

# 理事長開講：令人忐忑上下的引水梯以及那不似引水船的 引水船

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有關引水梯安全(Pilot Ladder Safety)的議題，應該從「古時候」有船，大到必須裝上繩梯給人爬上爬下的船就開始了。到後來《SOLAS 公約》第五章「航行安全」還特別以第 23 條「引水人登離船裝置(Pilot transfer arrangements)」<sup>1</sup>，規範了這麼一大堆規定還附帶決議文和通函等等落落長一串。這些暫時不扯，光是從 PSC 檢查，簡單來看，其中就有「10101 Pilot ladder and hoist/pilot transfer arrangements」、「09223 Gangway, accommodation ladder」二項 deficiency code 和引水梯是直接相關<sup>2</sup>，這裡提供給台灣的 PSCO 參考，爾後就 10101、09223 放心寫下去就是。

事實上，爬梯子的基本上是人，而且不限於引水人<sup>3</sup>。但或許是認知上，引水人使用的頻率最多，所以大家也就這麼說，連法規的名稱也這麼直接寫上 Pilot，因為這梯子是

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<sup>1</sup> International Convention for the Safety of Life at Sea, 1974, as amended by res. MSC.308(88) in December 2010, CHAPTER V SAFETY OF NAVIGATION, Regulation 23 Pilot transfer arrangements, For new ships and existing ships as specified in "1 Application", Applicable from 2012-07-01.

<sup>2</sup> [https://www.tokyo-mou.org/doc/Tokyo%20MOU%20deficiency%20codes%20\(December%202019\).pdf](https://www.tokyo-mou.org/doc/Tokyo%20MOU%20deficiency%20codes%20(December%202019).pdf)

<sup>3</sup> 澳大利亞運輸安全調查報告：

- ATSB Transport Safety Report [Marine Occurrence Investigation] 300-MO-2013-007, Final-9 May 2014, Fall from the pilot ladder on the bulk carrier Atlantic Princess, Whyalla, South Australia on 3 July 201。這個案子跌落引水梯受傷死亡的是公司代表，不是引水人。  
[https://www.atsb.gov.au/publications/investigation\\_reports/2013/mair/300-mo-2013-007/](https://www.atsb.gov.au/publications/investigation_reports/2013/mair/300-mo-2013-007/)。
- ATSB Investigation number: MO-2021-004, Marine safety investigations & reports - Fall from the pilot ladder on the bulk carrier Formosa bulk Clement 5 NM east of Caloundra, QLD, 9 August 2021。這個案子落引水梯重傷、失去知覺並且無法甦醒的是大副，不是引水人。  
[https://www.atsb.gov.au/publications/investigation\\_reports/2021/mair/mo-2021-004/](https://www.atsb.gov.au/publications/investigation_reports/2021/mair/mo-2021-004/)。

指「可能雇用引水人的船舶」應當裝設的裝置<sup>4</sup>。咱們也就從法、從眾，後面我們就用引水人(Pilot)來代表所有爬梯子的人類了！

但是回到這個問題的源頭，我總覺得雖然不至於到「匹夫無罪，懷璧其罪。」引水梯是多少也有一些罪，不過在整個不安全的環環扣扣中，牽涉的是：

1. 人從甲地登上運具；
2. 人從運具轉爬引水梯；
3. 人從引水梯踏上那艘要登臨的船舶或離岸裝置。

反之亦然。

所以，如果從安全環節來看，至少就有：

1. 當事人，本文討論的主角之一，泛用引水人稱之，他們的身心能狀況是否適合上下引水梯這個行為、有無個人的安全防護裝置(Personal Protective Equipment, PPE)？換句話說也就是要思考：
  - .1 引水人有沒有合於上下引水梯應具備的體力與精神狀態，不要不知己力，強渡關山，結果掉到海裡面去；
  - .2 有沒有適合的安全防護裝置讓萬一落水的引水人能有更高的存活機率，至於直接摔落撞擊船艇等硬著陸接觸的，當然不能算在當事人身上，反倒是要檢討那個被接觸的物件為什麼會在那個相對位置？特別是引水船的操船程序與技藝是很值得大家關心的。當然囉，還有一種狀況就是引水人還沒完全離引水船，引水船就急著 Clear，再來讓還沒握穩引水梯的引水人落水。這也有過。
  - .3 引水人永遠要記得，引水人有拒絕上下不合規引水梯的權利與責任，還有

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<sup>4</sup> 事實上，《SOLAS 公約》第五章第 23 條第 1 項寫著「航行中可能雇用引水人的船舶應設有引水人登離船裝置。Ships engaged on voyages in the course of which pilots may be employed shall be provided with pilot transfer arrangements.」，也真的可以說是為了引水人而設的裝置，其他人類算是順便借用罷了。但也在 2.1 項最後一句寫著：「這些裝置須專門用於人員的登船和離船。They shall be used solely for the embarkation and disembarkation of personnel.」

應誠實舉報的義務<sup>5</sup>。

2. 轉駁的運具，一般也就是小艇或引水船，這裡也就是指：

- .1 「艇」本身是否具有適合執行其業務能力的安全？安全保護引水人離回引水船的裝置是否齊全？
- .2 「艇」上的人員是否適任<sup>6</sup>？以及協助「當事人」登艇的人員是否能盡到保護、防護與知道緊急狀況時之應變措施是什麼？
- .3 再換個角度說，這樣的運具能否在引水人落水時，迅速的提供必要的救援？還是只能晾在旁邊怎麼開都開不到的慢慢蛇，就這麼開不過去、無法接近、人拉不上來、等著撈大體？
- .4 又再換個角度，引水船上沒有人力、沒有到位的技術、沒有救援設備，即便是第一時間趕到現場也無用。這事，又不是沒發生過！
- .5 曾親自在會議中聽聞引水船業者指稱其僅有「通報、戒護」二部分職責，很遺憾的，就是有這種不了解《船員法》、《船員服務規則》所賦予船員應盡之義務的人在當業者，難不成你們家引水船自己的船員落水也是「通報、戒護」？搞了半天，台灣人命就是不怎麼值的油麻菜籽？平心再退一步想，如果真的是只有「通報、戒護」，那麼「港區港勤交通船投資經營案」招標

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<sup>5</sup> 領港有權拒絕登上提供有缺陷梯子的船隻，而這可能導致嚴重延誤。領港也有權向港口國控制當局報告登船梯的缺陷，這可能導致全面的 PSC 檢查，這導致有延誤和經濟處罰的風險。一個已經爬上穩固、配有精良裝備、並有一名督導和甲板船員梯子的領港，將能夠處於正確的心態以最大程度地關注船隻的安全。Pilots have the right to decline to board vessels offering defective ladders, which can result in serious delay. Pilots are also entitled to report defects in boarding ladders to port state control authorities, which could lead to a full PSC inspection with the risk of delay and financial penalties. A pilot who has climbed a sound ladder, well rigged, and attended by an officer and a deck party will be in the right frame of mind to give his best attention to the safety of the vessel. ◦ [https://www.american-club.com/files/files/shipping\\_industry\\_guidance\\_on\\_pilot\\_transfer\\_arrangements.pdf](https://www.american-club.com/files/files/shipping_industry_guidance_on_pilot_transfer_arrangements.pdf) ◦

<sup>6</sup> The Peel Ports, Boarding and Landing Code of Safe Practice, 13.1 在使用引水船之前，所有引水人和引水船船員應接受適當的領港船操作培訓。這應包括熟悉每個級別引水船的登船和著陸規則，包括：Prior to using a pilot boat, all pilots and pilot boat crews should receive appropriate training in pilot boat operations. This should include familiarisation of the Boarding and Landing Code and for each pilot boat class, include:

- 引水船的安全設備包括潛水服和醫療用品的位置、存放和正確使用方式。Position, stowage and correct use of pilot boat safety equipment, including immersion suits and medical stores.
- 人員落水設備的操作和使用。Operation and use of all man overboard equipment.
- 培訓正確使用個人防護裝備。Training in the correct use of PPE.

<https://www.peelports.com/media/blojwl2q/boarding-and-landing-document.pdf>

書的「基本配備」幹嘛寫「應常態備有動力機械起重吊桿，能吊取每位 100 公斤以上失去知覺的人員」<sup>7</sup>？

.6 前述各點，國際上的規範甚多。像是：

- .1 英國 MCA 的小型工作船與引水船安全實務規範(Workboat Code, The Safety of Small Workboats and Pilot Boats – A Code of Practice)<sup>8</sup>裡面就有「救回落水人員(Retrieval of Persons from the Water)」，而且是要有能力救回無意識的人員(to enable the recovery of an unconscious person from the water)的規定；
- .2 其他如：歐盟(EMPA)<sup>9</sup>、英國(UKMPA)<sup>10</sup>與紐西蘭(NZMPA)<sup>11</sup>等引水協會

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<sup>7</sup> 第八條、最低基本配備：

- 四、設置足夠長度之艇鉤。
  - 五、應常態備有動力機械起重吊桿，能吊取每位 100 公斤以上失去知覺的人員。
  - 六、艙乾舷較低處，裝設可由甲板達水面下適當深度之固定爬梯。
  - 七、備置船舷邊之攀爬網。
- <https://tc.twport.com.tw/Upload/D/RelFile/News/14626/f2c594a3-49ea-4bd7-8558-e77dc3f09b92.pdf>。

<sup>8</sup> 13.13 Recovery of Persons from the Water

13.13.1 An efficient means to enable the recovery of an unconscious person from the water should be provided to the satisfaction of the Certifying Authority. Practical use of this equipment/means should be demonstrated to the Certifying Authority by the owner /skipper/Master at renewal/compliance examinations. Refer to MGN 54464.  
The safety of small workboats & pilot boats - a code of practice, 2018,  
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/827913/The\\_Workboat\\_Code\\_Edition\\_2\\_-\\_Amendment\\_1.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/827913/The_Workboat_Code_Edition_2_-_Amendment_1.pdf)。

<sup>9</sup> Pilot boats should be equipped with minimum equipment taking in consideration European Maritime Pilots' Association Recommendation on Minimum Demands for Life-Saving and Recovering Equipment in Pilot boats. A retrieval drill for pilot boat crew and check listing of recovery equipment should be carried out on regular basis to ensure a satisfactory level of competence. All drills and checks should be recorded with an appropriate logbook entry.

EMPA Recommendation on Pilot Boat Operation and Manning，<http://empa-pilots.eu/recommendation-on-pilot-boat-operation-and-manning>。

<sup>10</sup> Ch 13. Man overboard procedures, Ch 14. Training for pilot boat operations and retrieval of casualties, Embarkation & Disembarkation of Pilots – Code of Safe Practice,  
<https://www.pla.co.uk/assets/theembarkationdisembarkationofpilotscodeofsafepractice2021review.pdf>。

<sup>11</sup> Man overboard (Make sure all pilots and pilot launch crew are trained for this scenario. Where possible, conduct controlled training in the water and conditions worked in.), Casualties (During practice drills, make sure the equipment needed to prolong life until a qualified emergency medical practitioner can take over is available.), Healthy and safe transfer of maritime pilots - Good practice guide, New Zealand Maritime

也有類似的規定。

3. 梯，是最多人討論的議題，梯，不只是梯，還包括整組的繫固與安全設備，也可能包括與梯相配合的舷梯組合，這個留到後面慢慢討論。但實務上常發現的問題是<sup>12, 13</sup>：
  - .1 由供應商提供的引水梯質量不過關；
  - .2 有些船公司為了儉省開支，引水梯是船員自己綁紮成的，傳統的水手長都有這麼一套手藝，但是技術上參差不齊，導致引水梯綁紮不符規範；
  - .3 引水梯收捲後體積大、重量重，很難被回收到艙室內，而且難於保養；
  - .4 引水梯兩側的棕繩在壽命降低，強度不夠時很難被及時發現；
  - .5 部分缺乏培訓船員，不懂得引水梯保養和操作規範<sup>14, 15</sup>。

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Pilots Association 2018, <https://www.maritimenz.govt.nz/content/commercial/ports-and-harbours/documents/Healthy-safe-transfer-maritime-pilots.pdf>。

<sup>12</sup> LP 95/2016 引水梯是引航員的生命通道，安全隱患不容忽視！中國船東互保協會，<https://www.chinapandi.com/index.php/cn/article-list-cn/4727-article-4727>。

<sup>13</sup> Fresh concerns over marine pilot safety following fall from ladder，<https://www.nautilusint.org/en/news-insight/news/fresh-concerns-over-marine-pilot-safety-following-fall-from-ladder/>

<sup>14</sup> 在國際航運公會(International Chamber of Shipping, ICS)與 IMPA 2022 出版的「航運業為確保符合 SOLAS 公約規定的引水人登離船裝置指引 Shipping Industry Guidance on Pilot Transfer Arrangements - Ensuring Compliance with SOLAS」中特別強調：

航運公司應確保：Shipping companies should ensure that:

- 所有梯子都符合 SOLAS 標準；All ladders are SOLAS compliant;
- 檢查制度和記錄是否充分並得到維護；The inspection regime and records are adequate and maintained;
- 替換的梯子可以在船上快速、方便地使用；和 Replacement ladders are quickly and readily available on board; and
- 涉及的海員接受必要的培訓並充分了解要求。Seafarers involved receive the necessary training and have a full understanding of the requirements.

<https://www.ics-shipping.org/publication/shipping-industry-guidance-on-pilot-transfer-arrangements-third-edition/>。

<sup>15</sup> Tokyo MOU - Safety Bulletin - January 2020 Safety of pilots boarding ships with pilot transfer arrangements that use non-approved methods to secure pilot ladders，

<http://www.tokyo-mou.org/doc/P200110%20Tokyo%20MOU%20-%20SAFETY%20BULLETIN%20->

4. 裝有引水梯的船舶或離岸裝置方面：

- .1 船舶或離岸裝置上要「接」或「送」引水人的人，這樣的人，知不知道如何確保他們的梯子是安全的<sup>16</sup>？知不知道接送的安全作業程序？知不知道應急處理程序？
- .2 對此，《SOLAS 公約》還明文寫了「shall be supervised by a responsible officer<sup>17</sup>」，這裡的 responsible，從保養維護到測試紀錄等等，管頭管尾，不限於登或離的那一個上下動作而已。

5. 還有一個就是在不同的「人、船、環境」條件下：

- .1 准許使用引水梯「登」、「離」的機制有沒有建立？也就是說有沒有准許登離作業的安全條件？不要又是「暴虎馮河」，勇敢的把引水人送入險境？當然，也會有業者很務實地指出在某些天候狀況下，引水船不具備該狀況下的救援機制。是的，業者是真的當著我的面這麼說！但，這兒就有邏輯上的問題：
  - .1 既然沒本事有救援的應變機制？那為什麼會有可以把引水人送出去的條件？
  - .2 另一個思考是，如果體制上容許引水船可以沒有本事救援的困境，如果體制上是可以不同於國際上規定的引水船應該有救援的訓練與能力，那麼配套的外部救援就必須成立。

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%20pilot%20transfer%20arrangements%20PROOFv.pdf

<sup>16</sup> The Peel Ports, Boarding and Landing Code of Safe Practice, 4.4 必須要求船長確認引水梯的安裝符合現行的 IMO 規定、《SOLAS 公約》第 23 條和 IMO A 1045(27) 號決議。Masters should must be asked to confirm that the pilot ladder is rigged in accordance with current IMO regulations; Convention for Safety of Life at Sea (SOLAS) regulation/ 23 and IMO resolution A 1045(27).

<sup>17</sup> SOLAS Chapter V Safety of Navigation, Regulation 23 Pilot transfer arrangements, 2.2 引水人登離船裝置的安裝和引水人的登船，須由一名高級船員進行監督，該高級船員須有與駕駛室進行聯繫的通信設備，還須安排護送引水人由安全路線前往和離開駕駛室。布設和操作任何機械設備的人員須接受安全作業程序的指導，且設備在使用前須進行檢測。The rigging of the pilot transfer arrangements and the embarkation of a pilot shall be supervised by a responsible officer having means of communication with the navigation bridge and who shall also arrange for the escort of the pilot by a safe route to and from the navigation bridge. Personnel engaged in rigging and operating any mechanical equipment shall be instructed in the safe procedures to be adopted and the equipment shall be tested prior to use. °

.2 因此，我們最後一道防線的災害處理或應變和通報的機制，這些非直接當事方能否因應救援也就更顯得重要。

- .1 這包括：海巡、港警、港公司、航務中心的災害應變、通信協調、任務派遣等。
- .2 當然還有一個很重要的議題是，對於人員落水而言，特別是海氣象相對惡劣的環境，落水人員的存活機率隨著時間而逝去，也就是「有效 (Effective and efficient)」的應變，比大陣仗漫長的召集人馬召開應變會議更來得實際。
- .3 再退而言之，當指望這些非直接當事方參與或協助救援時，怎麼不尋思強化此時就在現場的引水船的船舶效能？讓咱們這個擔負國家門面的引水船，能比較上得了國際檯面，像艘像樣的引水船一點！

關於爬這著梯子出事的案子不少，台灣就有好幾起引水人落水事件，各港都有，摔落撞擊的也有、被二船夾傷的也有、死亡的傷心事也有，這兒就不再提了。

國際間的案子也不少，而且可能是因為賠償與法律議題所衍生得範圍很大，所以幾乎所有的保賠協會(Protection and Indemnity Clubs, P&I Club)也都會出版有關引水梯安全的通函、程序書等等。

國際引水人協會(IMPA)在 2018 年進行了一次安全調查(Safety Campaign)<sup>18</sup>，4,339 個回覆意見中，對引水梯有抱怨的回覆高達 3,769 佔 86.86%。對梯子本體的抱怨數最高，達 2,729 佔 61.59%。

COUNTRY	TOTAL RETURNS	COMPLIANT	NON COMPLIANT	NON COMPLIANT AS %
Africa	100	81	19	19.00
Asia / Oceania	810	687	123	15.19
Europe	1679	1442	237	14.12
Middle East	79	71	8	10.13
North America	371	297	74	19.95
South America	1300	1191	109	8.38
<b>TOTAL</b>	<b>4339</b>	<b>3769</b>	<b>570</b>	<b>13.14</b>

MEANS OF TRANSFER	TOTAL NUMBER	COMPLIANT	NON COMPLIANT	NON COMPLIANT AS %
Pilot Ladder	2729	2397	332	12.17
Combination	956	805	151	15.79
Side Door and Pilot Ladder	455	396	59	12.97
Gangway	82	76	6	7.32
Helicopter	45	42	3	6.67
Deck to Deck	164	136	28	17.07
<b>TOTAL</b>	<b>4431</b>	<b>3852</b>	<b>579</b>	

<sup>18</sup> IMPA 2018 Safety Campaign, [https://www.steamshipmutual.com/sites/default/files/downloads/articles/2019/IMPA\\_Safety%20brochure%202018.pdf](https://www.steamshipmutual.com/sites/default/files/downloads/articles/2019/IMPA_Safety%20brochure%202018.pdf)

引水梯的重要程度可以從 IMO 的法規文件即可知一二：

1. 引水人登離船裝置 SOLAS Chapter V Regulation 23 - Pilot Transfer Arrangements
2. 引水人登離船裝置建議案 Resolution A.1045(27) (Adopted on 30 November 2011) Pilot Transfer Arrangements<sup>19, 20</sup>
3. 修訂的引水人登離船裝置建議案 Resolution A.1108(29) (Adopted on 2 December 2015) Amendments to The Recommendation on Pilot Transfer Arrangements (Resolution A.1045(27))<sup>21</sup>
4. 引水人登離船裝置通函 MSC.1/Circ.1428 (28 May 2012) Pilot Transfer Arrangements - Required boarding arrangements for pilots<sup>22, 23</sup>

不只如此，在國際船東互保協會(The International Group of P&I Clubs)等航運相關組織的支持下，國際航運公會(International Chamber of Shipping, ICS)與 IMPA 分別於 2008、2012、2022 出版了「航運業為確保符合 SOLAS 公約規定的引水人登離船裝置指引 Shipping Industry Guidance on Pilot Transfer Arrangements - Ensuring Compliance with SOLAS」。

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<sup>19</sup> Resolution A.1045(27) Pilot Transfer Arrangements ,  
[https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/AssemblyDocuments/A.1045\(27\).pdf](https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/AssemblyDocuments/A.1045(27).pdf)。

<sup>20</sup> Resolution A.1045(27)取代 1999.11.25 採納的 Resolution A.889(21) , Resolution A.889(21) 取代：

- 1973.11.20 採納的 A.275(VIII) Recommendation on performance standards for mechanical pilot hoists ;
- 1979.11.15 採納的 A.426(XI) Arrangements for embarking and disembarking pilots in very large ships ;
- 1989.10.25 採納的 A.667(16) Pilot Transfer arrangements 。

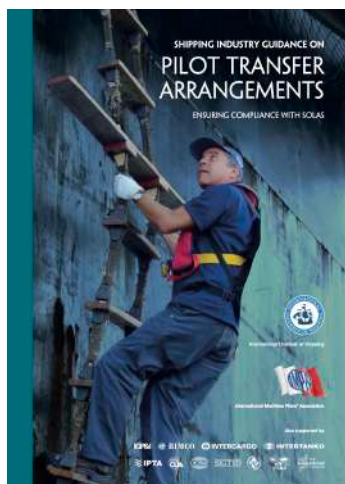
<sup>21</sup> Resolution A.1108(29) Amendments to The Recommendation on Pilot Transfer Arrangements ,  
[https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/AssemblyDocuments/A.1108\(29\).pdf](https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/AssemblyDocuments/A.1108(29).pdf)。

<sup>22</sup> MSC.1/Circ.1428 (28 May 2012) Pilot Transfer Arrangements - Required boarding arrangements for pilots , <https://www.register-iri.com/wp-content/uploads/MSC.1-Circ.1428.pdf> 。

<sup>23</sup> MSC.1/Circ.1428 取代：

- MSC/Circular.568/Rev.1 – Pilot Transfer Arrangements - Required boarding arrangements for pilots – (23 February 1995)
- MSC/Circular.773 – Pilot Transfer Arrangements - Required boarding arrangements for pilots – (Adopted on 2 January 1997)





回歸《SOLAS 公約》第五章第 23 條 2「通則 General」，登離船使用的所有裝置均須「有效地」達到使人「安全」登船和離船的目的。並且必須：

1. 裝置須「保持乾淨」，適當「維護保養」和「存放」並須「定期檢查」；
2. 引水人登離船裝置的「安裝」和引水人的「登船」，須由一名「高級船員」進行「監督」，該高級船員須有與駕駛室進行聯繫的「通信設備」，還須安排「護送」引水人由「安全路線前往和離開」駕駛室。「布設和操作」任何機械設備的人員「須接受安全作業程序的指導」，且設備在「使用前須進行檢測」。
3. 引水人軟梯須具有製造商頒發的「證書」，以表明其符合本條或本組織接受的國際標準<sup>24</sup>。
4. 供引水人登離船使用的所有引水人軟梯須使用「標籤或其他永久性標記」清晰地「標識」，以便在檢驗、檢查和記錄保持時識別每個裝置。船上對於所標識的軟梯「投入使用」和進行任何「修理」的日期須保留一份「記錄」。
5. 本條所述的「舷梯」為引水人登離船裝置組成部分的斜梯。

「引水人登離船裝置」，規範了這麼一大堆，中國船東互保協會在「引水梯是引航員的生命通道」一文中建議會員在引水軟梯的使用和保養方面做好以下幾點<sup>25</sup>：

<sup>24</sup> Resolution A.1045(27)附則 Annex 引水人登離船裝置建議 2.1「引水梯應被製造商證明符合本節所述或被海事組織認可的國際標準的要求。」

<sup>25</sup> LP 95/2016 引水梯是引航員的生命通道，安全隱患不容忽視！中國船東互保協會，

1. 船員應接受有關引水軟梯的必要培訓，充分掌握引水軟梯的相關規定和要求。
2. 會員應採購符合國際標準的引水軟梯，包括 ISO 799《船舶和海上技術-引水人軟梯》<sup>26</sup>和 IMO A.1045(27)號決議等規定，並保留相關的產品證書和記錄，以備 PSC 檢查。
3. 根據《SOLAS 公約》第 I 章 6、7 和 8 條<sup>27</sup>規定檢查軟梯，即船舶營運前的檢驗、每 12 個月一次的定期檢驗以及必要時的額外檢驗；建立引水軟梯的維護保養記錄，定期對引水軟梯維護保養並進行軟梯及踏板的強度試驗。
4. 引水軟梯使用壽命到期，或出現嚴重腐蝕、踏板斷裂或邊索破損等現象，或懷疑軟梯存在安全隱患時，應及時更換。
5. 在每次安裝使用引水軟梯之前應進行有效檢查，手段包括但不限於觀察踏板有無裂痕，邊索有無嚴重變色、破損、打結等現象，如有上述情況，應及時向駕駛台報告。
6. 引水軟梯多為白棕繩，應避免風吹日曬，船舶抵港前或抵港後不需使用引水人軟梯時捲放於貯藏室，不應隨手放在甲板上，防止被人腳踏。如不方便放在貯藏室時，也可以用防雨傘布遮蔽。在船舶進行裝卸貨時，要注意防止煤屑塵埃以及機艙的油垢污水等玷污。
7. 應使用標籤或其他永久性標記清晰地標識供引水人登離船使用的所有引水人軟梯。船上對於所標識的軟梯投入使用和進行任何修理的日期應保留一份記錄。
8. 接送引水人時一般由三副負責現場監督，在引水人登離船過程密切注意引水軟梯，引水軟梯登離輪處應備有兩條安全繩、帶有自亮燈的救生圈、拋纜繩以及足夠的照明設備，確保引水人安全登離船。

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<https://www.chinapandi.com/index.php/cn/article-list-cn/4727-article-4727>。

<sup>26</sup> ISO 799-1:2019 Ships and marine technology — Pilot ladders — Part 1: Design and specification , <https://www.iso.org/standard/68808.html>。

<sup>27</sup> 包括：1988 SOLAS Prot/I/B/6 Inspection and survey 檢查與檢驗、Prot/I/B/7 Surveys of Passenger Ships 客船的檢驗、Prot/I/B/8 Surveys of LSA and other Equipment of Cargo ships 貨船救生設備和其他設備的檢驗。

為便於理解，本文彙整前述有關引水梯的 IMO 的法規規定如下：

海上人命安全公約 第五章航行安全第 23 條 引水人登離船裝置

SOLAS Chapter V Safety of Navigation

Regulation 23 Pilot transfer arrangements, as amended by res. MSC.308(88) in December 2010

**1 適用範圍 Application**

- 1.1 航行中可能雇用引水人的船舶應設有引水人登離船裝置。Ships engaged on voyages in the course of which pilots may be employed shall be provided with pilot transfer arrangements.
- 1.2 在 2012 年 7 月 1 日或以後安裝的供引水人登離船使用的設備和裝置，應符合本條要求並充分考慮本組織通過的標準。Equipment and arrangements for pilot transfer which are installed<sup>28</sup> on or after 1 July 2012 shall comply with the requirements of this regulation, and due regard shall be paid to the standards adopted by the Organization<sup>29</sup>.
- 1.3 除另有規定外，在 2012 年 7 月 1 日以前安裝的供引水人登離船使用的設備和裝置，須至少符合在該日期以前實施的本公約第 V/17 或 V/23 條(視情況而定)的要求，並須充分考慮該日期之前本組織通過的標準。Except as provided otherwise, equipment and arrangements for pilot transfer which are provided on ships before 1 July 2012 shall at least comply with the requirements of regulation 17<sup>30</sup> or 23, as applicable, of the Convention, in force prior to that date, and due regard shall be paid to the standards adopted by the Organization prior to that date.
- 1.4 在 2012 年 7 月 1 日以後予以替換的設備和裝置，應在合理和可行的範圍內盡量符合本條的要求。Equipment and arrangements installed on or after 1 July 2012, which are a replacement of equipment and arrangements provided on ships before 1 July 2012, shall, in so far as is reasonable and practicable, comply with the requirements of this regulation.
- 1.5 對於 1994 年 1 月 1 日以前建造的船舶，須不遲於 2012 年 7 月 1 日或以後的第一次檢驗適用本條第 5 款。With respect to ships constructed before 1 January 1994, paragraph 5 shall apply not later than the first survey<sup>31</sup> on or after 1 July 2012.
- 1.6 本條第 6 款適用於所有船舶。Paragraph 6 applies to all ships.

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<sup>28</sup> Refer to Unified interpretation of SOLAS regulation V/23 (MSC.1/Circ.1375/Rev.1).

<sup>29</sup> Refer to Pilot transfer arrangements (resolution A.1045(27), as amended).

<sup>30</sup> Refer to resolution MSC.99(73), renumbering previous regulation 17 as regulation 23, which entered into force on 1 July 2002.

<sup>31</sup> Refer to Unified interpretation of the term "first survey" referred to in SOLAS regulations (MSC.1/Circ.1290).

## 2 通則 General

- 2.1 供引水人登離船使用的所有裝置均須有效地達到使引水人安全登船和離船的目的。裝置須保持乾淨，適當維護保養和存放並須定期檢查，以確保其安全使用。這些裝置須專門用於人員的登船和離船。All arrangements used for pilot transfer shall efficiently fulfil their purpose of enabling pilots to embark and disembark safely. The appliances shall be kept clean, properly maintained and stowed and shall be regularly inspected to ensure that they are safe to use. They shall be used solely for the embarkation and disembarkation of personnel.
- 2.2 引水人登離船裝置的安裝和引水人的登船，須由一名高級船員進行監督，該高級船員須有與駕駛室進行聯繫的通信設備，還須安排護送引水人由安全路線前往和離開駕駛室。布設和操作任何機械設備的人員須接受安全作業程序的指導，且設備在使用前須進行檢測。The rigging of the pilot transfer arrangements and the embarkation of a pilot shall be supervised by a responsible officer having means of communication with the navigation bridge and who shall also arrange for the escort of the pilot by a safe route to and from the navigation bridge. Personnel engaged in rigging and operating any mechanical equipment shall be instructed in the safe procedures to be adopted and the equipment shall be tested prior to use.
- 2.3 引水人軟梯須具有製造商頒發的證書，以表明其符合本條或本組織接受的國際標準。須按第 1/6、7 和 8 條檢查軟梯。A pilot ladder shall be certified by the manufacturer as complying with this regulation or with an international standard acceptable to the Organization<sup>32</sup>. Ladders shall be inspected in accordance with regulations 1/6, 7 and 8.
- 2.4 供引水人登離船使用的所有引水人軟梯須使用標籤或其他永久性標記清晰地標識，以便在檢驗、檢查和記錄保持時識別每個裝置。船上對於所標識的軟梯投入使用和進行任何修理的日期須保留一份記錄。All pilot ladders used for pilot transfer shall be clearly identified with tags or other permanent marking so as to enable identification of each appliance for the purposes of survey, inspection and record keeping. A record shall be kept on the ship as to the date the identified ladder is placed into service and any repairs effected.
- 2.5 本條所述的舷梯包括作為引水人登離船裝置組成部分的斜梯。Reference in this regulation to an accommodation ladder includes a sloping ladder used as part of the pilot transfer arrangements.

## 3 登離船裝置 Transfer arrangements

- 3.1 應設有能使引水人從船舶的任一舷安全登船和離船的裝置。Arrangements shall be provided to enable the pilot to embark and disembark safely on either side of the ship.

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<sup>32</sup> Refer to the recommendations by the International Organization for Standardization, in particular publication ISO 799:2004, Ships and marine technology – Pilot ladders.

- 3.2 在所有船舶上，當從海平面至登船處或離船處的距離超過 9 m，並欲將舷梯或引水人機械升降器或其他同樣安全方便的裝置與引水人軟梯一起供引水人登船或離船使用時，則應在每舷均裝有這種設備，除非該設備能夠轉移以供任一舷使用。In all ships, where the distance from sea level to the point of access to, or egress from, the ship exceeds 9 m, and when it is intended to embark and disembark pilots by means of the accommodation ladder, or other equally safe and convenient means in conjunction with a pilot ladder<sup>33</sup>, the ship shall carry such equipment on each side, unless the equipment is capable of being transferred for use on either side.
- 3.3 船舶應設置下列任一裝置，以供安全方便地登船或離船：Safe and convenient access to, and egress from, the ship shall be provided by either:
- .1 引水人軟梯，所需爬高不小於 1.5 m，離水面高度不超過 9 m，其位置和繫固須做到：a pilot ladder requiring a climb of not less than 1.5 m and not more than 9 m above the surface of the water so positioned and secured that:
    - .1 避開任何可能的船舶排水孔；it is clear of any possible discharges from the ship;
    - .2 在平行船體長度範圍內，並盡實際可能在船中一半船長範圍內；it is within the parallel body length of the ship and, as far as is practicable, within the mid-ship half length of the ship;
    - .3 每級踏板穩固地緊靠在船舷；如結構特性，例如護舷材妨礙本規定的實施，應作出使主管機關滿意的特別佈置，以確保人員能安全登船和離船；each step rests firmly against the ship's side; where constructional features, such as rubbing bands, would prevent the implementation of this provision, special arrangements shall, to the satisfaction of the Administration, be made to ensure that persons are able to embark and disembark safely;
    - .4 引水人軟梯的單一長度能從登船處或離船處抵達水面，並充分考慮所有裝載狀況和船舶縱傾及 15° 的不利橫傾；安全加固點、卸扣和繫索的強度須至少與扶手索相同；或 the single length of pilot ladder is capable of reaching the water from the point of access to, or egress from, the ship and due allowance is made for all conditions of loading and trim of the ship, and for an adverse list of 15°; the securing strong point, shackles and securing ropes shall be at least as strong as the side ropes; or
  - .2 當水面至登船處的距離超過 9m 時，與引水人軟梯相連的舷梯(如組合裝置)，或其他同樣安全方便的裝置。舷梯須導向船尾設置。在使用時，須設有將舷梯的下平台繫固在船舷的裝置，從而確保舷梯的下端和下平台穩固地緊靠在平行船體長度範圍內的船舷，並盡可能在船中半長範圍內，且避開所有的排放口。an accommodation ladder in conjunction with the pilot ladder (i.e. a combination arrangement), or other equally safe and convenient means, whenever the distance from

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<sup>33</sup> Refer to regulation II-1/3-9 on Means of embarkation on and disembarkation from ships.

the surface of the water to the point of access to the ship is more than 9 m. The accommodation ladder shall be sited leading aft. When in use, means shall be provided to secure the lower platform of the accommodation ladder to the ship's side, so as to ensure that the lower end of the accommodation ladder and the lower platform are held firmly against the ship's side within the parallel body length of the ship and, as far as is practicable, within the mid-ship half length and clear of all discharges.

- .1 當組合裝置用於引水人登船時，須確保軟梯和扶手繩繫固於舷梯底層平台以上 1.5 m 處的船舷。當組合裝置中底層平台(即登船平台)帶有活動暗門時，引水人軟梯和扶手繩的安裝須為穿過活動門並延伸至平台以上欄桿的高度。when a combination arrangement is used for pilot access, means shall be provided to secure the pilot ladder and manropes to the ship's side at a point of nominally 1.5 m above the bottom platform of the accommodation ladder. In the case of a combination arrangement using an accommodation ladder with a trapdoor in the bottom platform (i.e. embarkation platform), the pilot ladder and man ropes shall be rigged through the trapdoor extending above the platform to the height of the handrail.

#### 4 到甲板的通道 Access to the ship's deck

應配備供任何人員登船和離船的裝置，以確保在引水人軟梯的上端或任何舷梯或其他設施的上端與船舶甲板之間有安全、方便和無障礙的通道。如果這種通道是：Means shall be provided to ensure safe, convenient and unobstructed passage for any person embarking on, or disembarking from, the ship between the head of the pilot ladder, or of any accommodation ladder or other appliance, and the ship's deck. Where such passage is by means of:

- .1 在欄桿或舷牆中開門，則應設有適當的扶手；a gateway in the rails or bulwark, adequate handholds shall be provided;
- .2 舷牆梯，則應設有兩根扶手支柱，其根部或接近根部處以及較高的幾處應以剛性方式繫固在船舶結構上。舷牆梯應牢固地固定在船舶上，以防翻轉。a bulwark ladder, two handhold stanchions rigidly secured to the ship's structure at or near their bases and at higher points shall be fitted. The bulwark ladder shall be securely attached to the ship to prevent overturning.

#### 5 舷門 Shipline doors

供引水人登離船用的舷門不得向外開啓。Shipline doors used for pilot transfer shall not open outwards.

#### 6 引水人機械升降機 Mechanical pilot hoists

不得使用引水人機械升降機。Mechanical pilot hoists shall not be used.

#### 7 相關設備 Associated equipment

7.1 應在近處配備下列相關設備，以備在人員登離船時即可使用：The following associated equipment shall be kept at hand ready for immediate use when persons are being transferred:

- .1 兩根安全繩，直徑不小於 28 mm 且不大於 32 mm，牢固地繫在船上(如引水人有要求)；安全繩的一端須固定在甲板的環板上，當引水人離船或即將登輪的引水人要求時即可使用(在登上甲板處，一端繫於環板的安全繩自支柱或舷牆的最高處的舷外垂下)；two man-ropes of not less than 28 mm and not more than 32 mm in diameter properly secured to the ship if required by the pilot; man-ropes shall be fixed at the rope end to the ring plate fixed on deck and shall be ready for use when the pilot disembarks, or upon request from a pilot approaching to board (the manropes shall reach the height of the stanchions or bulwarks at the point of access to the deck before terminating at the ring plate on deck);
- .2 帶有自亮燈的救生圈；a lifebuoy equipped with a self-igniting light;
- .3 拋纜繩。a heaving line.

7.2 在本條 4 要求時，應配備支柱和舷牆梯。When required by paragraph 4 above, stanchions and bulwark ladders shall be provided.

## 8 照明 Lighting

應配備足夠的照明，以照亮舷外的登離船裝置、甲板上人員登船和離船位置以及引水人機械升降機等控制裝置。Adequate lighting shall be provided to illuminate the transfer arrangements overside and the position on deck where a person embarks or disembarks.

### Resolution A.1045(27) (Adopted on 30 November 2011 (Agenda item 9)) PILOT TRANSFER ARRANGEMENTS

憶及國際海事組織關於涉及海上安全的規則及指導方針的會議作用的公約中條款 15(j)RECALLING Article 15(j) of the Convention on the International Maritime Organization regarding the functions of the Assembly in relation to regulations and guidelines concerning maritime safety,

注意到 1974 年修訂的海上人命安全公約內規則 4.23 中的規定，NOTING the provisions of regulation V/23 of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended,

慎重考慮海上安全委員會第八十七會議上的建議，HAVING CONSIDERED the recommendation made by the Maritime Safety Committee at its eighty-seventh session,

1. 採用關於引水人登離船裝置的建議，列入現行決議的附則；ADOPTS the "Recommendation on Pilot Transfer Arrangements", as set out in the Annex to the present resolution;

2. 提請各政府一同關注和此建議相關的一切；INVITES Governments to draw the attention of all concerned to this recommendation;
3. 另外還提請各政府確保不再使用機械式升降引水人裝置；FURTHER INVITES Governments to ensure that mechanical pilot hoists are not used;
4. 要求各政府確保引水梯及其佈置，使用和維護所遵循的標準不得低於現行決議中的附則；REQUESTS Governments to ensure that pilot ladders and their arrangements, use and maintenance conform to standards not inferior to those set out in the annex to the present resolution;
5. 廢除決議 A.889(21)。REVOKES resolution A.889(21).

### 附則 Annex

#### 引水人登離船裝置建議 Recommendation on pilot transfer arrangements

##### 1 概要 GENERAL

鼓勵船舶設計者在設計初始階段考慮引水人登離船裝置的各方面因素。同樣鼓勵設備設計者及製造商，特別要參照條款 2.1.2、3.1 和 3.3 的規定。Ship designers are encouraged to consider all aspects of pilot transfer arrangements at an early stage in design. Equipment designers and manufacturers are similarly encouraged, particularly with respect to the provisions of paragraphs 2.1.2, 3.1 and 3.3.

##### 2 引水梯 PILOT LADDERS

引水梯應被製造商證明符合本節所述或被海事組織認可的國際標準的要求。A pilot ladder should be certified by the manufacturer as complying with this section or with the requirements of an international standard acceptable to the Organization.<sup>34, 35</sup>

###### 2.1 位置與結構 Position and construction

- 2.1.1 強度受力點，卸扣和繫固繩強度必須至少和下面 2.2 節中側繩的詳細說明一樣。The securing strong points, shackles and securing ropes should be at least as strong as the side ropes specified in section 2.2 below.

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<sup>34</sup> Refer to the recommendations by the International Organization for Standardization, in particular publication ISO 799:2004, Ships and marine technology – Pilot ladders. ◦

<sup>35</sup> SOLAS Ch 5 Regulation 23 Pilot transfer arrangements

2.4 All pilot ladders used for pilot transfer shall be clearly identified with tags or other permanent marking so as to enable identification of each appliance for the purposes of survey, inspection and record keeping. A record shall be kept on the ship as to the date the identified ladder is placed into service and any repairs effected.



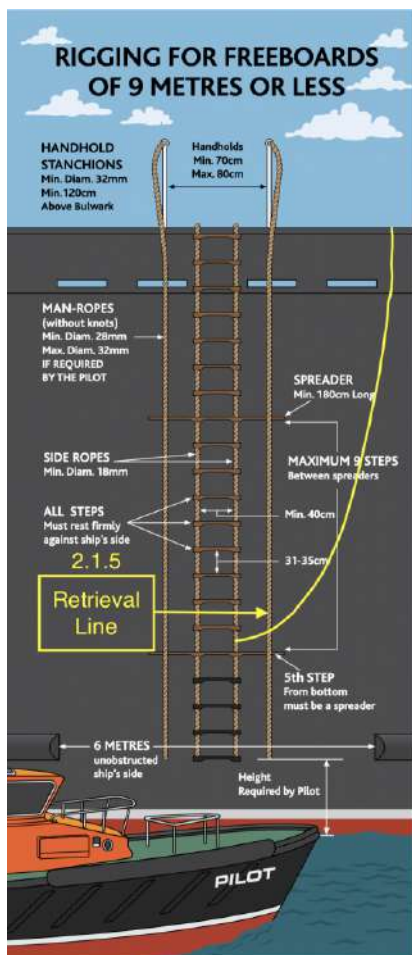
2.1.2 引水梯的踏板必須符合以下要求：The steps of the pilot ladders should comply with the following requirements:

- .1 如果是用硬木做的，它們必須是沒有結的一整塊；if made of hardwood, they should be made in one piece, free of knots;
- .2 如果是硬木外的其他材料，必須有滿足主管機關要求的相等的強度，硬度和耐久性；if made of material other than hardwood, they should be of equivalent strength, stiffness and durability to the satisfaction of the Administration;
- .3 最下面的 4 級踏板可以是有足夠強度和硬度的橡膠或滿足主管機關要求的其他材料；the four lowest steps may be of rubber of sufficient strength and stiffness or other material to the satisfaction of the Administration;
- .4 它們必須有足夠的防滑表面；they should have an efficient non-slip surface;
- .5 它們必須於兩側繩間不小於 400 毫米長、15 毫米寬和 25 毫米厚，不包括任何防滑設計和孔槽；they should be not less than 400 mm between the side ropes, 115 mm wide and 25 mm in depth, excluding any non-slip device or grooving;
- .6 它們必須等距置於 310 毫米至 350 毫米之間；並且 they should be equally spaced not less than 310 mm or more than 350 mm apart; and
- .7 它們必須用同一種任何方式固定以確保水平。they should be secured in such a manner that each will remain horizontal.

2.1.3 引水梯不應該有多於兩個的替換台階，替換台階的固定方式不同於引水梯原始結構的固定方式，以這種方式固定的台階應該在可能，可操作的情況下及時更換為引水梯初始結構使用的台階。當替換台階通過槽溝固定在引水梯的側繩上，這樣的槽溝應該長於台階的側邊。No pilot ladder should have more than two replacement steps which are secured in position by a method different from that used in the original construction of the ladder, and any steps so secured should be replaced as soon as reasonably practicable by steps secured in position by the method used in the original construction of the pilot ladder. When any replacement step is secured to the side ropes of the pilot ladder by means of grooves in the sides of the step, such grooves should be in the longer sides of the step.

2.1.4 多於五階的引水梯應該有長於 1.8 米的防扭板，以防止引水梯翻轉。最低的防扭板應該在梯子的下面倒數第五階，兩個防扭板的間距不應該大於九階。Pilot ladders with more than five steps should have spreader steps not less than 1.8 m long provided at such intervals as will prevent the pilot ladder from twisting. The lowest spreader step should be the fifth step from the bottom of the ladder and the interval between any spreader step and the next should not exceed nine steps.

2.1.5 如果有必要使用回收繩以保證架設引水梯的安全，回收繩必須固定在最後一個防扭板處，或高於此處並向前。回收繩不應該阻礙引水人或妨礙引水船靠近。When a retrieval line is considered necessary to ensure the safe rigging of a pilot ladder, the line should be fastened at or above the last spreader step and should lead forward. The retrieval line should not hinder the pilot nor obstruct the safe approach of the pilot boat.



說明：

1. 如果是用硬木做的，必須是沒有結的一整塊；硬木外的其他材料，必須有滿足要求的相等的強度，硬度和耐久性；最下面的 4 級踏板可以是有足夠強度和硬度的橡膠或滿足要求的其他材料；必須有足夠的防滑表面；必須於兩側繩間不小於 400 毫米長，115 毫米寬，25 毫米厚；必須等距置於 310 毫米至 350 毫米之間；必須用同一種方式固定以確保水平。
2. 不應該有多於兩個的替換台階。
3. 多於五級的引水梯應該有長於 1.8 米的防扭板，以防止引水梯翻轉。最低的防扭板應該在梯子的下面倒數第五級，兩個防扭板的間距不應該大於九級。
4. 回收繩必須固定在最後一個防扭板處，或高於此處並向前。
5. 有永久的標記。

圖片來源：<https://pilotladdersafety.com>

2.1.6 引水梯在設計時應在一定間距(比如：1 米)有永久的標記，使用並維護保養好這些固定的標記可以協助我們將引水梯架設到所需的高度。A permanent marking should be provided at regular intervals (e.g. 1 m) throughout the length of the ladder consistent with ladder design, use and maintenance in order to facilitate the rigging of the ladder to the required height.

## 2.2 繩子 Ropes

2.2.1 引水梯每邊的側繩應由兩條連貫的，沒有接頭的，直徑不小於 18 毫米的裸繩組成。每根側繩應有不少於 24 千牛頓的抗斷強度。兩個側繩都應該由連續的繩長組成，繩長一半的中間點位於一個索眼上，索眼的大小能夠容納至少兩條繩子穿過。The side ropes of the pilot ladder should consist of two

uncovered ropes not less than 18 mm in diameter on each side and should be continuous, with no joints and have a breaking strength of at least 24 Kilo Newtons per side rope. The two side ropes should each consist of one continuous length of rope, the midpoint half-length being located on a thimble large enough to accommodate at least two passes of side rope.<sup>36</sup>

2.2.2 側繩應該由馬尼拉繩或具有相同受力強度、耐受力和延展性特質的材料製成，繩上的抓力應該符合主管機關的規定，具有防光化退化保護的功能。Side ropes should be made of manila or other material of equivalent strength, durability, elongation characteristics and grip which has been protected against actinic degradation and is satisfactory to the Administration.

2.2.3 每邊的兩條側繩應該在台階的上下都用設計合理的機械嵌合裝置固定，或者用台階的捆綁裝置來綁牢(墊木或一些小器具)，使引水梯在搖晃時台階能保持平穩。推薦使用捆綁的方法。Each pair of side ropes should be secured together both above and below each step with a mechanical clamping device properly designed for this purpose, or seizing method with step fixtures (chocks or widgets), which holds each step level when the ladder is hanging freely. The preferred method is seizing.<sup>37</sup>

### 3 與引水梯配合使用的舷梯 ACCOMMODATION LADDERS USED IN CONJUNCTION WITH PILOT LADDERS

3.1 對於特別類型的船舶，能夠同樣提供安全保證的更合適的裝置是可以接受的。Arrangements which may be more suitable for special types of ships may be accepted, provided that they are equally safe.

3.2 舷梯應有足夠的長度以保證斜面的傾斜角不能大於 45 度。對於吃水範圍大的船，應該提供多個引水梯懸掛點，以提供更小的斜面夾角。舷梯寬度應該不小於 600 毫米。The length of the accommodation ladder should be sufficient to ensure that its angle of slope does not exceed 45°. In ships with large draft ranges, several pilot ladder hanging positions may be provided, resulting in lesser angles of slope. The accommodation ladder should be at least 600 mm in width.

3.3 舷梯使用時，其底部平台應該處於水平位置並固定在船側。底部平台高於海平面的最小值為 5 米。The lower platform of the accommodation ladder should be in a horizontal position and secured to the ship's side when in use. The lower platform should be a minimum of 5 m above sea level.

3.4 如果安放有中部平台，中部平台應該能夠自動調整為水平。舷梯的踏板和階梯應該在可操作的角度設計有足夠並且安全的支撐點。Intermediate platforms, if fitted, should be self-levelling. Treads and

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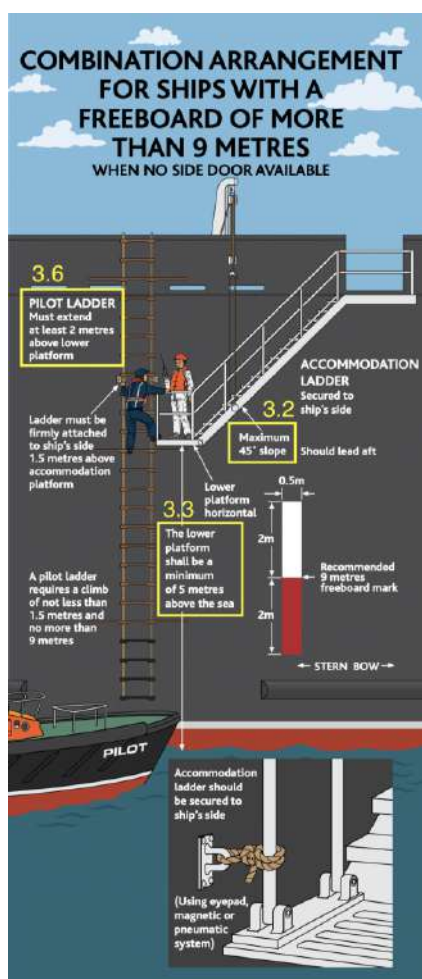
<sup>36</sup> Refer to the recommendations by the International Organization for Standardization, in particular publication ISO 799:2004, Ships and marine technology — Pilot ladders, part 4.3a and part 3, paragraph 3.2.1. °

<sup>37</sup> Refer to the recommendations by the International Organization for Standardization, in particular publication ISO 799:2004, Ships and marine technology — Pilot ladders, part 4.3a and part 3, paragraph 3.2.1. °

steps of the accommodation ladder should be so designed that an adequate and safe foothold is given at the operative angles.

3.5 梯子和平台的兩邊都應該安裝有柱子和堅硬的扶手，如果使用扶手繩，繩子應該被緊緊地固定。梯子縱梁與扶手或扶手繩之間的垂直空間應該有固定的圍欄。The ladder and platform should be equipped on both sides with stanchions and rigid handrails, but if handropes are used they should be tight and properly secured. The vertical space between the handrail or handrope and the stringers of the ladder should be securely fenced.

3.6 引水梯應該就安裝在舷梯底層平台的毗鄰處，往平台上方至少要延伸 2 米。引水梯與舷梯底層平台之間的水平距離應該在 0.1 米至 0.2 米之間。The pilot ladder should be rigged immediately adjacent to the lower platform of the accommodation ladder and the upper end should extend at least 2 m above the lower platform. The horizontal distance between the pilot ladder and the lower platform should be between 0.1 and 0.2 m.

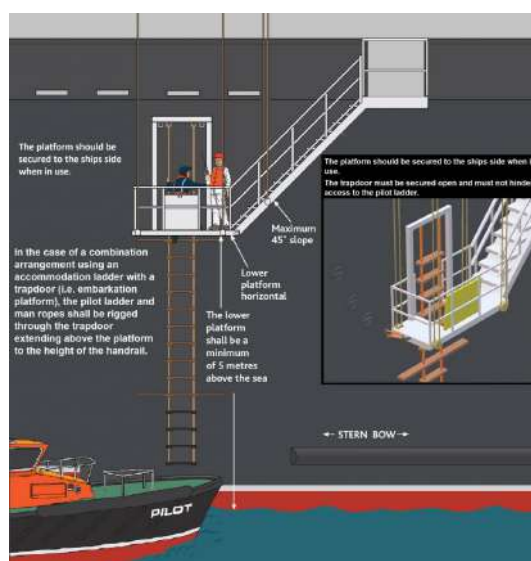


說明：

1. 斜面的傾斜角不能大於 45 度。
2. 底部平台高於海平面的最小值為 5 米。
3. 中部平台應該能夠自動調整為水平。
4. 梯子和平台的兩邊都應該安裝有柱子和堅硬的扶手，扶手繩繩子應該被緊緊地固定。梯子縱梁與扶手或扶手繩之間的垂直空間應該有固定的圍欄。
5. 往平台上方至少要延伸 2 米。

圖片來源：<https://pilotladdersafety.com>

- 3.7 如果在底部平台安裝了活板門以允許通往引水梯，門的大小應該不小於 750 毫米×750 毫米。門應該朝上開並且固定在登船平台，或是對著扶手的尾部，或是在平台上朝弦外側，並且門與扶手相對獨立。在這種情況下，底部平台的後部也應該有圍欄保護正如在上面 3.5 段中所提到的，引水梯應該延伸到底層平台的上面一直到扶手的位置並且與船的側邊保持或相對成直線。If a trapdoor is fitted in the lower platform to allow access from and to the pilot ladder, the aperture should not be less than 750 mm x 750 mm. The trapdoor should open upwards and be secured either flat on the embarkation platform or against the rails at the aft end or outboard side of the platform and should not form part of the handholds. In this case the after part of the lower platform should also be fenced as specified in paragraph 3.5 above, and the pilot ladder should extend above the lower platform to the height of the handrail and remain in alignment with and against the ship's side.



- 3.8 舷梯與其他懸掛的，附加的安裝和打算使用的裝置部署都應該滿足主管機關的要求。Accommodation ladders, together with any suspension arrangements or attachments fitted and intended for use in accordance with this recommendation, should be to the satisfaction of the Administration<sup>38</sup>.

#### 4 機械升降引水人裝置 MECHANICAL PILOT HOISTS

根據 SOLAS V/23 的規定，禁止使用機械升降引水人裝置。The use of mechanical pilot hoists is prohibited by SOLAS regulation V/23.

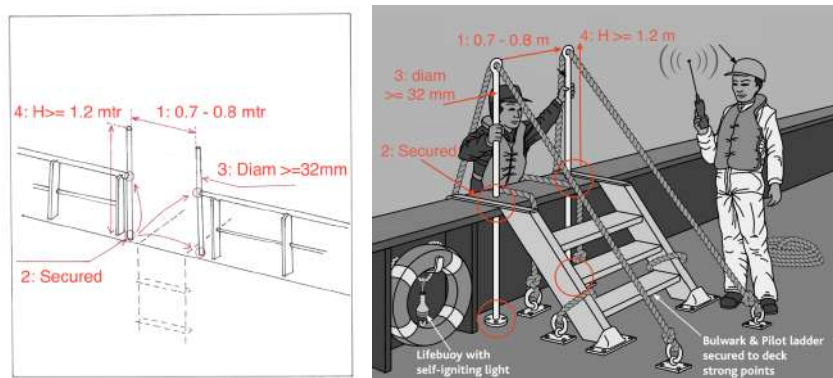
#### 5 登甲板通道 ACCESS TO DECK

要為任何人在引水梯或舷梯與甲板之間登船或離船提供保證安全、便捷、無障礙的通道。這樣的通道可以直接由有固定扶手保護的平台提供。這樣的通道有下列方法：Means should be provided to ensure safe, convenient and unobstructed passage for any person embarking on, or disembarking

<sup>38</sup> Refer to SOLAS regulation II-1/3-9 concerning accommodation ladders. I:\ASSEMBLY\27\RES\1045.doc。

from, the ship between the head of the pilot ladder, or of any accommodation ladder, and the ship's deck; such access should be gained directly by a platform securely guarded by handrails. Where such passage is by means of:

- 1 當在欄桿或舷牆上開有門時，在船舶每舷的登離船位置應設有足夠的扶手，扶手之間相隔不應小於 0.7m，也不大於 0.8m。每個扶手的下端或接近下端處以及較高處應牢固地繫固在船舶結構上，其直徑應不小於 32mm 且其高度應超過安裝的甲板不少於 1.2m；和 a gateway in the rails or bulwark, adequate handholds should be provided at the point of embarking on or disembarking from the ship on each side which should be not less than 0.7 m or more than 0.8 m apart. Each handhold should be rigidly secured to the ship's structure at or near its base and also at a higher point, should be not less than 32 mm in diameter and should extend not less than 1.2 m above the deck to which it is fitted; and
- 2 當設有舷牆梯時，在船舶每舷的登離船位置應各安裝兩個單獨的扶手支柱，相隔不應小於 0.7m，也不大於 0.8m。此舷牆梯應牢固地固定在船上以防止翻轉。每個支柱的下端或接近下端處以及較高處應牢固地連接在船舶結構上，其直徑應不小於 32mm 且其高度應超過舷牆頂部不少於 1.2m。扶手支柱或欄桿不應裝設在舷牆梯上。a bulwark ladder, two separate handhold stanchions should be fitted at the point of embarking on or disembarking from the ship on each side which should be not less than 0.7 m or more than 0.8 m apart. The bulwark ladder should be securely attached to the ship to prevent overturning. Each stanchion should be rigidly secured to the ship's structure at or near its base and also at a higher point, should be not less than 32 mm in diameter and should extend not less than 1.2 m above the top of the bulwarks. Stanchions or handrails should not be attached to the bulwark ladder.<sup>39</sup>

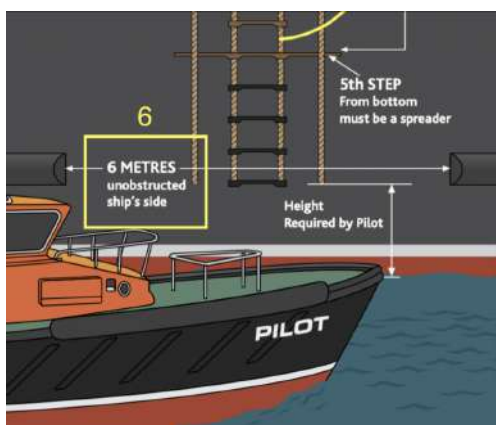


## 6 引水船安全靠近部位 SAFE APPROACH OF THE PILOT BOAT

當摩擦靠墊或其它結構性突出物有可能妨礙引水船安全靠近時，這些障礙物應該被移除以提供船舷邊至少 6 米的無障礙物區域。小於 90 米船長的特種近水船舶或者其他類似的由相關當局決定

<sup>39</sup> Resolution A.1108(29), Amendments to the recommendation on pilot transfer arrangements (Resolution A.1045(27))。

的摩擦靠墊與船間距達不到 6m 的，不必拘泥於此要求。此種情形下，應採取其他合適的方法來確保引水人的安全登船和離船。Where rubbing bands or other constructional features might prevent the safe approach of a pilot boat, these should be cut back to provide at least 6 metres of unobstructed ship's side. Specialized offshore ships less than 90 m or other similar ships less than 90 m for which a 6m gap in the rubbing bands would not be practicable, as determined by the Administration, do not have to comply with this requirement. In this case, other appropriate measures should be taken to ensure that persons are able to embark and disembark safely.



說明：

1. 提供船舷邊至少 6 米的無障礙物區域。
2. 最低的防扭板應該在梯子的下面倒數第 5 級，

圖片來源：<https://pilotladdersafety.com>

## 7 引水梯絞車捲筒的安裝 INSTALLATION OF PILOT LADDER WINCH REELS

### 7.1 通道點 Point of access

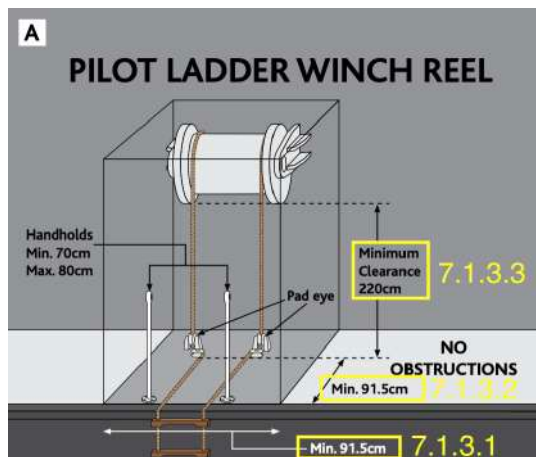
7.1.1 當用到引水梯絞車捲筒時，它應位於引水梯和登船點之間的安全，方便和無障礙區域，以確保人員安全登/離船。When a pilot ladder winch reel is provided it should be situated at a position which will ensure persons embarking on, or disembarking from, the ship between the pilot ladder and the point of access to the ship, have safe, convenient and unobstructed access to or egress from the ship.

7.1.2 登船/離船點可以是船舶的舷側開口，舷梯或者是單一的引水梯的一部分。The point of access to or egress from the ship may be by a ship's side opening, an accommodation ladder when a combination arrangement is provided, or a single section of pilot ladder.

7.1.3 登船點和附近區域應該無障礙物，包括引水梯絞車捲筒，具體距離要求如下：The access position and adjacent area should be clear of obstructions, including the pilot ladder winch reel, for distances as follows:

- .1 縱向測量寬度 915 毫米 a distance of 915 mm in width measured longitudinally;
- .2 從舷側板向內測量深度 915 毫米 a distance of 915 mm in depth, measured from the ship's side plating inwards; and

- 3 從登船甲板垂直測量高度 2200 毫米 a distance of 2,200 mm in height, measured vertically from the access deck.



說明：

1. 縱向測量寬度 915 毫米。
2. 從舷側板向內測量深度 915 毫米。
3. 垂直測量高度 2200 毫米。

圖片來源：<https://pilotladdersafety.com>

## 7.2 引水梯絞車捲筒的物理位置 Physical positioning of pilot ladder winch reels

7.2.1 引水梯絞車捲筒通常安置在船的上甲板(主甲板)或安置在船舷側開口(包括舷側門，舷梯處或加油點)。絞車捲筒安置在上甲板會導致使用很長的引水梯。Pilot ladder winch reels are generally fitted on the ship's upper (main) deck or at a ship's side opening which may include side doors, gangway locations or bunkering points. Winch reels fitted on the upper deck may result in very long pilot ladders.

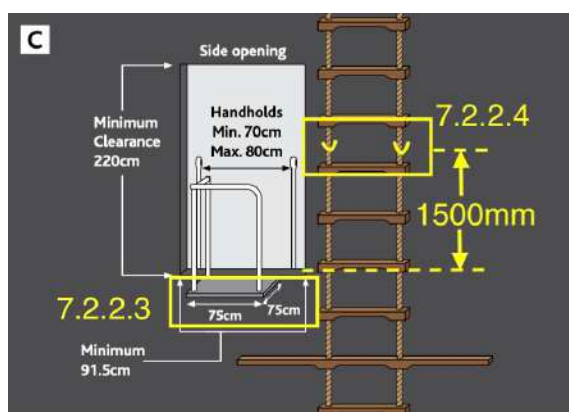
7.2.2 安置在船的上甲板的引水梯絞車捲筒是為了與從上甲板下方的船舷側開口生活舷梯組合使用，此時引水梯絞車捲筒應：Pilot ladder winch reels which are fitted on a ship's upper deck for the purpose of providing a pilot ladder which services a ship side opening below the upper deck or, alternatively, an accommodation ladder when a combination arrangement is provided should:

- 1 位於上甲板能使引水梯垂直收起的位置，通到靠近船舷側開口登船處或者舷梯的下平台；be situated at a location on the upper deck from which the pilot ladder is able to be suspended vertically, in a straight line, to a point adjacent to the ship side opening access point or the lower platform of the accommodation ladder;
- 2 位於能提供安全，方便和無障礙的通道處以便於任何人從引水梯登離船；be situated at a location which provides a safe, convenient and unobstructed passage for any person embarking on, or disembarking from, the ship between the pilot ladder and the place of access on the ship;
- 3 在引水梯和船舷側開口處的安全，方便處設置一個伸出外船舷至少 750 毫米，縱向長度至少 750 毫米的平台。此平台應安置牢固的扶手；be situated so that safe and convenient access is provided between the pilot ladder and the ship's side opening by means of a platform which should



extend outboard from the ship's side for a minimum distance of 750 mm, with a longitudinal length of a minimum of 750 mm. The platform should be securely guarded by handrails;

- .4 在從平台登船點上方距離 1500 毫米處牢固地繫緊引水梯和扶手繩到舷梯的下平台；safely secure the pilot ladder and manropes to the ship's side at a point on the ships side at a distance of 1,500 mm above the platform access point to the ship side opening or the lower platform of the accommodation ladder; and
- .5 如果提供引水/舷梯組合型的登船方案，應將舷梯繫固在船舷側或緊靠底層平台以便於舷梯緊靠著船舷。if a combination arrangement is provided, have the accommodation ladder secured to the ship's side at or close to the lower platform so as to ensure that the accommodation ladder rests firmly against the ship's side.



說明：

1. 從平台登船點上方距離 1500 毫米處牢固地繫緊。
2. 一個伸出外船舷至少 750 毫米，縱向長度至少 750 毫米的平台。

圖片來源：<https://pilotladdersafety.com>

7.2.3 引水梯絞車捲筒安置於船舷開口內側時應：Pilot ladder winch reels fitted inside a ship's side opening should:

- .1 位於能提供一個安全，方便和無障礙的通道處以便於任何人從引水梯到登船點登/離船；be situated at a position which provides a safe, convenient and unobstructed passage for any person embarking on, or disembarking from, the ship between the pilot ladder and the place of access on the ship;
- .2 位於一個能提供至少長 915 毫米、寬 915 毫米，垂直高度 2200 毫米的無障礙區域；be situated at a position which provides an unobstructed clear area with a minimum length of 915 mm and minimum width of 915 mm and minimum vertical height of 2,200 mm; and
- .3 引水梯一部分如需要水平繫固在甲板以提供上述清爽區域，那麼這部分引水梯應繫固於一個牢固的平台，此距離應由船舷往內不小於 915 毫米。if situated at a position which necessitates a section of the pilot ladder to be partially secured in a horizontal position on the deck so as to provide a clear access as described above, then allowance should be made so that this section of

the pilot ladder may be covered with a rigid platform for a minimum distance of 915 mm measured horizontally from the ship's side inwards.

### 7.3 扶手和手柄 Handrails and handgrips

扶手和手柄應按照本章程 5 的要求以協助引水安全的從引水梯登船(在 7.2.2.3 的章節標注的延伸出船舷的平台裝置登船情形除外)手柄和/或扶手之間的水平距離應不小於 0.7 米和 不大於 0.8 米。 Handrails and handgrips should be provided in accordance with section 5 to assist the pilot to safely transfer between the pilot ladder and the ship, except as noted in paragraph 7.2.2.3 for arrangements with platforms extending outboard. The horizontal distance between the handrails and/or the handgrips should be not less than 0.7 m or more than 0.8 m apart.

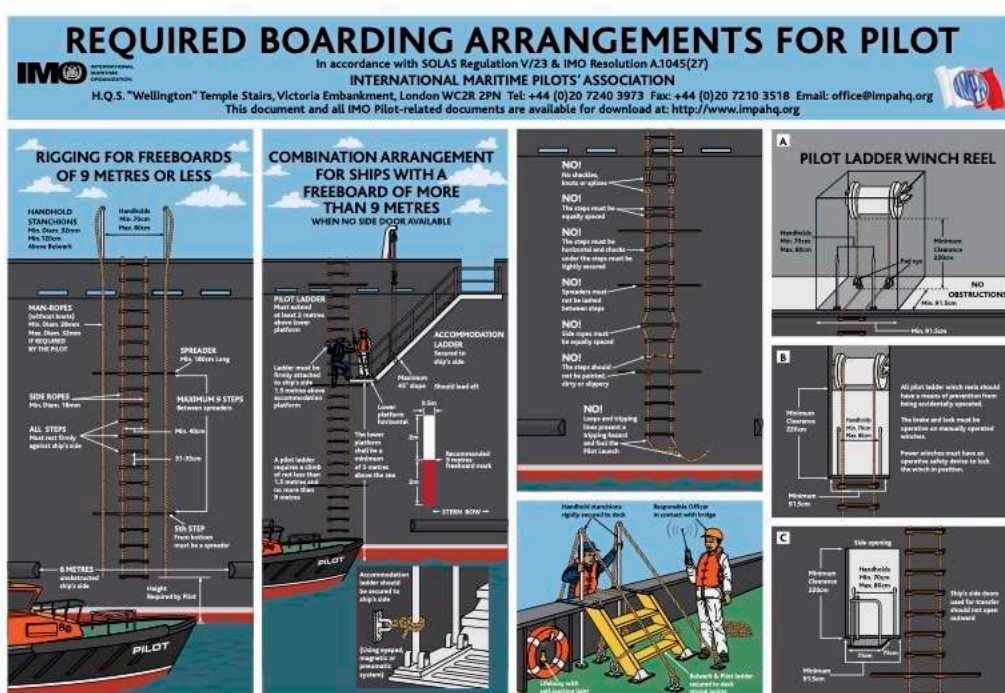
### 7.4 引水梯的繫固 Securing of the pilot ladder

- 1 當引水梯儲存在引水梯絞車捲筒上方時，引水梯絞車捲筒應位於船舷側開口或在上甲板；  
Where the pilot ladder is stowed on a pilot ladder winch reel which is located either within the ship's side opening or on the upper deck;
- 2 當使用引水梯時，不能指望引水梯絞車捲筒來承受引水梯的受力；the pilot ladder winch reel should not be relied upon to support the pilot ladder when the pilot ladder is in use;
- 3 引水梯應繫固在脫離與絞車捲筒的繫固牢點；the pilot ladder should be secured to a strong point, independent of the pilot ladder winch reel; and
- 4 引水梯應繫固於船舷開口內的甲板水平面或，當繫固於上甲板時，應從船舷向里水平距離不小於 915mm。the pilot ladder should be secured at deck level inside the ship side opening or, when located on the ship's upper deck, at a distance of not less than 915 mm measured horizontally from the ship's side inwards.

### 7.5 引水梯絞車捲筒的機械保護 Mechanical securing of pilot ladder winch reel

- 7.5.1 所有的引水梯絞車捲筒應有預防保護措施以防止絞車捲筒的錯誤操作導致機械失靈或人為錯誤；  
All pilot ladder winch reels should have means of preventing the winch reel from being accidentally operated as a result of mechanical failure or human error.
- 7.5.2 引水梯絞車捲筒可以是手動，或者是電動、液壓或氣動；Pilot ladder winch reels may be manually operated or, alternatively, powered by either electrical, hydraulic or pneumatic means.
- 7.5.3 手動式引水梯絞車捲筒須裝備手刹或其它合適的裝置，以控制引水梯，並且當引水梯放到合適位置時鎖定住；Manually operated pilot ladder winch reels should be provided with a brake or other suitable arrangements to control the lowering of the pilot ladder and to lock the winch reel in position once the pilot ladder is lowered into position.

- 7.5.4 電動、液壓或氣動式 引水梯絞車捲筒須裝備可切斷動力的安全裝置以在正確位置鎖住絞車捲筒；  
Electrical, hydraulic or pneumatically driven pilot ladder winch reels should be fitted with safety devices which are capable of cutting off the power supply to the winch reel and thus locking the winch reel in position.
- 7.5.5 動力絞車捲筒須清晰地標注出的控制桿或手柄的位置並能鎖定在空檔位置；Powered winch reels should have clearly marked control levers or handles which may be locked in a neutral position.
- 7.5.6 機械裝置或鎖定銷也可以被使用來鎖定動力式絞車捲筒。A mechanical device or locking pin should also be utilized to lock powered winch reels.



以上 IMO 公約、決議文所述，多為本文一開頭五項「安全的環節」中的第 3 與 4 項。至於前文第 1 項的「引水人」、第 2 項的「引水船」、第 5 項的「操作環境」，這「人、船、環境」也都是關鍵之處，但多僅是籠統地以「安全」為要件，感覺像是沒規範卻又什麼都可以規範的帶過，鮮有像「引水人登離裝置」般有明確的法規規範，而且很不幸的，非常多的引水人事故就是落在於此 IMO 未明確規範之處。

規範「可能雇用引水人的船舶應設有引水人登離船裝置」當然是必要的，但是規範「引水人」能適任且安全的使用引水人登離船裝置，與規範「引水船」能安全地接送引水人，並能在特殊或緊急狀況下保護「引水人」不也是不能遺落的一環？

而這事，除了「引水人」、「引水船」等當事人，我們也都一起疏忽了！

但也別忘了，本文介紹的那麼多國際上不同的官方海事組織、引水協會、P&I、ICS等制定有關「引水人」、「引水船」安全的手冊或規範，人家可都沒疏忽，寫得超清楚。咱們真想學習，一點都不難，只要是識字、有心，就可以做成。

不過，回過頭來，再來請教個問題。

話說，依據《引水人管理規則》：

- 第 7 條：「專供引水工作所用之引水船，由引水人辦事處置備，並得申請電信主管機關核准設置無線電臺，以利執業<sup>40</sup>。」
- 第 8 條：「引水人辦事處未置備引水船者，由引水人辦事處租用適當之船舶代用。但須具備引水法第九條規定之標誌，以資識別<sup>41</sup>。」

既然「引水船，由引水人辦事處置備」，又既然「引水人辦事處未置備引水船者，由引水人辦事處租用適當之船舶代用。」

現在如果有人要批判「引水船」不安全、不合規、有夠爛、根本不像「專供引水工作所用之引水船」等等，那是不是該先檢討「引水人辦事處」呢？

再如果「引水人辦事處」要說，實務上就不是這樣，「引水人辦事處」和「引水船置備」，從古迄今，未曾有過「置備」關係，人家可是清白的。

如果上述為真，那麼《引水人管理規則》第 7、8 條是在寫個什麼不食、也不是「人間煙火」的東西？而且這二條的法義精神，從有規則迄今，沒變過。

再來說實務，除了一些不用被管、不用繳管理費、愛怎麼幹就怎麼幹的的幸福企業以外，現階段，有的引水船業務是由「臺灣港務股份有限公司」以開放港勤交通船業務

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<sup>40</sup> 行政院公報，第 022 卷，第 090 期，20160517，交通建設篇，引水人管理規則修正草案總說明。  
第 7 條：  
專供引水工作所用之引水船，由引水人辦事處置備。  
前項引水船得申請電信主管機關核准設置無線電臺，並安裝船舶自動識別系統，以利執業。

<sup>41</sup> 中華民國 51 年 10 月 2 日交通部(51)交航字第 7358 號令訂定發布之《引水人管理規則》。  
第 8 條：引水人辦事處未置備引水船者，由引水人辦事處租用普通船舶。惟須具備引水法第九條規定之標誌，以資識別。

方式，透過「港勤交通船投資經營案業務」委託民間公司經營包含可以搭載「引水人」的服務<sup>42, 43, 44</sup>。

那有趣了，既然「引水船，由引水人辦事處置備」，又既然「引水人辦事處未置備引水船者，由引水人辦事處租用適當之船舶代用。」

那麼這個「臺灣港務股份有限公司」幹麻替「引水人辦事處」幹這個活？難不成是做做公益順便加減做莊抽成<sup>45</sup>？更有趣的是那些愛怎麼幹就怎麼幹的幸福企業，「引水人辦事處」就這麼讓他們替自己幹？

再來說實務，實務上就因為《引水人管理規則》還有英明的第 9 條寫著：「引水人辦事處無力置備或租用引水船者，得報請航政主管機關協助之。」所以航政主管機關就跳出來替「無力」的「引水人辦事處」，把這事委由各船務代理自行安排交通船接送引水人。然後，安排再安排，時日久了，最後就變成「交通船」取代了「引水船」<sup>46</sup>。這也省事，爾後「交通引水船」、「引水交通船」也不用要求其能不能符合《引水人管理規則》第 7 條所謂「專供引水工作所用」應該具備能因應各港海氣象環境，把引水人送到防波堤外面遠遠的引水站(P/S)之引水船，真是美好！

至於「運安會」很愛檢討「引水人」有沒有在「引水站」上下。這事和不是「引水船」的「交通船」有沒有本事開到「引水站」？還是單純是引水人認為沒必要還是偷懶？

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<sup>42</sup> 參與港務分公司同意之港勤交通船業務，自備交通船及相關設施，依市場機制由交通船使用者自行選用，並接受本分公司調派，自行收費。  
[https://tc.twport.com.tw/chinese/News\\_Content.aspx?s=86B6AEB8B9FE971E&SMSU=4C57D831E819E9FC](https://tc.twport.com.tw/chinese/News_Content.aspx?s=86B6AEB8B9FE971E&SMSU=4C57D831E819E9FC)。

<sup>43</sup> 乙方交通船如搭載引水人，基於通訊及作業需要，乙方應提供船上通訊設備、VHF 及航儀、雷達供引水人使用，並回報引水人登上或離開商輪時間。  
<https://tc.twport.com.tw/Upload/D/RelFile/News/14626/448ef7e7-27b0-470a-b02a-49c67b24f745.pdf>。

<sup>44</sup> 經營方式：自負盈虧，交通船靠泊船席由本分公司指泊，全天候 24 小時至少提供 1 艘港勤交通船作業服務，並接受本分公司之調度及督導。  
<https://tc.twport.com.tw/Upload/D/RelFile/News/14626/f2c594a3-49ea-4bd7-8558-e77dc3f09b92.pdf>。

<sup>45</sup> 公開閱覽文件：最低管理費為 25%、26.8%、30%、正式文件：最低管理費為 25%。  
<https://tc.twport.com.tw/Upload/D/RelFile/News/14626/f2c594a3-49ea-4bd7-8558-e77dc3f09b92.pdf>。

<sup>46</sup> 依據中華民國船舶資料庫顯示船舶種類登記為「(C46)引水船」者僅 6 艘，3 艘註銷登記，現存 3 艘，總噸位皆不及 20，均在基隆。換言之，全台，除了基隆有引水船外，其餘各港的引水人接送業務就各自表述了。船舶種類登記為「(A1D)港勤交通船」者，計 35 艘，7 艘註銷登記，7 艘總噸位皆不及 40，其餘 21 艘總噸位均在 40-50 間。

還是引水站的定義一開始就有問題？故事可以講得落落長，留著看看「運安會」能不能真有本事找到 **Root cause**。此處暫時不議。咱們繼續回到船上來。

咱們別忘了，招喚不是「專供引水工作所用之引水船」的「交通船」做「引水船」的事，本身「邏輯性」與「適法性」就不是很站得住。這樣的「非」引水專用船，除了執行「引水工作」的能力能否經得起挑戰不說，就連哪天引水人落水，不要又搪塞說一堆船開不過去、人救不上來等自己都聽不下去的話。

又再來看實務，2022.02.21「船舶進出商港航行及領航作業安全專案檢討會議」結論中有稱：「引水船性能精進部分，目前大多數港口係由民間業者經營，船舶設備及安全等級仍有不足，本局將納入研議由航港建設基金出資購建，交由港務公司營運之方式與機制，惟尚須會商財政主計單位衡平可行性。因應船舶大型化及海氣象環境變化趨勢，請航安組另洽各港引水人及委員，瞭解引水船實際所需要之性能標準。<sup>47</sup>」

因為很重要，讓我第三次說『既然「引水船，由引水人辦事處置備」，又既然「引水人辦事處未置備引水船者，由引水人辦事處租用適當之船舶代用。」』依法行政的航港局現在是吃飽太閒，打算依據《引水人管理規則》有第9條「得報請航政主管機關協助之」的第三順位的「法源依據」，勇於任事，乾脆「公親變事主」把事撿起來，把協助變成自己全包起來來幹嗎？

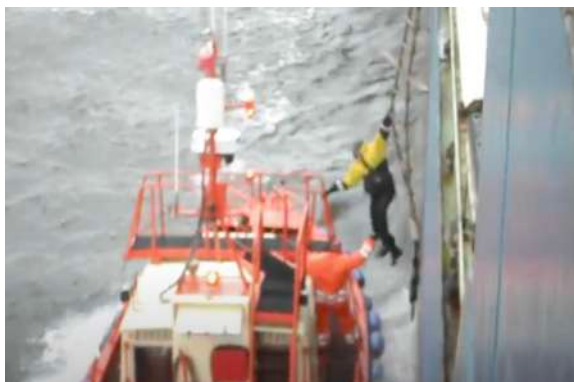
現在，我第四次重申這句『「既然「引水船，由引水人辦事處置備」，又既然「引水人辦事處未置備引水船者，由引水人辦事處租用適當之船舶代用。」』

引水人掌握自己的引水船，經營自己的接送業務、保障自己把命賭在上面的生財工具，有沒有賺錢暫且不要說，這事該不該做？自己想就好，還是每個都只要當過客，顧好自己的引水費，至於不是「專供引水工作所用之引水船」的「交通船」，大家繼續將就將就，反正數十年如一日，平安下莊，只要人不要掉下去<sup>48,49</sup>，船不要開不過去，落水的人不要拉不起來，更不要不知道怎麼急救，這樣就好。至於引水人們過去讀書時學到的「seaworthiness」這個字，引水人們是不是要知道，當不適合的船執行引水人接送業務時，本身就已經是「unseaworthiness」、「un-pilot boat-worthiness」了，而這個責任的根源是誰？沒修掉7、8條前，「引水人辦事處」多少也有份吧？

<sup>47</sup> 「船舶進出商港航行及領航作業安全專案檢討會議」會議紀錄，[http://www.ncsu.org.tw/file/會議紀錄\\_0519.pdf](http://www.ncsu.org.tw/file/會議紀錄_0519.pdf)。

<sup>48</sup> 引用台灣的引水人落水影片太殘忍，就引用網路的公開資訊吧。<https://youtu.be/xBM7EPT03us>。

<sup>49</sup> Pilot falls into the water。<https://youtu.be/6HJVM7ffoxg>。[https://youtu.be/Xs\\_ReOGGyZ](https://youtu.be/Xs_ReOGGyZ)。



韓愈在〈送鄭尚書序〉中說：「蜂屯蟻雜，不可爬梳。」

本文始於爬梳引水梯，爬到最後卻發現，引水梯之外有另個「不可爬梳」的「引水船」！

或許「引水船」這事，打從中華民國 51 年 10 月 2 日交通部(51)交航字第 7358 號令訂定發布《引水人管理規則》就已「蜂屯蟻雜」存在迄今，下個月，60 大壽！

好吧！生日快樂！

這一題，不再開講！大家隨興！爾後如果萬一有因為那「令人忐忑上下的引水梯以及那不似引水船的引水船」讓小事變大事，大事變成告別式的，那也就隨緣隨業，並且記著有個熱心的路人甲都已說過就好。

海水飛揚，朔風野大，小弟歸矣，猶屢屢回頭望船也。