when there is a departure from the passage plan when berthing and unberthing. Reiterate the master/pilot information exchange process (see Appendix 1)

Introduction

The Pilotage sub-committee of the International Group (IG) of P&I clubs agreed in October 2004 that in order to determine whether 'pilot error' related claims exceeding US\$100,000 were increasing in frequency and in cost it would be necessary to obtain data from all the IG Clubs. It was agreed that the Sub-committee would recommend to the Group Managers that this exercise be undertaken for policy years 1999 to 2003.

The recommendation was accepted and the Clubs were requested to provide information on all claims arising from pilot error in excess of \$100,000 between 20.02.99 – 20.02.04. It was noted that Clubs would need to differentiate between claims arising from an incident where a pilot was merely on board the vessel at the time and claims arising from an incident believed to have been caused by pilot error.

The Pilotage Sub-committee are also liaising with the International Maritime Pilots' Association (IMPA) with regard to pilotage standards and training and especially with regard to the implementation of IMO RESOLUTION A.960(23) Adopted 5 December 2003: RECOMMENDATIONS ON TRAINING AND CERTIFICATION AND ON OPERATIONAL PROCEDURES FOR MARITIME PILOTS OTHER THAN DEEP-SEA PILOTS. (see Appendix 2)

IMPA has informed the sub committee that it's membership consists of pilot associations from 60 countries and that this represents approximately 50% of marine pilots worldwide.

All IG clubs have submitted information to the IG secretariat and this information has been collated into a database which is incorporated in the group repository and forms the basis for this report. Over the five year period some 260 claims were reported.

The sub committee agreed that having established the database it would be sensible to maintain it. Clubs have been requested to inform the secretariat, which is currently maintaining the database, of pilot error incidents from 21.02.04 to the present and thereafter as and when incidents occur.

Observations

Tabular analysis of data

Policy year	Number of incidents reported	Total cost	Average cost per incident	Collisions	Groundings	FFO (fixed and floating objects)	Pollution	Non Contact damage	GA and Salvage	Deaths
1999	37	\$21,929,014	\$592,676	8	2	25	2			
2000	51	\$38,759,486	\$759,990	17	1	35	1		4	Yes
2001	66	\$47,645,478	\$721,901	16	2	39	4	1	1	
2002	55	\$25,871,935	\$470,399	9	1	44	2	1	2	
2003	53	\$89,533,619	\$1,689,314	18	4	40	1		2	Yes
Totals:	262	\$223,739,532	\$853,968	68	10	183	10	2	9	

The information collated in the database to date can be broken down as per the above analysis grid. A total of 262 claims over US\$100,000 believed to be caused by pilot error were reported. Some of the incidents involve both a collision with another ship followed by contact with the quay or equipment (or vice versa) so the incidents per category on the right of the table will exceed the total of 262 incidents reported.

Over the five year period two incidents involved deaths – one a collision that led to deaths of crew members and the other a collapse of a shore crane following contact which resulted in the deaths of shoreworkers. IMPA commented by way of comparison that last year (2005) six pilots lost their lives boarding or disembarking from ships.

The number of incidents shows an upward trend from 1999 (37) through to a 'peak' of 66 in 2001 followed by a levelling off at about 50 incidents a policy year. The overall average number of incident per policy year is 52.

As with number of incidents the annual total cost showed an upward trend from 1999 to 2001 doubling from US\$22 million to US\$47 million. 2002 showed an encouraging drop in total value of reported incidents to US\$26 million. The 2003 figures give the highest average annual cost per incident of US\$1.7 million. The overall total cost is some US\$224 million.

The average cost per claim is within a band of about US\$600,000 to US\$800,000.

Fixed and floating incidents

Fixed and floating claims account for some 65% by number and 33% by cost of all incidents. There are on average 37 claims per policy year. The average estimated cost of each claim is about US\$400,000

Fixed and floating claims suggest a breakdown in bridge team management with the pilot on board especially in relation to the master/pilot information exchange. The continuing trend of pilot error claims could possibly be a symptom of a failure to improve the effectiveness of bridge team management. The introduction of the ISM code has had no apparent significant effect on the trends of both number and costs of incidents.

The data was not sufficiently detailed to establish such factors as how many members of the bridge team were on the bridge at the time of the incident and whether the nationality of the pilot in relation to the nationality of the bridge team created any cultural communication problems. For example the respect for authority overriding the need for all bridge team members to question each other's actions.

From the data it is not possible to determine the nature of the alleged 'pilot error'. If a more detailed analysis were to be conducted it would be interesting to determine whether there were contributory factors such as:

- Excessive approach speed
- Weather conditions
- Tidal conditions
- Equipment or machinery failure
- Tugs – numbers, when taken, broken tow lines (ship or tug's own?), communication

The pilot is only on the bridge in the capacity of an advisor and the Master is responsible for the passage plan from berth to berth¹ which requires him to have planned the berthing and unberthing and to be in a position to question the pilot in relation to handling characteristics, manoeuvring speeds and use of tugs.

It is perhaps worth noting that in Annex 2 of IMO resolution A960 under 5.5 it states:

It should be clearly understood that **any passage plan** is a **basic indication of preferred intention** and both the pilot and the master should be prepared to depart from it when circumstances so dictate.

This implies that the master must be in a position to judge when there is a departure from the passage plan when berthing and unberthing. The minimum requirement might be courses laid down on the chart and/or electronically (GPS, radar and ECDIS) from pilot station to berth and from berth to pilot station so that any departure from the planned track can be checked with the pilot.

¹ SOLAS Chapter V Regulation 34 requires that the master shall, prior to proceeding to sea, plan the passage taking into account the IMO guidelines in resolution A.893 (21) which state in 3.1 that the plan should cover the entire voyage from berth to berth.

Collisions

Collisions account for some 24% by number and 24% by cost of all incidents. There are on average 14 claims per year. The average estimated cost of each claim is about US\$800,000.

The immediate cause of most collisions is a failure to keep a proper lookout as per rule 5 of the collision regulations. This failure invariably leads to a situation where the give way vessel does not take early and substantial action (Rule 16) and the stand on vessel (Rule 17) may not maintain its course and speed.

Failure of the bridge team to understand the relationship with the pilot on the bridge and the need of the OOW or the master to continue to maintain a proper lookout and assess whether risk of collision exists can lead to a situation where collision avoidance becomes the responsibility of a pilot with possibly no certificate of competency and whose main concern is the manoeuvring of the vessel.

Groundings, pollution, general average and salvage

Groundings, pollution and general average/salvage each account for about 3% of all incidents. Groundings account for 35% by cost of all incidents. There are on average 2 claims in each category each year. The average estimated cost of each grounding incident is about US\$7.85 million. The average estimated cost of each pollution incident is about US\$1.8 million.

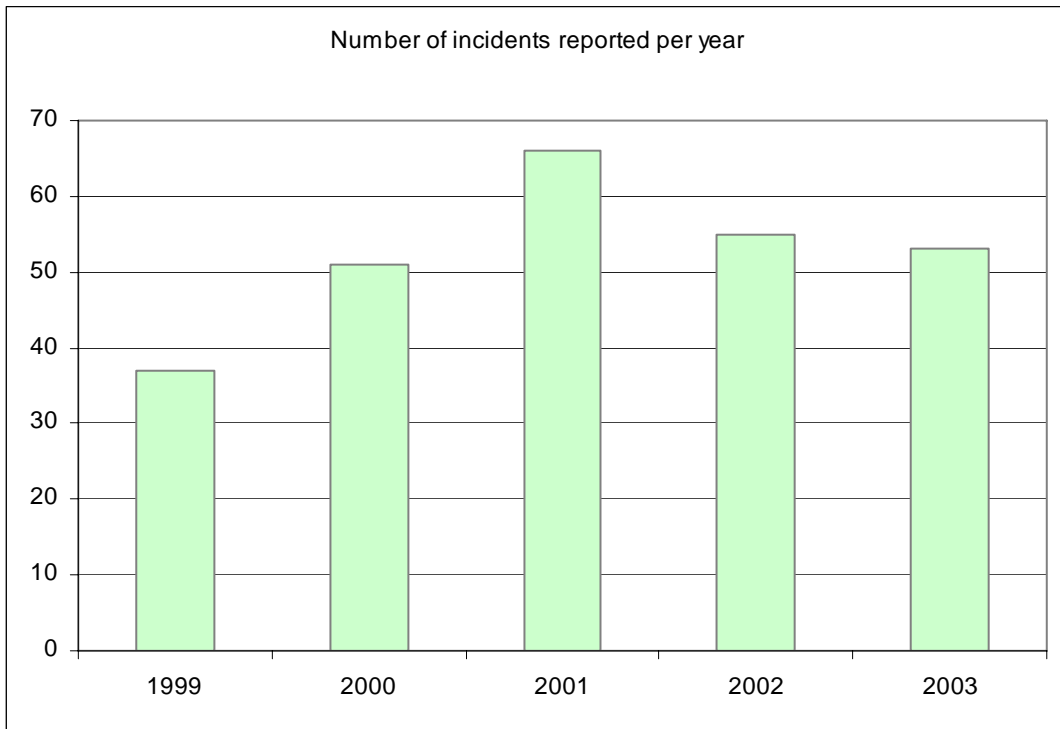
Grounding are the most expensive pilot error claim. They are more than four times as expensive as pollution claims and almost 20 times more expensive than FFO claims.

Grounding claims where pilot error is a factor suggest that as with FFO claims there is a break down in bridge team management with the pilot on board especially in relation to the master/pilot information exchange.

All the observations for FFO on page 6 are again relevant especially in relation to the bridge team and the master being in a position to judge when there is a departure from the passage plan when berthing and unberthing.

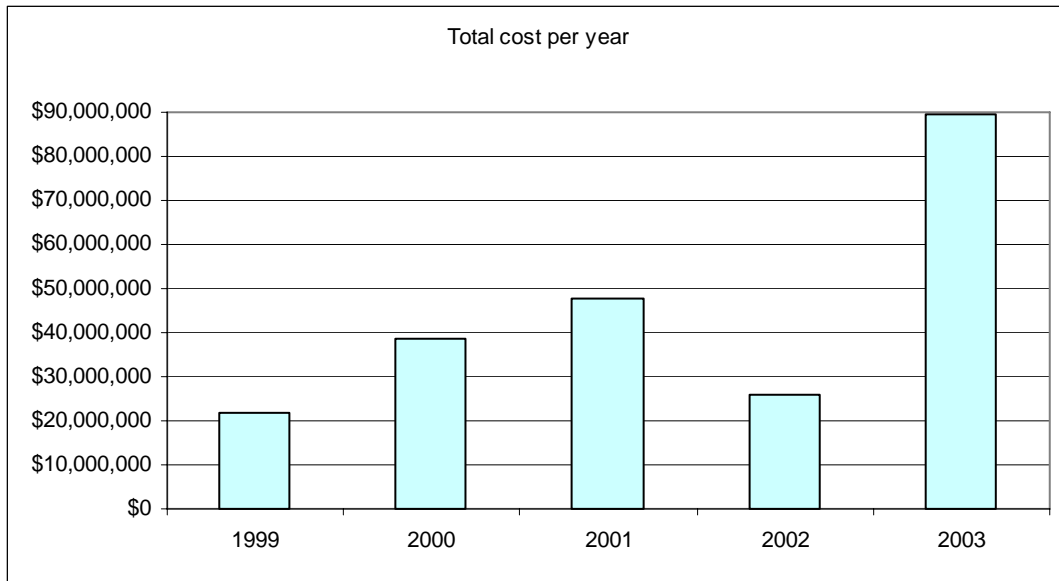
Graphical analysis of data

Number of incidents reported per year



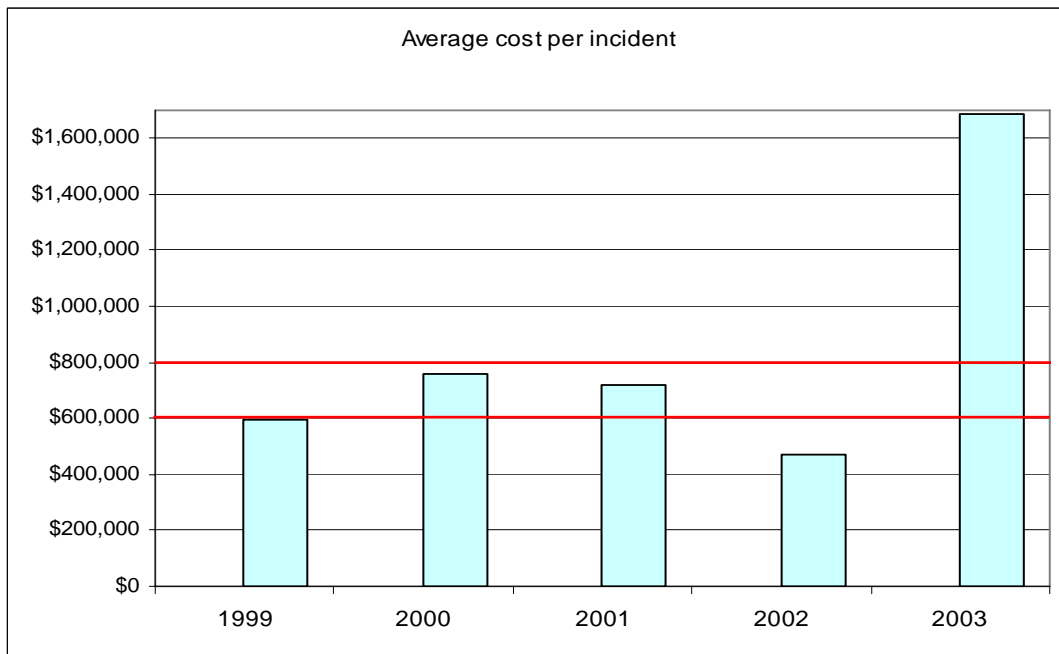
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Total cost per year



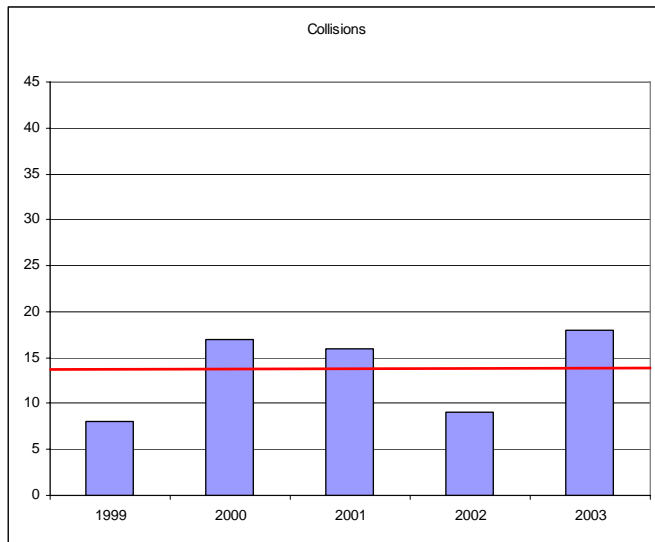
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Average cost per incident



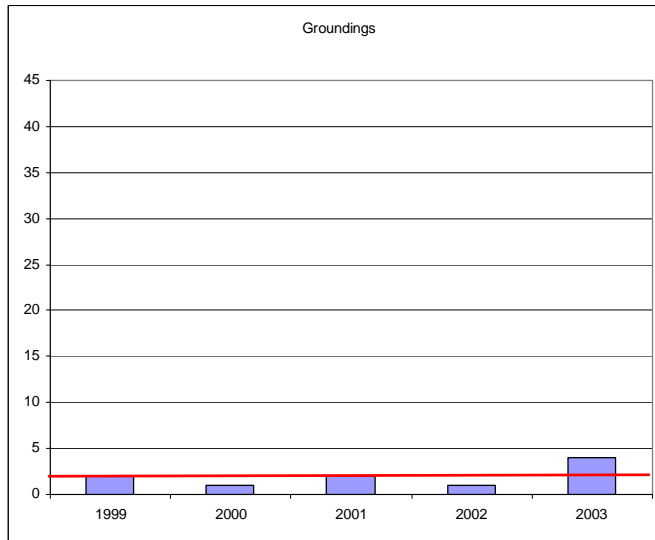
The annual average cost per claim is within a band of about US\$600,000 to US\$800,000. The overall average cost of each claim over the five year period is US\$850,000.

Analysis of number of collisions, grounding and FFO incidents

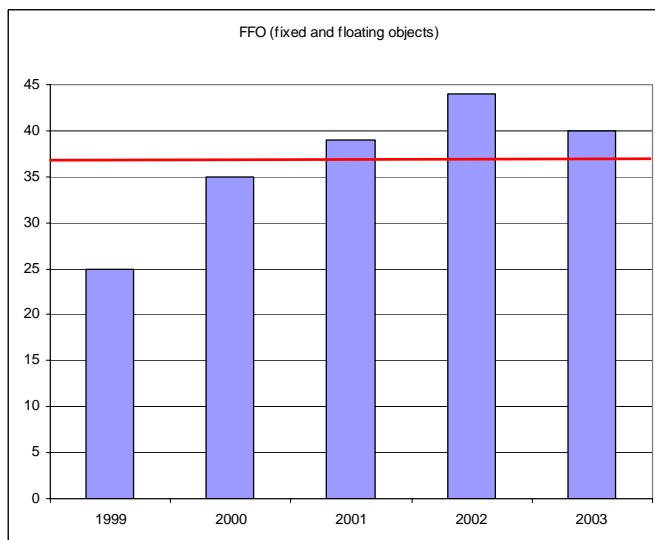


Collisions account for some 24% by number and 24% by cost of all incidents. There are on average 14 claims per year. The average estimated cost of each claim is US\$800,000.

The red lines indicate the average number of incidents over 5 years.

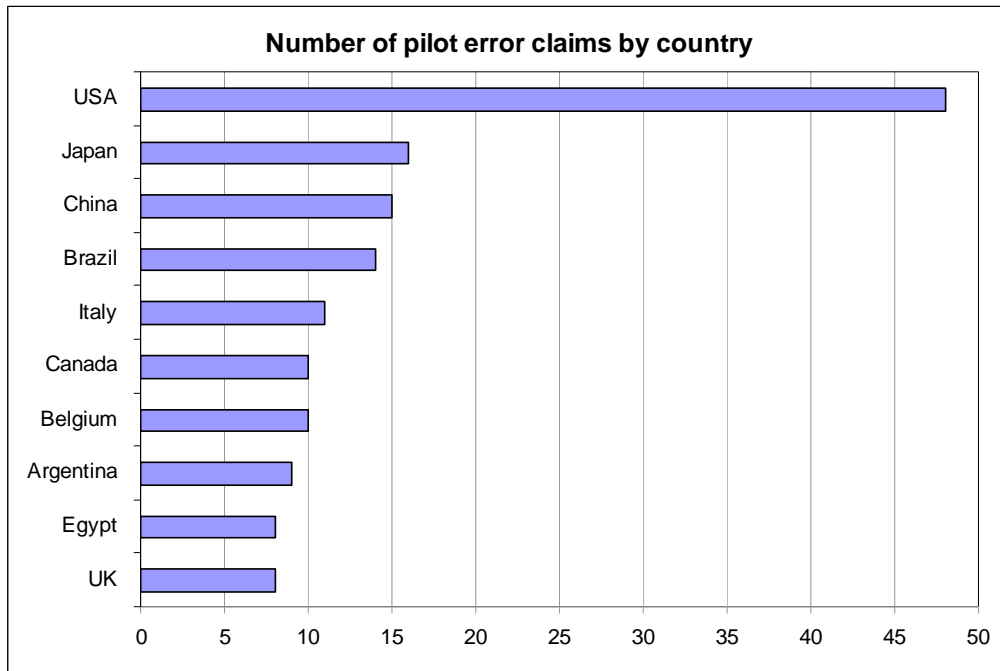


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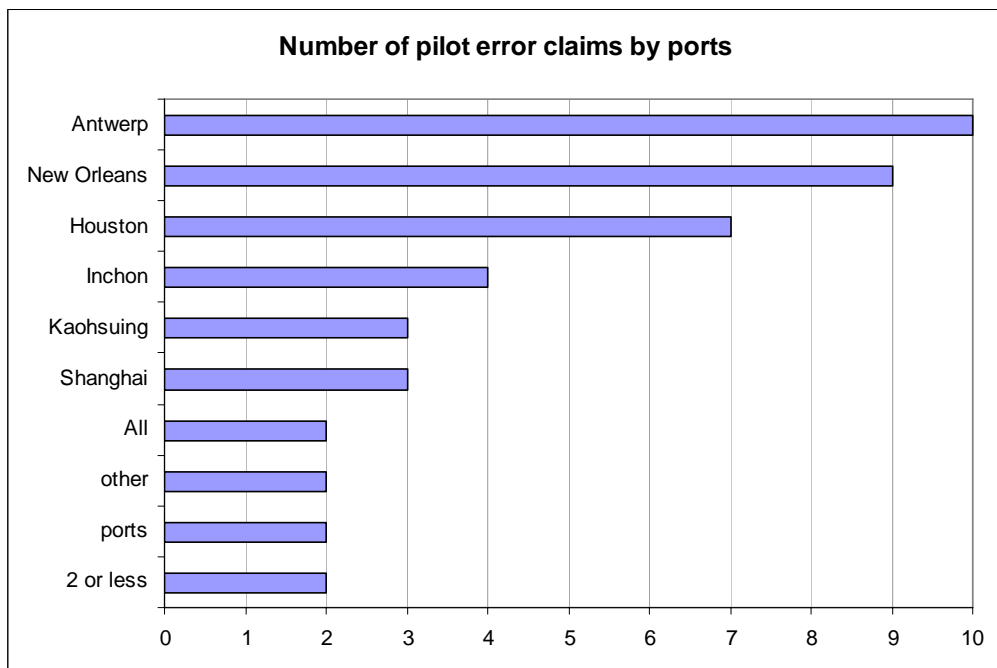


Fixed and floating claims account for some 65% by number and 33% by cost of all incidents. There are on average 37 claims per policy year. The average estimated cost of each claim is about US\$400,000.

Incidents by country and by ports (top ten counts)



These are the 'top ten' countries and ports for pilot error incidents from the IG database information. The rankings represented by the graphs are based on total numbers over the five year period and do not necessarily reflect the highest risk countries and ports because there is no correlation between the IG data and the total number of pilot moves. In other words if the USA has 10 times the number of pilotage acts of the UK then pro rata the risk of a pilot error claim is the same in the USA as it is in the UK.



These graphs were discussed with IMPA and they agreed to provide information on total pilot moves per country from their membership and elsewhere by estimation. The data provided is analysed on page 13.

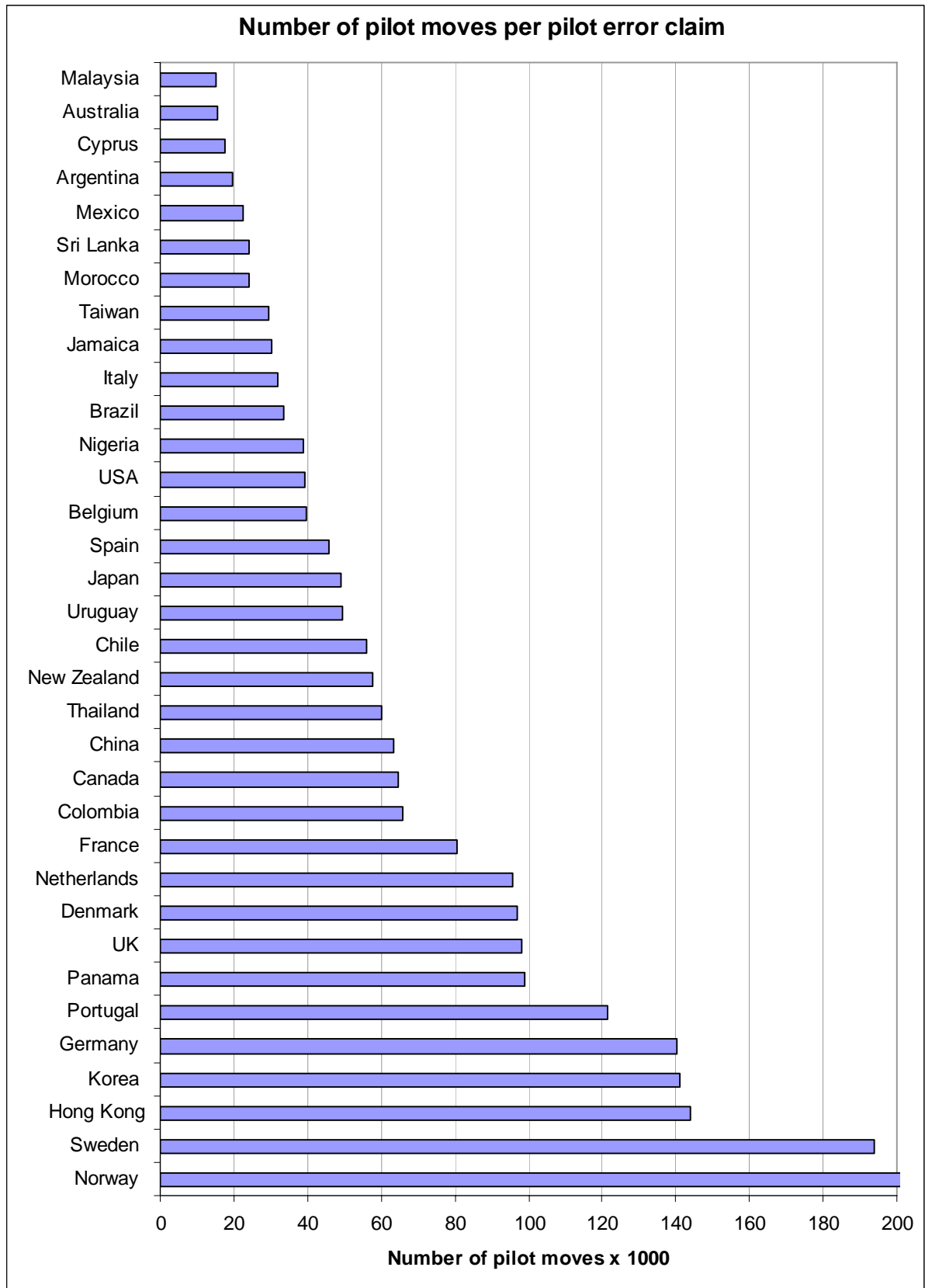
Number of pilot moves per pilot error claim - table

IMPA provided a database in which by country the number of ships handled by a pilot each year has been averaged. Over the period under review the pilot move figures appeared reasonably consistent so the estimating process concentrated on 2004 to provide a 'benchmark' 12 months of total pilot moves. The average number of ships handled by a pilot each year was multiplied by the total membership to account for those pilots that did not respond to the requests for information. In areas where there is no IMPA membership or membership is not complete (USA and Russia for example) the total number of pilots employed has been multiplied by estimated total average pilot moves per pilot. The IMPA data appears in the table below.

Country	IG - Number of incidents over 5 years	IMPA - Number of pilot moves per year	Number of pilot moves over 5 years	Number of pilot moves per error
Malaysia	4	12160	60800	15200
Australia	7	21760	108800	15543
Cyprus	1	3520	17600	17600
Argentina	9	35520	177600	19733
Mexico	1	4480	22400	22400
Morocco	1	4800	24000	24000
Sri Lanka	1	4800	24000	24000
Taiwan	4	23680	118400	29600
Jamaica	1	6080	30400	30400
Italy	11	70400	352000	32000
Brazil	14	93440	467200	33371
Nigeria	3	23360	116800	38933
USA	48	377600	1888000	39333
Belgium	10	79630	398150	39815
Spain	7	64000	320000	45714
Japan	16	157066	785330	49083
Uruguay	1	9920	49600	49600
Chile	3	33541	167705	55902
New Zealand	1	11520	57600	57600
Thailand	2	24000	120000	60000
China	15	190000	950000	63333
Canada	10	129600	648000	64800
Colombia	1	13210	66050	66050
France	6	96864	484320	80720
Netherlands	7	134080	670400	95771
Denmark	1	19423	97115	97115
UK	8	156800	784000	98000
Panama	4	79040	395200	98800
Portugal	1	24320	121600	121600
Germany	6	168412	842060	140343
Korea	4	113025	565125	141281
Hong Kong	1	28800	144000	144000
Sweden	1	38756	193780	193780
Norway	1	43102	215510	215510

In theory the countries at the top of the list seem to pose the highest risk of a pilot error related claim – the risk ranges from one claim per 15,000 pilot moves at the top of the list to one claim per 200,000 moves at the bottom of the list. (See page 15 for countries where pilot move data was not available).

Number of pilot moves per pilot error claim - graph



In theory the countries at the top of the graph seem to pose the highest risk of a pilot error related claim – the risk ranges from one claim per 15,000 pilot moves at the top of the list to one claim per 200,000 moves at the bottom of the list. (See page 15 for countries where pilot move data was not available).

Complete data table

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Uruguay	1	9920	49600	49600
Chile	3	33541	167705	55902
New Zealand	1	11520	57600	57600
Thailand	2	24000	120000	60000
China	15	190000	950000	63333
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Denmark	1	19423	97115	97115
UK	8	156800	784000	98000
Panama	4	79040	395200	98800
Portugal	1	24320	121600	121600
Germany	6	168412	842060	140343
Korea	4	113025	565125	141281
Hong Kong	1	28800	144000	144000
Sweden	1	38756	193780	193780
Norway	1	43102	215510	215510
Egypt	8			
Indonesia	7			
India	5			
Saudi Arabia	5			
Venezuela	5			
Turkey	4			
Vietnam	4			
Kuwait	3			
Ukraine	3			
Cameroon	2			
Ghana	2			
Iran	2			
Israel	2			
Kenya	2			
Libya	2			
Russia	2			
Singapore	2			
South Korea	2			
Algeria	1			
Bahamas	1			
Bangladesh	1			
Benin	1			
Bolivia	1			
Costa Rica	1			
Falklands Islands	1			
Finland	1			
Georgia	1			
Jordan	1			
Lebanon	1			
Mozambique	1			
North Korea	1			
Pakistan	1			
Paraguay	1			
Qatar	1			
Syria	1			
Tunisia	1			
UAE	1			
Yemen	1			

Appendix 1: IG circular- exchange of information between master and pilot

CIRCULAR 33

DECEMBER 1998 EXCHANGE OF INFORMATION BETWEEN MASTER AND PILOT (MPX)

The International Group of P&I Associations, in conjunction with Intertanko, Bimco, the International Maritime Pilots Association, the International Chamber of Shipping, ISMA and others, has been involved in an Inter-Industry Group under the aegis of the Maritime Safety Committee (MSC) of IMO which has been considering the exchange of information between Master and Pilot.

The purpose of the exchange is to ensure that both the boarding Pilot and the vessel's bridge team exchange basic information prior to the Pilot boarding the vessel.

Two MPX forms have been developed by the above organisations and are attached herewith*. The "Ship to Shore" form* is designed to provide the Pilot with practical information about the vessel, its status and performance, and its pertinent equipment. The "Shore to Ship" form* provides the ship with information about the intended pilotage passage. The forms are not intended to diminish the obligations of the Master and Pilot to exchange information following the actual boarding of the Pilot.

The forms have been submitted to the MSC of IMO who have formally taken note of the recommendation that they be used on a voluntary basis.

Members are recommended to use the forms and to report to the Association any cases where Pilotage Authorities decline to co-operate.

** Available from the Association*

[International Group Circular]

SHIP TO SHORE MASTER/PILOT EXCHANGE

SHIP IDENTITY

Name Call sign Flag
Ship's Agent Year built IMO No
Cargo type Ship type Last port

ADDITIONAL COMMUNICATION INFORMATION

Fax Telex Other

PILOT BOARDING

Date/ETA (UTC/LT) Freeboard

Boarding station (if there is more than one)

SHIP PARTICULARS

Draught fwd Draught aft Draught amidships (salt water)
Air draught Length Beam
Displacement Dwt Gross Net

ANCHORS

Port anchor Stbd anchor (length of cable available)

MANOEUVRING DETAILS AT CURRENT CONDITION

Full speed Half speed
Slow speed Min steering speed
Propeller direction of turn left / right Controllable pitch yes / no
Number of propellers Number of fwd thrusters Number of aft thrusters

MAIN ENGINE DETAILS

Type of engine motor / turbine / other
Max number of engine starts Time from full ahead to full astern

EQUIPMENT DEFECTS RELEVANT TO SAFE NAVIGATION

OTHER IMPORTANT DETAILS e.g. berthing restrictions, manoeuvring peculiarities

--

SHORE TO SHIP PILOT/MASTER EXCHANGE

SHIP REQUESTING PILOTAGE DETAILS

Ship Name Call sign

ORIGINATING AUTHORITY

Contact name VHF channel

Other means of contact

PILOT BOARDING INSTRUCTIONS

Date/arrival time at pilot boarding station (UTC/LT)

Position pilot will board

Embarkation side port / starboard / TBA Approach course and speed

Requested boarding arrangement

BERTH & TUG DETAILS

Intended berth and berthing prospects

Side alongside port / starboard Estimated transit time to berth

Tug rendezvous position Number of tugs

Tug arrangement Total bollard pull

LOCAL WEATHER AND SEA CONDITIONS at the pilot boarding station on arrival

Tidal information (heights / times)

Expected currents

Forecast weather

DETAILS OF THE PASSAGE PLAN including abort points / emergency plans

--

REGULATIONS including VTS reporting, anchor / lookout attendance, max allowable draught

--

OTHER IMPORTANT DETAILS including navigation hazards, ship movements

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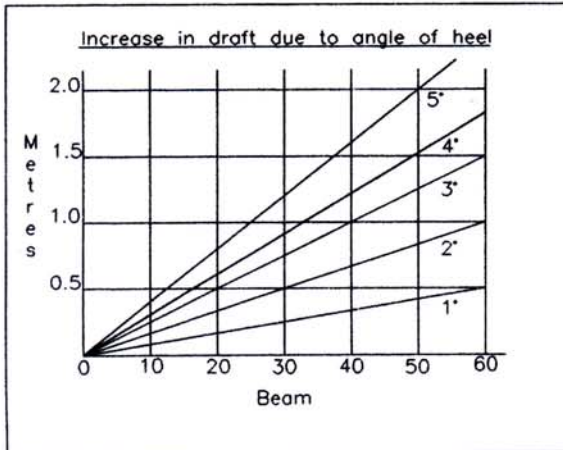
TEESBAY PILOT SERVICE

PHILLIPS- PORT ENTRY/DEPARTURE PLAN

Remarks:

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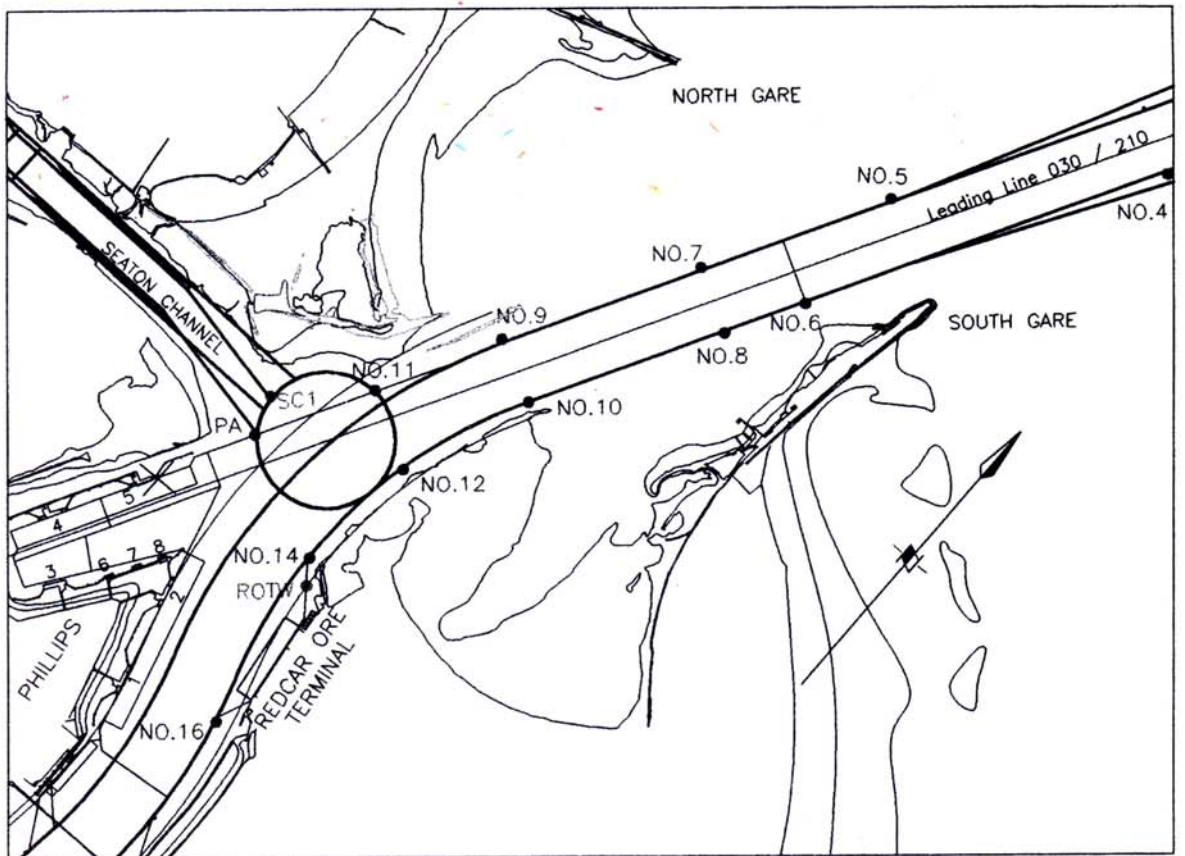
Check List

- Draft
- Entry Time
- Boarding arrangements
- Tug availability
- Boatmen availability
- Cutter availability

- Traffic controls
- Safety Points
- Schedule 2 Checklist
- Berthing arrangements

Abort position:

.....



TEESBAY PILOT SERVICE

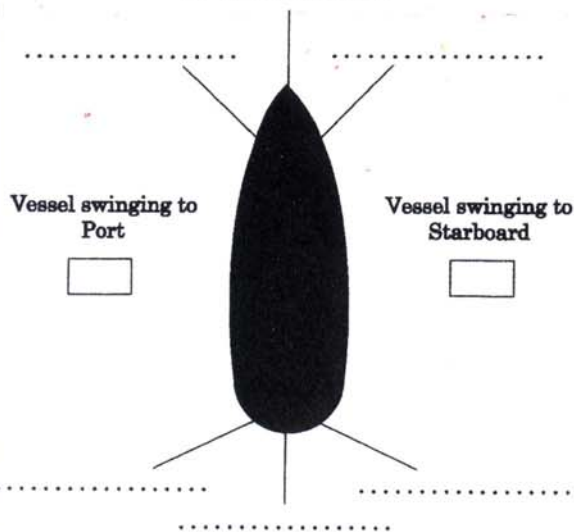
PHILLIPS – PORT ENTRY/DEPARTURE PLAN

Vessel : Date : Time :
 Pilot(s) : Passage :
 Draft : Fwd : Aft : Wind : Dir : Force :
 Increase in draft per 1° heel : Pilot transfer :

 Pilot : Master :

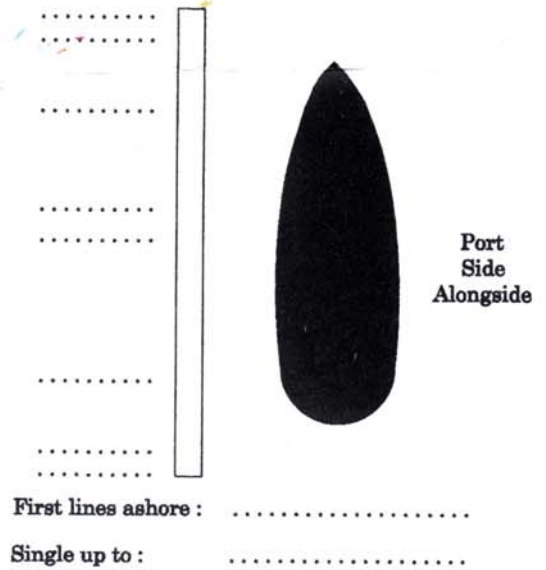
TUG DETAIL

Crew standby time :
 VHF channel : 71 or
 Number of tugs : (tugs wires)



BERTHING PLAN

Passage to / from berth :
 Water on berth on arrival / departure :



TIDAL DETAIL AT :-

Height of tide : HW :
 Draft formula : Height :
 Tolerance : Range :
 Depth of water :
 Draft : Above / below prediction by :
 U / K clearance :

Berth :
 Heading : /

Gangway from shore

Appendix 2: IMO Resolution A.960(23) recommendations on training of marine pilots.



ASSEMBLY
23rd session
Agenda item 17

A 23/Res.960
5 March 2004
Original: ENGLISH

RESOLUTION A.960(23)

**Adopted 5 December 2003
(Agenda item 17)**

**RECOMMENDATIONS ON TRAINING AND CERTIFICATION AND
ON OPERATIONAL PROCEDURES FOR MARITIME PILOTS
OTHER THAN DEEP-SEA PILOTS**

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety and the prevention and control of marine pollution from ships,

RECOGNIZING that maritime pilots play an important role in promoting maritime safety and protecting the marine environment,

BELIEVING that maintaining a proper working relationship between the pilot, the master and, as appropriate, the officer in charge of a navigational watch is important in ensuring the safety of shipping,

NOTING that, since each pilotage area needs highly specialized experience and local knowledge on the part of the pilot, IMO does not intend to become involved with either the certification or the licensing of pilots or with the systems of pilotage practised in various States,

RECOGNIZING ALSO the high standards of pilotage services already established in many States and the need for these standards to be maintained,

CONSIDERING that in those States that are developing pilotage services, the establishment of practical minimum training standards, certification requirements and operational procedures to provide effective co-ordination between pilots and ship personnel, taking due account of ship bridge procedures and ship equipment, would contribute to maritime safety,

HAVING CONSIDERED the recommendation made by the Maritime Safety Committee at its seventy-fifth session,

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1. ADOPTS:
 - (a) the Recommendation on Training and Certification of Maritime Pilots other than Deep-sea Pilots set out in Annex 1 to the present resolution;
 - (b) the Recommendation on Operational Procedures for Maritime Pilots other than Deep-sea Pilots set out in Annex 2 to the present resolution;
2. URGES Governments to give effect to these Recommendations as soon as possible;
3. REQUESTS the Maritime Safety Committee to keep the Recommendations under review and to amend them as necessary in the light of experience gained from their implementation;
4. REVOKES resolution A.485(XII).

ANNEX 1

RECOMMENDATION ON TRAINING AND CERTIFICATION OF MARITIME PILOTS OTHER THAN DEEP-SEA PILOTS

1 Scope

1.1 It is recognised that pilotage requires specialised knowledge and experience of a specific area and that States with many diverse waterways and ports have found it appropriate to administer pilotage on a regional or local basis.

1.2 The maritime pilots referred to in this Recommendation do not include deep-sea pilots or shipmasters or crew who are certificated or licensed to carry out pilotage duties in particular areas.

1.3 Governments should encourage the establishment or maintenance of competent pilotage authorities to administer safe and efficient pilotage systems.

2 Competent pilotage authority

2.1 Competent pilotage authority means either the national or regional Governments or local groups or organizations that by law or tradition, administer or provide a pilotage system. Governments should inform competent pilotage authorities of the provisions of this document and encourage their implementation.

2.2 The assessment of the experience, qualifications and suitability of an applicant for certification or licensing, as a pilot, is the responsibility of each competent pilotage authority.

2.3 The competent pilotage authority in co-operation with the national and local pilots' associations should:

- .1 establish the entry requirements and develop the standards for obtaining a certificate or licence in order to perform pilotage services within the area under its jurisdiction;
- .2 enforce the maintenance of developed standards;
- .3 specify whatever prerequisites, experience or examinations are necessary to ensure that applicants for certification or licensing as pilots are properly trained and qualified; and
- .4 arrange that reports on investigations of incidents involving pilotage are taken into account in maritime pilots' training programmes.

3 Pilotage certificate or licence

Every pilot should hold an appropriate pilotage certificate or licence issued by the competent pilotage authority. In addition to stating the pilotage area for which it is issued, the certificate or licence should also state any requirements or local limitations that the competent pilotage authority may specify such as maximum size, draught or tonnage of vessels that the holder is qualified to pilot.

4 Medical fitness

4.1 Each pilot should satisfy the competent pilotage authority that his or her medical fitness, particularly regarding eyesight, hearing and physical fitness meets the standards required for certification of masters and officers in charge of a navigational watch under the international Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended, or such other standards as the competent pilotage authority considers appropriate.

4.2 If a pilot has experienced a serious injury or illness, there should be a re-evaluation of his or her medical fitness prior to return to duty.

5 Training and certification or licensing standards

5.1 The competent pilotage authority is responsible for training and certification or licensing standards. The standards should be sufficient to enable pilots to carry out their duties safely and efficiently.

5.2 Standards for initial training should be designed to develop in the trainee pilot the skills and knowledge determined by the competent pilotage authority to be necessary for obtaining a pilot certificate or license. The training should include practical experience gained under the close supervision of experienced pilots. This practical experience gained on vessels under actual piloting conditions may be supplemented by simulation, both computer and manned model, classroom instruction, or other training methods.

5.3 Every pilot should be trained in bridge resource management with an emphasis on the exchange of information that is essential to a safe transit. This training should include a requirement for the pilot to assess particular situations and to conduct an exchange of information with the master and/or officer in charge of navigational watch. Maintaining an effective working relationship between the pilot and the bridge team in both routine and emergency conditions should be covered in training. Emergency conditions should include loss of steering, loss of propulsion, and failures of radar, vital systems and automation, in a narrow channel or fairway.

5.4 Initial and continuing training in the master-pilot information exchange should also cover:

- .1 regulatory requirements governing the exchange;
- .2 recognition of language, cultural, psychological and physiological impediments to effective communication and interaction and techniques for overcoming these impediments; and
- .3 best practices in the specific pilotage area.

5.5 Competent pilotage authorities should be encouraged to provide updating and refresher training conducted for certified or licensed pilots to ensure the continuation of their proficiency and updating of their knowledge, and could include the following;

- .1 courses to improve proficiency in the English language where necessary;
- .2 sessions to enhance the ability to communicate with local authorities and other vessels in the area;

- .3 meetings with local authorities and other responsible agencies to envisage emergency situations and contingency plans;
- .4 refresher or renewal courses in bridge resource management for pilots to facilitate communication and information exchange between the pilot and the master and to increase efficiency on the bridge.
- .5 simulation exercises, which may include radar training and emergency shiphandling procedures;
- .6 courses in shiphandling training centres using manned models;
- .7 seminars on new bridge equipment with special regard to navigation aids;
- .8 sessions to discuss relevant issues connected with the pilotage service including laws, rules and regulations particular to the pilotage area;
- .9 personal safety training;
- .10 techniques for personal survival at sea; and
- .11 emergency first aid, including cardio-pulmonary resuscitation (CPR) and hypothermia remediation.

6 Continued proficiency

6.1 In order to ensure the continued proficiency of pilots and updating of their knowledge, the competent pilotage authority should satisfy itself, at regular intervals not exceeding five years, that all pilots under its jurisdiction:

- .1 continue to possess recent navigational knowledge of the local area to which the certificate of licence applies;
- .2 continue to meet the medical fitness standards of paragraph 4 above; and
- .3 possess knowledge of the current international, national and local laws, regulations and other requirements and provisions relevant to the pilotage area and the pilots' duties.

6.2 Possession of knowledge required by subparagraphs 6.1.1 and 6.1.3 may be proved by an appropriate method such as personal service records, completion of continuing professional development courses or by an examination.

6.3 Where a pilot in cases of absence from duty, for whatever reason, is lacking recent experience in the pilotage area, the competent pilotage authority should satisfy itself that the pilot regains familiarity with the area on his or her return to duty.

7 Syllabus for pilotage certification or licensing

7.1 In the syllabus, area means the waters for which the applicant is to be certified or licensed. Each applicant for a pilot certificate or license should demonstrate that he or she has necessary knowledge of the following:

- .1 limits of local pilotage areas;
- .2 International Regulations for Preventing Collisions at Sea, 1972 as amended, and also such other national and local navigational safety and pollution prevention rules as may apply in the area;
- .3 system of buoyage in the area;
- .4 characteristics of the lights and their angles of visibility and the fog signals, racons and radio beacons and other electronic aids in use in the area;
- .5 names, positions and characteristics of the light vessels, buoys, beacons, structures and other marks in the area;
- .6 names and characteristics of the channels, shoals, headlands and points in the area;
- .7 bridge and similar obstruction limitations including air draughts;
- .8 depths of water throughout the area, including tidal effects and similar factors;
- .9 general set, rate, rise and duration of the tides and use of the tide tables and real-time and current data systems, if available, for the area;
- .10 proper courses and distances in the area;
- .11 anchorages in the area;
- .12 shiphandling for piloting, anchoring, berthing and unberthing, manoeuvring with and without tugs, and emergency situations;
- .13 communications and availability of navigational information;
- .14 systems of radio navigational warning broadcasts in the area and the type of information likely to be included;
- .15 traffic separation schemes, vessel traffic services and similar vessel management systems in the area;
- .16 bridge equipment and navigational aids;
- .17 use of radar and other electronic devices; their limitations and capabilities as navigation and collision avoidance aids;
- .18 manoeuvring behaviour of the types of ships expected to be piloted and the limitations imposed by particular propulsion and steering systems;
- .19 factors affecting ship performance such as wind, current, tide, channel configuration, water depth, bottom, bank and ship interaction including squat;
- .20 use and limitation of various types of tugs;

- .21 the English language to a standard adequate to enable the pilot to express communications clearly;
- .22 IMO Standard Marine Communication Phrases;
- .23 IMO Code for the investigation of marine casualties and incidents;
- .24 Master-Pilot Relationship, Pilot Card, operational procedures;
- .25 pollution prevention;
- .26 emergency and contingency plans for the area;
- .27 safe embarking and disembarking procedures; and
- .28 any other relevant knowledge considered necessary.

ANNEX 2

**RECOMMENDATION ON OPERATIONAL PROCEDURES FOR MARITIME PILOTS
OTHER THAN DEEP-SEA PILOTS****1 General**

Efficient pilotage depends, among other things, upon the effectiveness of the communications and information exchanges between the pilot, the master and the bridge personnel and upon the mutual understanding each has for the functions and duties of the other. Establishment of effective co-ordination between the pilot, the master and the bridge personnel, taking due account of the ship's systems and equipment available to the pilot, will aid a safe and expeditious passage.

2 Duties of master, bridge officers and pilot

2.1 Despite the duties and obligations of a pilot, the pilot's presence on board does not relieve the master or officer in charge of the navigational watch from their duties and obligations for the safety of the ship. It is important that, upon the pilot boarding the ship and before the pilotage commences, the pilot, the master and the bridge personnel are aware of their respective roles in the safe passage of the ship.

2.2 The master, bridge officers and pilot share a responsibility for good communications and understanding of each other's role for the safe conduct of the vessel in pilotage waters.

2.3 Masters and bridge officers have a duty to support the pilot and to ensure that his/her actions are monitored at all times.

3 Pilot boarding point

3.1 The appropriate competent pilotage authority* should establish and promulgate the location of safe pilot embarkation and disembarkation points.

3.2 The pilot boarding point should be at a sufficient distance from the commencement of the act of pilotage to allow safe boarding conditions.

3.3 The pilot boarding point should also be situated at a place allowing for sufficient time and sea room to meet the requirements of the master-pilot information exchange (see paragraphs 5.1 to 5.6).

4 Procedures for requesting pilot

4.1 The appropriate competent pilotage authority should establish, promulgate and maintain procedures for requesting a pilot for an inbound or outbound ship, or for shifting a ship.

4.2 As human resources and technical means have to be planned well in advance, the operation of an efficient pilotage service requires information on the Estimated Time of Arrival (ETA) or Departure (ETD) to be furnished by the ship as early as possible with frequent updates where possible.

* "Competent pilotage authority" has the same meaning as in annex 1.

4.3 Communication by VHF or other dedicated means should be established as soon as possible to enable the master to confirm the ship's ETA and the Pilot Station to furnish relevant information regarding pilot boarding.

4.4 The initial ETA message to the Pilot Station should include all the information required by local regulations, including:

- .1 ship's name, call sign, ship's agent;
- .2 ship's characteristics: length, beam, draught, air draught if relevant, speed, thruster(s);
- .3 date and time expected at the pilot boarding point;
- .4 destination, berth (if required, side alongside); and
- .5 other relevant requirements and information.

5 Master - pilot information exchange

5.1 The master and the pilot should exchange information regarding navigational procedures, local conditions and rules and the ship's characteristics. This information exchange should be a continuous process that generally continues for the duration of the pilotage.

5.2 Each pilotage assignment should begin with an information exchange between the pilot and the master. The amount and subject matter of the information to be exchanged should be determined by the specific navigation demands of the pilotage operation. Additional information can be exchanged as the operation proceeds.

5.3 Each competent pilotage authority should develop a standard exchange of information practice, taking into account regulatory requirements and best practices in the pilotage area. Pilots should consider using an information card, form, checklist or other memory aid to ensure that essential exchange items are covered. If an information card or standard form is used by pilots locally regarding the anticipated passage, the layout of such a card or form should be easy to understand. The card or form should supplement and assist, not substitute for, the verbal information exchange.

5.4 This exchange of information should include at least:

- .1 presentation of a completed standard Pilot Card. In addition, information should be provided on rate of turn at different speeds, turning circles, stopping distances and, if available, other appropriate data;
- .2 general agreement on plans and procedures, including contingency plans, for the anticipated passage;
- .3 discussion of any special conditions such as weather, depth of water, tidal currents and marine traffic that may be expected during the passage;

- .4 discussion of any unusual ship-handling characteristics, machinery difficulties, navigational equipment problems or crew limitations that could affect the operation, handling or safe manoeuvring of the ship;
- .5 information on berthing arrangements; use, characteristics and number of tugs; mooring boats and other external facilities;
- .6 information on mooring arrangements; and
- .7 confirmation of the language to be used on the bridge and with external parties.

5.5 It should be clearly understood that any passage plan is a basic indication of preferred intention and both the pilot and the master should be prepared to depart from it when circumstances so dictate.

5.6 Pilots and competent pilotage authorities should be aware of the voyage planning responsibilities of masters under applicable IMO instruments*.

6 Communications language

6.1 Pilots should be familiar with the IMO Standard Marine Communication Phrases and use them in appropriate situations during radiocommunications as well as during verbal exchanges on the bridge. This will enable the master and officer in charge of the navigational watch to better understand the communications and their intent.

6.2 Communications on board between the pilot and bridge watchkeeping personnel should be conducted in the English language or in a language other than English that is common to all those involved in the operation.

6.3 When a pilot is communicating to parties external to the ship, such as vessel traffic services, tugs or linesmen and the pilot is unable to communicate in the English language or a language that can be understood on the bridge, the pilot should, as soon as practicable, explain what was said to enable the bridge personnel to monitor any subsequent actions taken by those external parties.

7 Reporting of incidents and accidents

When performing pilotage duties, the pilot should report or cause to be reported to the appropriate authority, anything observed that may affect safety of navigation or pollution prevention. In particular, the pilot should report, as soon as practicable, any accident that may have occurred to the piloted ship and any irregularities with navigational lights, shapes and signals.

* Refer to SOLAS regulation V/34 and resolution A.893(21) on Guidelines for voyage planning and STCW Code, Section A-VIII/2, Part 2

8 Refusal of pilotage services

The pilot should have the right to refuse pilotage when the ship to be piloted poses a danger to the safety of navigation or to the environment. Any such refusal, together with the reason, should be immediately reported to the appropriate authority for action as appropriate.

9 Fitness for duty

Pilots should be adequately rested and mentally alert in order to provide undivided attention to pilotage duties for the duration of the passage.
