

SUB-COMMITTEE ON NAVIGATION,  
COMMUNICATIONS AND SEARCH AND  
RESCUE  
5th session  
Agenda item 22

NCSR 5/INF.18  
15 December 2017  
ENGLISH ONLY

**ANY OTHER BUSINESS**

**Results of the ICS pilotage, towage and mooring survey 2016**

**Submitted by the International Chamber of Shipping (ICS)**

**SUMMARY**

*Executive summary:* This document provides the results of a pilotage, towage and mooring survey conducted by ICS between 16 September 2016 and 16 November 2016

*Strategic direction:* No related provisions

*High-level action:*

*Output:* No related provisions

*Action to be taken:* Paragraph 9

*Related documents:* Resolution A.960(23) and FAL.6/Circ.11/Rev.1

**Introduction**

1 This document provides the executive summary of the report of the results of an ICS pilotage, towage and mooring survey (the Survey) conducted between 16 September 2016 and 16 November 2016. The questionnaire was completed for 903 port calls during the survey period.

2 The Survey was conducted at the request of the Members of ICS in order to review the performance of pilotage, towage and mooring services worldwide. The questionnaire was developed using operational knowledge and experience, best practice guidance in the ICS *Bridge Procedures Guide* (5th edition) and the:

- .1 *Recommendations on training and certification and operational procedures for maritime pilots other than deep-sea pilots (resolution A.960(23)); and*
- .2 *Guidelines on minimum training and education of mooring personnel (FAL.6/Circ.11/Rev.1).*

**Executive summary**

3 The survey reports the level of satisfaction of masters and bridge teams with pilotage, towage and mooring services. This results should be considered in context and be used as a benchmark for reviewing changes in satisfaction that may be observed should the survey be repeated in the future.

| <b>Satisfaction rate</b>          | <b>(%)</b> |
|-----------------------------------|------------|
| Conduct of the Pilot              | 84         |
| Conduct of the pilotage           | 82         |
| Use of electronic navigation aids | 72         |
| Towage and mooring services       | 78         |

4 Based on the responses received, the quality of pilotage, towage and mooring services worldwide have generally been reported to be of a satisfactory standard and, in particular:

- .1 the survey identified no systemic concerns with respect to the content and application of the *Recommendation on training and certification of maritime pilots other than deep-sea pilots* (resolution A.960(23), annex 1);
- .2 the survey identified no systemic concerns with respect to the content and application of the *Recommendation on operational procedures for maritime pilots other than deep-sea pilots* (resolution A.960(23), annex 2); and
- .3 the survey identified no systemic concerns with respect to the provision of towage, mooring services or the *Guidelines on minimum training and education of mooring personnel* (FAL.6/Circ.11/Rev.1).

5 Despite the general level of satisfaction reported in paragraph 4 above, the following safety related findings from the survey are worthy of note:

- .1 communication difficulties between pilots and bridge teams is a commonly reported concern worldwide;
- .2 the level of knowledge of the areas of the recommended syllabus for pilotage and certification or licensing contained in section 7 of annex 1 of resolution A.960(23) which were addressed in this survey demonstrated concerning inadequacies by a minority of pilots;
- .3 the availability and use of personal protective equipment (PPE) by pilots and the provision of appropriate vessels for Pilot transfer is an area of concern. In the case of PPE, there were 36 reports covering 16 different countries of pilots boarding without appropriate PPE;
- .4 it is understandable that communications between the Pilot, towage and mooring personnel are often conducted in a local language. However, this practice places a burden on the Pilot (that may interfere with the Pilot's primary role), to translate orders and actions during towage and mooring; and
- .5 there may be a need for the development of an internationally standardized approach to the Master-Pilot information exchange (MPX) which emphasizes the visual presentation of the Pilot's plan for the pilotage during the MPX, and discourages reliance on a purely verbal exchange of information.

6 Given the findings in paragraphs 5, particularly paragraph 5.3, the outcome of the survey has been shared with the International Maritime pilots Association (IMPA).

### **Results of the Survey**

7 The results of the Survey are provided in annex 1 to this document. Whilst responses to the survey included references to specific ports and countries, these have been removed from the results presented here. The Survey questionnaire is provided at annex 2.

### **Future of the Survey**

8 The Survey may be repeated at an appropriate point in the future, but it will not be conducted on an annual basis.

### **Action requested of the Sub-Committee**

9 The Sub-Committee is invited note the information provided.

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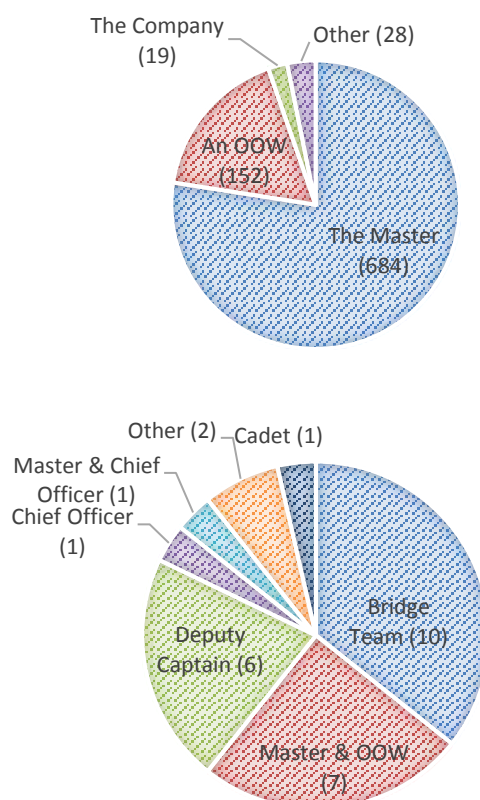
## ANNEX 1

### RESULTS OF THE ICS PILOTAGE, TOWAGE AND MOORING SURVEY 2016

**1.1 Number of responses.** Of the 903 responses, 879 were considered valid. The following responses were excluded from the analysis of the results:

- Incomplete and unusable responses<sup>1</sup>; and
- Responses from pilots.<sup>2</sup>

#### 1.2 Who completed the survey?



**1.3 Port coverage.** The survey was completed for 472 ports in 123 different countries. 97.95% (861) of responses were for a port call where a Pilot was embarked. In these cases, all questions regarding pilotage, towage and mooring (questions 5 to 11) were completed. The remaining 2.05% (18) of responses covered port calls where no Pilot was embarked. In these cases only the questions relating to towage and mooring (questions 9 to 11) were completed.

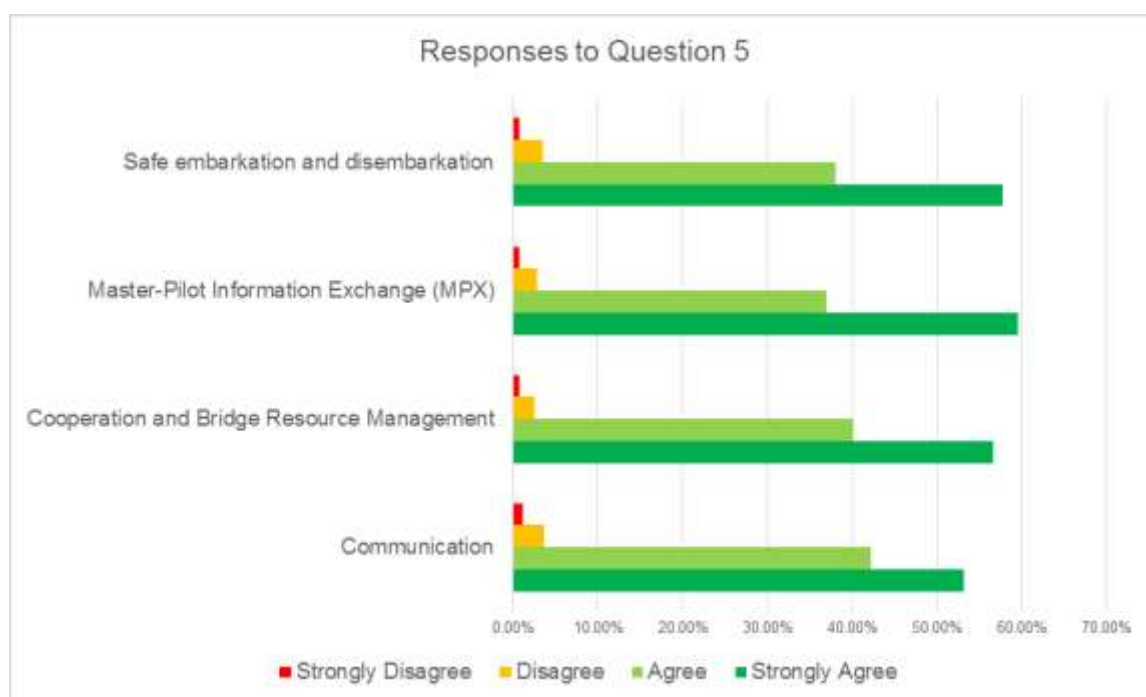
**1.4 Pilotage Exemption Certificates (PEC).** The questions in this section of the survey related to the availability of PECs and the existence of clear procedures for the application and validation of PECs by port authorities.

<sup>1</sup> The submission of incomplete responses explains the variations in total responses for particular questions.

<sup>2</sup> This information has however been kept as it generally provides more detailed comments on towage and mooring services provided at some ports.

- 1.4.1 PECs were not available in 89.2% of ports for the ship type of the respondents covered by the survey. Where PECs were available in 81 of the ports covered in the survey. In those 81 ports, 70 (86.42%) had clear application and validation procedures.
- 1.4.2 No notable findings were obtained from analysis of responses to questions concerning the availability of PECs.

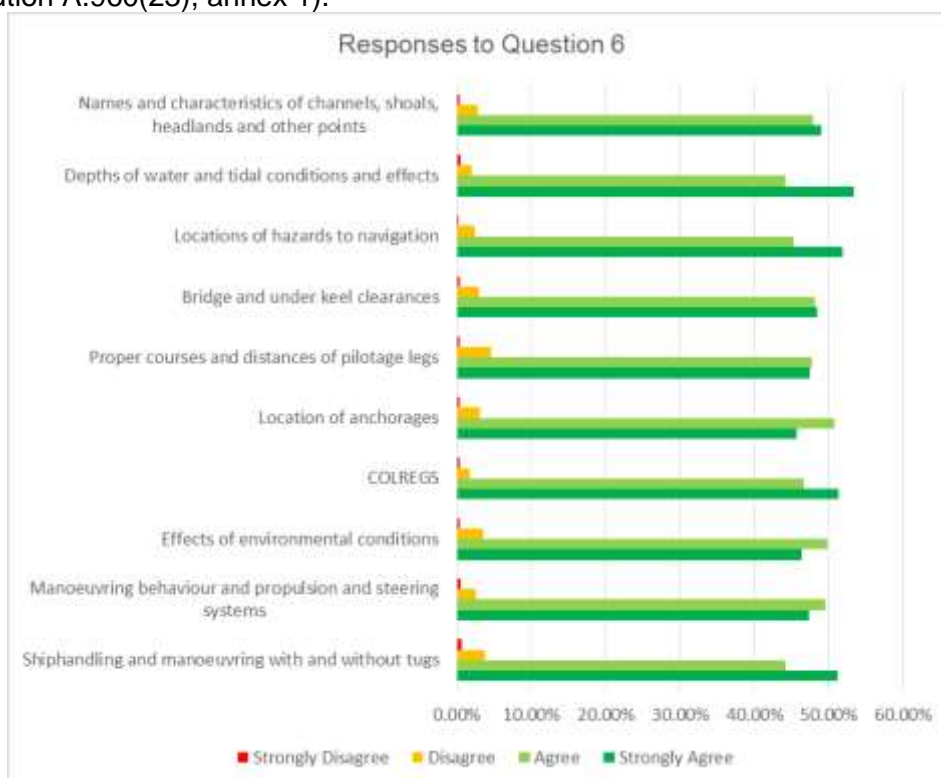
**1.5 Conduct of the Pilot.** The questions in this section were, in general, based on the recommendations for operational procedures for pilots contained in annex 2 to IMO resolution A.960(23).



- 1.5.1 In general, the Master-Pilot Information Exchange (MPX) and associated checklists are being used effectively to ensure that the Pilot and Bridge Team are fully informed prior to pilotage commencing;
- 1.5.2 The volume and form of information exchanged during the MPX is inconsistent. Varying from an entirely verbal exchange of information to a comprehensive briefing supported by checklists and passage plans (of the ship and the Pilot);
- 1.5.3 In 36 cases respondents reported a failure of pilots to follow appropriate procedures or use appropriate PPE, particularly lifejackets, when embarking. This issue affected ports in 16 countries;
- 1.5.4 The locations of pilot boarding points (as charted) and locations of actual point of pilot embarkation can vary significantly and may bring ships to well within pilotage waters. This finding is contrary to the recommendations in section 3.3 and section 5.5 of IMO resolution A.960(23);
- 1.5.5 Observations were made of requests for last minute changes to Pilot boarding arrangements, including the requirement to rig accommodation ladders in place of Pilot ladders even when the climb is less than 9m;

- 1.5.6 Observations were made of a lack of availability of appropriate Pilot vessels. Reports of the use of tug rescue boats and small dinghies being used for Pilot transfers;
- 1.5.7 There remains scope of an internationally recognized and accepted approach to the delivery of the MPX;
- 1.5.8 In some responses, significant concerns were raised regarding corrupt practices engaged in by some pilots;
- 1.5.9 Observations were made that the MPX was conducted entirely verbally and without support of a checklist or passage plan. This was a particular matter of concern in ports in 4 countries;
- 1.5.10 Observations were made that pilots had limited knowledge of bridge resource management (BRM) and that ensuring that a chain of errors did not develop was left to the Bridge Team; and
- 1.5.11 Concerns over the quality of English used by pilots was a general concern expressed by Masters and Bridge Teams in a number of countries.

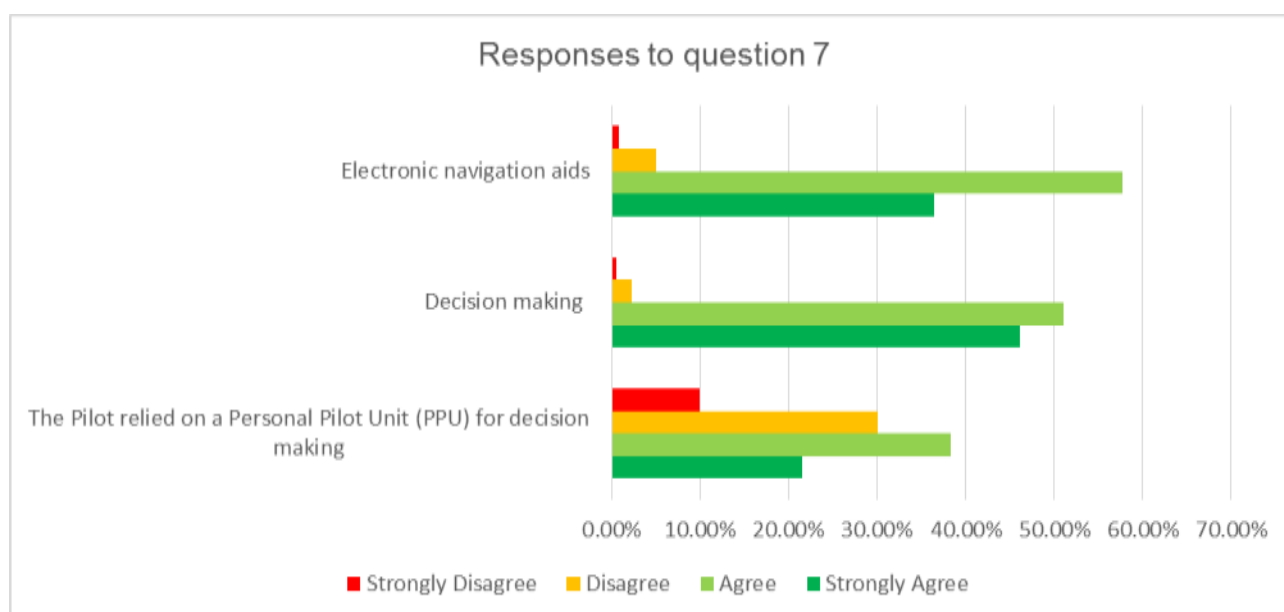
**1.6 Conduct of the pilotage.** The questions in this section were based on section 5.5 of Recommendations on training and certification of maritime pilots other than deep-sea pilots (IMO resolution A.960(23), annex 1).



- 1.6.1 In general, respondents commented positively on the experience, knowledge and abilities of pilots and the conduct of pilotage was in accordance with IMO resolution A.960(23);

- 1.6.2 Observations were made regarding the familiarity of pilots with the latest propulsion technologies, particularly electronically controlled engines, and the impact of this on use of main engines during berthing and un-berthing;
- 1.6.3 Observations were made that the knowledge of the Master and Bridge Team regarding the capabilities of propulsion systems and ships manoeuvring behaviour should be given greater consideration during berthing and un berthing operations;
- 1.6.4 Observations were made that the flow of information between the Bridge Team and Pilot required encouragement from the Bridge Team to discuss actions in accordance with the COLREGs, instructions from port control, and use and positioning of tugs; and
- 1.6.5 Observations were made that, in general, Pilot's appreciation of risk is satisfactory. Only in a small number of locations in 3 countries were there reports of that the Pilot's appetite for risk was considered incompatible with the Master's.

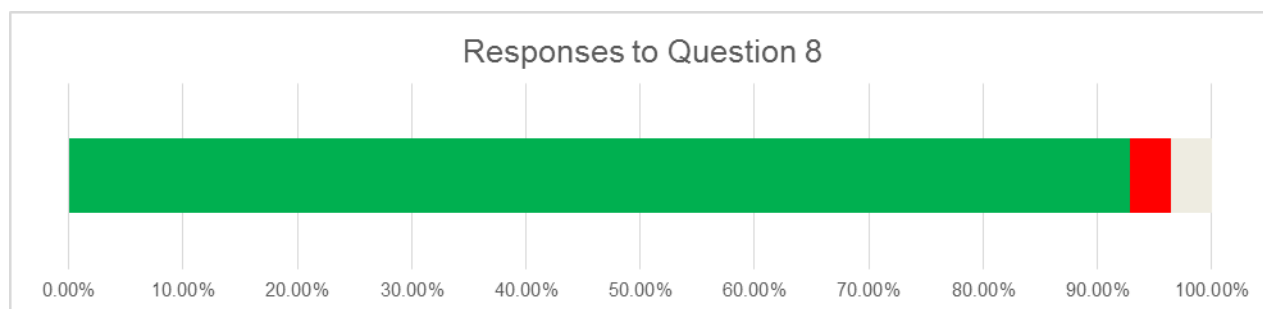
## 1.7 Electronic Navigation Aids.



- 1.7.1 In general, knowledge and appropriate use of electronic navigation aids, particularly ECDIS was satisfactory, reflecting section 7 of annex 1 to with IMO resolution A.960(23);
- 1.7.2 Although observations were made regarding over-reliance on personal Pilot units (PPU), in the majority of cases good practices involving multiple sources of information were used for decision making with subsequent actions explained to the Bridge Team to enable them to continue to monitor safety effectively; and
- 1.7.3 Observations were made that pilots are not familiar with ECDIS and are unwilling to use ECDIS during pilotage, even on ships which navigate using ECDIS.



## 1.8 Pilotage Incidents or Near Misses (Current Port Call).



1.8.1 During the survey period, 30 responses (4%) included pilotage incidents or near misses with a Pilot embarked. The below assessment uses PivotTables to focus on assessing the potential relationship between the relevant responses to Question 5 and Question 6. The term "negative" means a combined total of "disagree" or "strongly disagree" responses. The term "positive" means a combined total of "agree" and "strongly agree" responses. Differences in total figures reflects the incompleteness of some questionnaires

1.8.2 For the MPX (Question 5.2):

| Incident or Near Miss | Negative  | Positive   | Total      |
|-----------------------|-----------|------------|------------|
| No                    | 23        | 787        | 810        |
| Yes                   | 7         | 23         | 30         |
| <b>Total</b>          | <b>30</b> | <b>810</b> | <b>840</b> |

1.8.3 For cooperation and bridge resource management (Question 5.3):

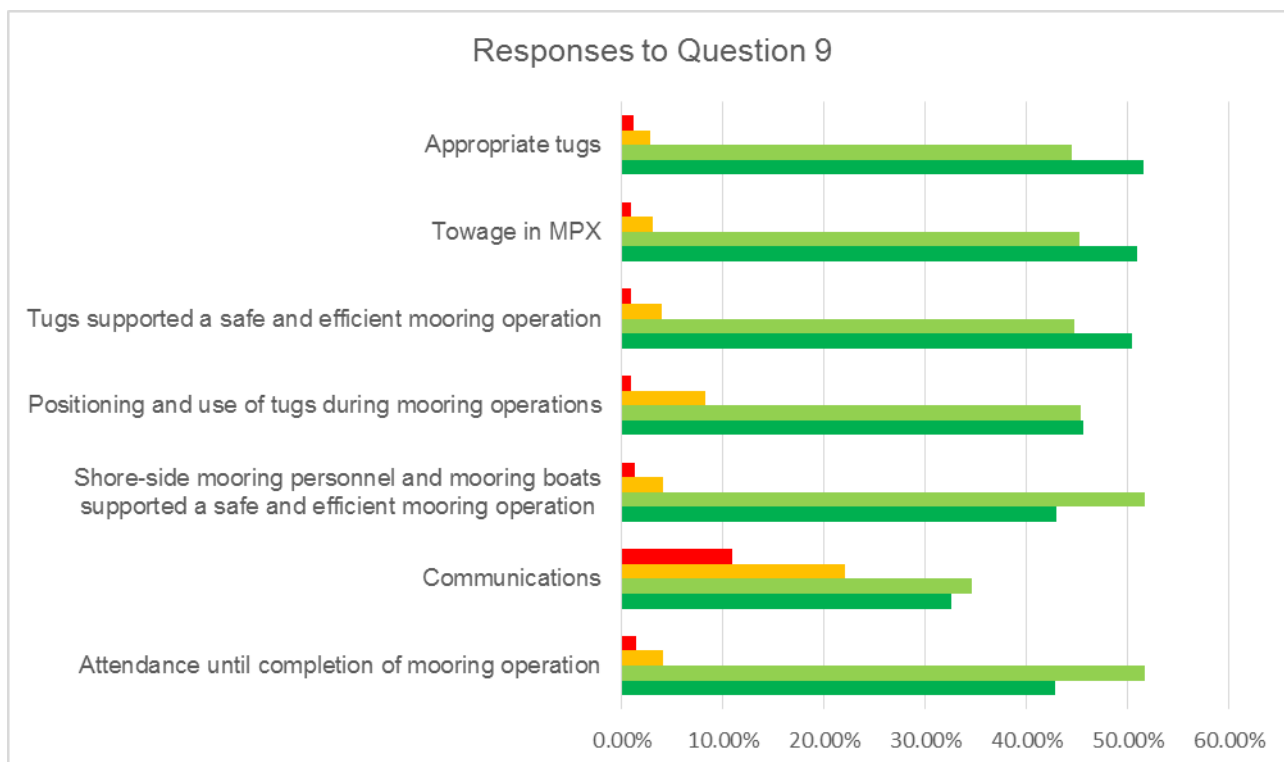
| Incident or Near Miss | Negative  | Positive   | Total      |
|-----------------------|-----------|------------|------------|
| No                    | 18        | 792        | 810        |
| Yes                   | 9         | 20         | 29         |
| <b>Total</b>          | <b>27</b> | <b>812</b> | <b>839</b> |

1.8.4 For communication (Question 5.4):

| Incident or Near Miss | Negative  | Positive   | Total      |
|-----------------------|-----------|------------|------------|
| No                    | 31        | 782        | 813        |
| Yes                   | 8         | 22         | 30         |
| <b>Total</b>          | <b>39</b> | <b>804</b> | <b>843</b> |

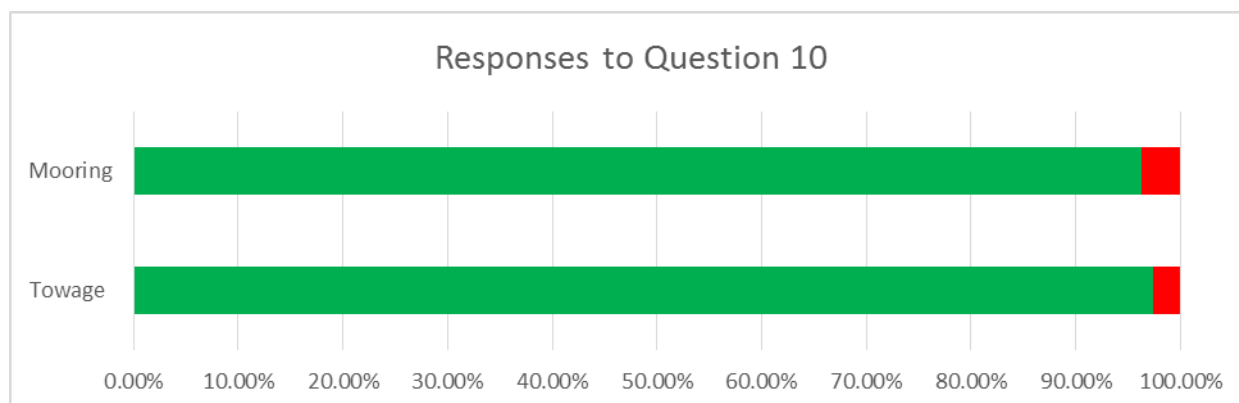
1.8.5 The data indicates that there is no apparent causal relationship between a negative assessment of any of the factors for conduct of the Pilot and conduct of the pilotage and a report of an incident and near miss. This indicates that the incidents or near misses reported were influenced by a factor or factors other than those addressed in this survey.

**1.9 Towage and Mooring.** The questions relating to towage and mooring were based on the best practice guidance provided in the 5<sup>th</sup> Edition of the ICS Bridge Procedures Guide, consultation with ICS Members and the guidelines on minimum training and education of mooring personnel (FAL.6/Circ.11/Rev.1).



- 1.9.1 In general, the provision of towage and mooring services was considered satisfactory by respondents. However, the principle area for concern is the burden placed on the Pilot by the need to translate communications between the Pilot, tug master and shore-based mooring personnel at a critical time;
- 1.9.2 Observations were made in ports in 5 countries that cooperation between mooring personnel and the Pilot and/or ship's mooring personnel is not always effective.
- 1.9.3 Observations regarding the absence of personal protective equipment (PPE) for mooring personnel were made in one country;
- 1.9.4 Observations were made of inadequate numbers of mooring personnel being available to support safe mooring;
- 1.9.5 Port regulations did not always take into account the manoeuvrability of ships, for example by requiring a specific number of tugs, rather than a number of tugs appropriate to the vessel, its characteristics and conditions at the berth; and
- 1.9.6 Observations were made of a practice in one country where the language barrier between Bridge Team and mooring personnel is addressed through the use of a pre-agreed mooring plan and the use of visual signals.

### 1.10 Towage and Mooring Incidents or Near Misses (Current Port Call).



1.10.1 During the survey period, 21 incidents or near misses during towage operations and 31 incidents or near misses during mooring operations. The assessment below uses PivotTables to focus on the assessing the potential relationship between incidents and near misses and the relevant responses to Question 9. The term "negative" means a combined total of "disagree" or "strongly disagree" responses. The term "positive" means a combined total of "agree" and "strongly agree" responses. Differences in total figures reflects the incompleteness of some questionnaires.

1.10.2 For appropriate tug selection:

| Incident or Near Miss | Negative  | Positive   | Total      |
|-----------------------|-----------|------------|------------|
| No                    | 29        | 773        | 802        |
| Yes                   | 2         | 19         | 21         |
| <b>Total</b>          | <b>31</b> | <b>792</b> | <b>823</b> |

1.10.3 For towage addressed in the MPX:

| Incident or Near Miss | Negative  | Positive   | Total      |
|-----------------------|-----------|------------|------------|
| No                    | 30        | 770        | 800        |
| Yes                   | 2         | 19         | 21         |
| <b>Total</b>          | <b>32</b> | <b>789</b> | <b>821</b> |

1.10.4 For tugs supporting a safe and efficient mooring operation:

| Incident or Near Miss | Negative  | Positive   | Total      |
|-----------------------|-----------|------------|------------|
| No                    | 36        | 752        | 788        |
| Yes                   | 3         | 18         | 21         |
| <b>Total</b>          | <b>39</b> | <b>770</b> | <b>809</b> |

1.10.5 For positioning and use of tugs during mooring operations:

| Incident or Near Miss | Negative  | Positive   | Total      |
|-----------------------|-----------|------------|------------|
| No                    | 70        | 721        | 791        |
| Yes                   | 4         | 17         | 21         |
| <b>Total</b>          | <b>74</b> | <b>738</b> | <b>812</b> |

1.10.6 For shore-based mooring personnel and mooring boats supporting a safe and efficient mooring operation:

| Incident or Near Miss | Negative  | Positive   | Total      |
|-----------------------|-----------|------------|------------|
| No                    | 41        | 767        | 808        |
| Yes                   | 3         | 30         | 33         |
| <b>Total</b>          | <b>44</b> | <b>797</b> | <b>841</b> |

1.10.7 For communications during mooring operations:

| Incident or Near Miss | Negative   | Positive   | Total      |
|-----------------------|------------|------------|------------|
| No                    | 267        | 545        | 812        |
| Yes                   | 11         | 21         | 32         |
| <b>Total</b>          | <b>278</b> | <b>566</b> | <b>844</b> |

1.10.8 For attendance until mooring operation completed:

| Incident or Near Miss | Negative  | Positive   | Total      |
|-----------------------|-----------|------------|------------|
| No                    | 45        | 761        | 806        |
| Yes                   | 1         | 32         | 33         |
| <b>Total</b>          | <b>46</b> | <b>793</b> | <b>839</b> |

1.10.9 The data indicates that there is no apparent causal relationship between a negative assessment of any aspect of the towage or mooring operations and a report of an incident and near miss. This indicates that the incidents or near misses reported were influenced by a factor or factors other than those addressed in this survey.

**1.11 Incidents or Near Misses (Port calls in last 12 months).** Respondents to the survey accumulated 5057 port calls at the ports covered by the survey in the 12 months preceding the survey. Over this 12-month period, 3.2% (162) port calls involved an incident or near miss during either pilotage, towage or mooring operations.

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**ANNEX 2**

**SURVEY QUESTIONNAIRE**

**1. This survey was completed by:** \* (Required Field)

- A Master
- An OOW
- The Company
- Other (Please specify)

**2. Port or Terminal:** \* (Required Field)

Please provide the full name of the Port or Terminal.

**3. Was a Pilot Embarked?** \* (Required Field)

- Yes
- No

**4. Pilotage Exemption Certificates (PEC)** (One answer per row)

|  | <b>Yes</b>               | <b>No</b>                |
|--|--------------------------|--------------------------|
| A PEC is available from the Port Authority, for appropriately qualified deck officers  | <input type="checkbox"/> | <input type="checkbox"/> |
| There is a formal and transparent application process for a PEC                        | <input type="checkbox"/> | <input type="checkbox"/> |
| The PEC assessment process, including renewals, is fair, proportionate and transparent | <input type="checkbox"/> | <input type="checkbox"/> |

**Comments:**

**5. Conduct of the Pilot** (One answer per row)

|  | <b>Strongly Agree</b>    | <b>Agree</b>             | <b>Disagree</b>          | <b>Strongly Disagree</b> |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| The Pilot followed safe embarkation and disembarkation procedures and used appropriate PPE   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| An effective Master-Pilot Information Exchange (MPX) was conducted using an appropriate supporting checklist   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| The Pilot cooperated with the Master and Bridge Team and made use of the principles of Bridge Resource Management (BRM)  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| The Pilot communicated their knowledge effectively to the Master and Bridge Team, in a common working language or English and using the IMO Standard Maritime Communications Phrases (SMCP) as appropriate | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**Comments:**

**6. Conduct of the Pilotage** (One answer per row)

The Pilot demonstrated detailed local knowledge and skill which enhanced the safety of navigation in pilotage waters, including:

|   | <b>Strongly Agree</b>    | <b>Agree</b>             | <b>Disagree</b>          | <b>Strongly Disagree</b> |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| Identification, position and characteristics of aids to navigation  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Names and characteristics of channels, shoals, headlands and other points   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Depths of water and tidal conditions and effects  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Locations of hazards to navigation  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Bridge and under keel clearances  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper courses and distances of pilotage legs   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Location of anchorages  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Effective anti-collision advice in accordance with the COLREGS, taking into account knowledge of local traffic patterns | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Effects of environmental conditions, including interaction effects on ship performance                                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Manoeuvring behaviour of the ship and the limitations imposed by particular propulsion and steering systems             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Ship handling, including safe approaches and departure from the berth and manoeuvring with and without tugs             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**Comments:**

**7. Electronic Navigation Aids** (One answer per row)

|  | <b>Strongly Agree</b>    | <b>Agree</b>             | <b>Disagree</b>          | <b>Strongly Disagree</b> |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| The Pilot was familiar with electronic navigation aids, including ECDIS                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Bridge navigation equipment was used to support decision making by the Pilot and Bridge Team | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| The Pilot relied on a Personal Pilot Unit (PPU) for decision making                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**Comments:**

**8. Pilotage Incidents or Near Misses**

During **THIS** port or terminal call, did the ship experience a safety and/or environmental incident or near miss during pilotage with a pilot embarked?

- Yes
- No
- Not applicable



**9. Towage and Mooring Services** (One answer per row)

|   | <b>Strongly Agree</b>    | <b>Agree</b>             | <b>Disagree</b>          | <b>Strongly Disagree</b> |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| The number and size of tugs provided for towage during mooring operations was adequate for the size of vessel and berthing conditions                                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Towage during mooring operations was included in the Master-Pilot Information Exchange (MPX)  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Tugs complied with the instructions of the Master or Pilot and effectively supported a safe and efficient mooring operation   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| The Master and Bridge Team were kept informed of changes in the positioning and use of tugs during mooring operations   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Shore-side mooring personnel and mooring boats complied with the instructions of the Master or Pilot and effectively supported a safe and efficient mooring operation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Communications between the Pilot, tugs and mooring personnel were conducted in a common working language and were clearly understood by the Master and Bridge Team    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Shore-based mooring personnel did not break communications before mooring operations was complete   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**Comments:**

**10. Mooring and Towage Incidents or Near Misses**

During **THIS** port or terminal call, did the ship experience a safety and/or environmental incident or near miss during towage or mooring operations?

|                | <b>Yes</b>               | <b>No</b>                |
|----------------|--------------------------|--------------------------|
| During towage  | <input type="checkbox"/> | <input type="checkbox"/> |
| During mooring | <input type="checkbox"/> | <input type="checkbox"/> |

**11. Incidents and Near Misses in the last 12 Months**

If the Ship **REGULARLY** calls at the port or terminal, has it experienced a safety and/or environmental incident or near miss in the last 12 months?

|  |                          |
|--|--------------------------|
| Number of calls at the port or terminal      | <input type="checkbox"/> |
| Number during pilotage with a pilot embarked | <input type="checkbox"/> |
| Number during towage operations              | <input type="checkbox"/> |
| Number during mooring operations             | <input type="checkbox"/> |

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