HOW TO BECOME A
MARINE PILOT

INTRODUCTION

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Marine Pilotage

Capt. John Swinkels

Foreword

Esteemed colleagues and Aspiring mariners,

We stand at a critical juncture in the world of maritime operations, where the intricate dance between vessel, environment, and human expertise demands the utmost diligence and understanding. The safe and efficient navigation of ships, particularly within the often-challenging confines of pilotage waters, is paramount to global trade and the prevention of maritime incidents. Recognizing the multifaceted nature of this discipline, Captain John A A Swinkels has embarked on a significant undertaking: to consolidate the wealth of knowledge currently dispersed across various guidelines, regulations, and operational insights into a series, of 12 comprehensive book modules.

This series, envisioned as the definitive resource for all matters pertaining to marine pilotage and ship handling, aims to bridge the gaps between theoretical understanding and practical application, drawing upon the accumulated wisdom enshrined in documents such as the IMPA guidelines on pilot transfer and the broader considerations of marine pilotage as historically developed. It acknowledges the crucial role of the marine pilot – an experienced person with detailed local knowledge, charged with the ship's course in specific districts – and delves into the core competencies required to fulfil this vital function.

Within these pages, Captain Swinkels will navigate the reader through the essential elements of safe pilot transfer operations, a critical area highlighted by IMO and IMPA's efforts to provide information on factors to be considered during these evolutions. This includes a thorough examination of personal safety training, encompassing survival and personal protective equipment (PPE), the assessment of pilot transfer arrangements, and the correct use of pilot ladders, combination arrangements, and pilot boats. Furthermore, the series will address the specific considerations for helicopter transfers.

Beyond the immediate act of pilot transfer, the text will explore the broader spectrum of pilotage operations. This includes the historical development of pilotage, the varying ways in which pilotage services are authorized and provided, and the essential duties and responsibilities of marine pilots in today's maritime landscape. The crucial aspect of communication between the master, pilot, and bridge team will be thoroughly examined, referencing the importance of effective information exchange and mutual understanding.

A significant portion of the series will be dedicated to the art and science of ship handling. Drawing upon practical experience and the analysis of maneuvering techniques, Captain Swinkels will elucidate the forces affecting a ship, the concept of the pivot point, and the effective use of rudders, propellers, and tugs in diverse scenarios. The series will also address

the influence of environmental factors such as wind and tide, and the importance of cultural awareness and management on the bridge.

Recognizing that safety is paramount, this comprehensive guide will dedicate significant attention to risk assessment and emergency preparedness. It will examine potential hazards associated with pilot transfer and ship maneuvering, drawing lessons from incident reports and case studies. The module series will also outline procedures for responding to medical emergencies, falls from height, man-overboard situations, and other serious casualties. The importance of incident reporting and fostering a learning culture within maritime organizations will also be highlighted.

Furthermore, Captain Swinkels will contextualize pilotage within the framework of international regulations and recommendations, including relevant aspects of SOLAS and IMO Resolutions on pilot transfer arrangements, training, and qualifications. The series will also touch upon the evolving role of technology in navigation, including electronic chart display and information systems (ECDIS) and integrated bridge systems, and their impact on pilotage practices.

This series are not intended to prescribe a single approach to pilot transfer operations or ship handling, but rather to provide a holistic understanding of the factors to be considered when preparing for and executing these critical tasks in accordance with local requirements and international best practices. It aims to be an indispensable tool for trainee and experienced pilots, ship masters and officers, competent pilotage authorities, and anyone with a vested interest in the safety and efficiency of marine navigation. Captain Swinkels' expertise and dedication in compiling this comprehensive resource promise to significantly enhance the knowledge base and safety culture within the maritime industry.

This course is part of, by Nautical Institute London UK Recognized for CPD:

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About the author.

Course Director Capt. John, started his career in 1985, he joined the Royal Dutch Navy as a third engineer. He sailed on self-propelled vessels with diesel shaft generator with FPP and electric or gas turbines propulsion with CPP and DP. By the time he was honorably discharged, after 5 years of service, he reached the rank of a first-class engineer.

During the 40+ years of his career, Capt. John ranked himself up and specialized himself in the offshore industry as a Rig Move Master (RMM), Moving Heavy Rigs, Worldwide Offshore, hands-on. He worked and works/teaches professionals on projects from, and with companies such as, ARAMCO, ABL, SHELL, FUGRO, ADNOC, NPCC, ZADCO, ADMA, TOTAL, BP, SAIPEM, VELESTO, GM, SEAFOX, INPEX, CHEVRON, MAERSK, SAPURA, GV to name a few.

Whilst on the job, John saw opportunities and obtained Certificates of Competency and Professional Certificates such as Master No Limitations, Dynamic Positioning (DPO), Helicopter Landing Officer (HLO), Marine Pilotage, Offshore Installation Manager (OIM), STCW Competence Assessor, OPITO Competence Assessor, OPITO Major Emergency Initial Response (MEMIR), Marine Warranty Surveyor (MWS), Rig Move and Jacking Operations Masterclass Training Course Recognition by the Nautical Institute London UK.

Capt. John is training course facilitator for courses such as Marine Pilotage, Offshore Towing (AHTS) and Anchor Handling, Jack-Up & Rig Move, MOU Comprehensive Stability, OIM, Barge Supervisor and On-Scene Commander.

During the last years, John has Trained and Assessed a couple of hundred Rig Movers, OIM's, Barge Masters and Jacking Operators for Major O&G Companies and Operators of Rigs.

Capt. John's promise offers you the chance to upgrade from read-only to the full course for "Officially Recognized CPD Certification in IMO Compliant Marine Pilotage".

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Table of content

What does it take to become a Marine Pilot

To become a marine pilot, the sources indicate a multi-faceted process involving significant prior maritime experience, specialised training, and rigorous assessment leading to licensing or certification. The specific requirements and pathways can vary depending on the country and the pilotage authority.

Here's a breakdown of the general steps and considerations, drawing on the information in the sources:

1. Essential Prerequisites and Qualifications

Extensive Maritime Experience: A fundamental requirement is substantial experience as a qualified seafarer. This typically includes holding a Master's Certificate of Competency (CoC) or a Senior Deck Officer Certificate (or the naval equivalent). For example, in Australia, an applicant for a trainee coastal pilot license needs to hold a certificate as Master for ships of 3000 or more gross tonnage or equivalent Royal Australian Navy qualifications. In the UK, while there are no strict national standards, many pilots hold an IMO STCW II/2 Master's qualification and have served as Captain or Chief Officer. The US also generally requires extensive deep-sea or tug experience.

Sea Service: A significant period of sea service as a senior officer is usually necessary. In Australia, at least 36 months of sea service as Master, navigating officer in charge of a watch, or pilot on ships of 500 or more gross tonnage is required to obtain a trainee coastal pilot license. However, both above are not always the case, nowadays one can enter special pilot trainee programs too. These traineeships can have other entry level requirements which can be country and port specific.

Educational Background: Some pilotage authorities may have specific educational prerequisites. For instance, New York State regulations specify candidates must have two years of college, including at least 56 credits in approved subjects. In the US, some pilots may be recruited from maritime academies. The Wilmington-Cape Fear Pilots (North Carolina) require applicants to have a 4-year college degree or a minimum third mate's license (unlimited ocean).

Medical Fitness: A valid certificate of medical fitness is a standard requirement.

Good Character: Candidates are often required to produce certificates of good character and sobriety.

2. Pilot Training (Apprenticeship and Formal Instruction)

Apprenticeship or Indoctrination: Most pilot associations require a period of apprenticeship or indoctrination. This involves observing and receiving practical instruction on local routes, ship behavior, and ship handling skills under various operating conditions and with different vessel types and sizes. These apprenticeships can last from a year to three years or more.

Route Repetition ("Round Trips"): A crucial element of training is route repetition to gain essential local knowledge and experience a wide range of operating conditions. The number of required trips can be substantial; for example, the Wilmington-Cape Fear Pilots require unlicensed applicants to complete at least 360 trips and third mates at least 120 trips.

Formal Training Programs: Some pilot associations have established formal training programs with accredited curricula. These may include classroom instruction on nautical theory, ship handling, regulations, and the use of technology.

Simulator Training: The use of marine simulators is increasingly recognized as a valuable tool for pilot training, particularly for emergency ship handling, complex operations, and assessing a pilot's ability under stress. Some pilotage authorities specify attendance at simulation training courses. However, the IMPA advises that training should combine minimal computer-based training (CBT) with a substantial number of practical ladder climbs in a realistic environment. Supervised and observed practical ladder climbs are considered the preferred training method.

Local Knowledge Acquisition: A significant focus of training is acquiring expert local knowledge of the pilotage area, including routes, traffic conditions, seasonal variations, buoyage, depths, navigational aids, and port procedures. Port management can assist with instruction on local byelaws and procedures. Trainees may undertake visits to Vessel Traffic Services (VTS) operations and port facilities.

Ship handling Skills: Training will build upon existing ship handling skills and develop them from a pilot's perspective. This includes understanding the influence of hull shapes, propellers, rudders, thrusters, squat, and interaction, as well as berthing with and without tugs.

Bridge Resource Management (BRM): Developing good BRM skills is essential, as a pilot acts as the manager of the port team and the interface between the port and the vessel. Master/pilot exchange (MPX) is a key part of resource management.

3. Licensing and Certification

Examinations: Upon completion of the initial training period, candidates typically undergo examinations to assess their knowledge and skills.

These can include: Written examinations covering pilotage legislation, rules, ship handling, BRM, and local knowledge.

Oral examinations conducted by senior pilots and the Harbor Master, often overseen by an independent witness.

Practical assessments of ship handling and pilotage skills, potentially observed by senior pilots.

Pilot's Licence: Successful completion of examinations usually leads to the awarding of a pilot's license. In some ports, a grading system exists, with initial licenses having restrictions on the size and type of vessels a pilot can handle, progressing to unrestricted tonnage with experience and further assessment.

Pilotage Authority: The licensing of pilots is typically the responsibility of a Competent Harbor Authority (CHA) or a state or federal regulatory body.

Federal Pilotage in the US: In the United States, federal pilotage is administered by the Coast Guard for coastwise vessels, while state pilotage governs foreign trade vessels. Obtaining a Federal First-Class Pilot's License requires meeting specific sea service requirements and passing an examination.

4. Continuing Professional Development (CPD)

Training continues beyond the initial licensing phase in the form of CPD. Pilots are expected to stay updated on regulations, technology, and best practices. Some pilot associations and authorities may have formal requirements for refresher training and ongoing professional development.

5. Different Types of Pilotage

The training and licensing may be specific to the type of pilotage, such as harbor pilots, river pilots, canal pilots, deep-sea pilots, or offshore rig movers and tow masters, the last two are very specialized offshore category, and not require a pilot licenses. Deep-sea pilotage, for example, may involve specialised training for specific regions like the North Sea or Baltic Sea.

In summary, becoming a marine pilot, rig mover or tow master are demanding professions that requires significant dedication to acquiring the necessary qualifications, undergoing rigorous training, and continuously developing expertise. The emphasis is on practical experience, local knowledge, and the ability to exercise sound judgment in dynamic and often high-pressure situations.

The Marine Pilots Career.

A complete overview of all course modules to pass to be well prepared to enter the industry.

Source picture: PLA UK

Abbreviations

Here is a two-column alphabetic list of abbreviations found in the sources and our conversation history:

Abbreviation	Definition	Abbreviation	Definition
ABP	Associated British Ports	ADS	Automatic Dependent Surveillance
ADSSE	Automatic Dependent Surveillance Shipborne Equipment	AIMS	American Institute of Merchant Shipping
AIMPA	All India Maritime Pilots' Association	AIS	Automatic Identification Systems
APA	American Pilots' Association	ARPA	Automatic Radar Plotting Aid
ASD	Azimuthing Stern Drive	ATSB	Australian Transport Safety Bureau
AWO	The American Waterways Operators	BHP	Brake Horsepower
BMA	Bahamas Maritime Authority	BP	Bollard Pull
BRM	Bridge Resource Management	Cb	Block Coefficient
CCG	Canadian Coast Guard	CCIR	International Radio Consultative Committee
CFR	Code of Federal Regulations	CHA	Competent Harbor Authority
COLREGs	Convention on the International Regulations for Preventing Collisions at Sea	COTP	U.S. Coast Guard Captain of the Port
CPR	Cardio-pulmonary Resuscitation	CPP	Controllable Pitch Propeller
C3I	Command, Control, Communications, and Information	DG	Directorate-General

DGPS	Differential Global Positioning System	DIRM	Direction Inter-Régionale de la Mer
DMA	Defense Mapping Agency	DMAHTC	Defense Mapping Agency, Hydrographic/Topographic Center
DWT	Deadweight Tonnage	EC	European Commission
ECDIS	Electronic Chart Display and Information System	EMPA	European Maritime Pilots' Association
ETA	Estimated Time of Arrival	EU	European Union
FOD	Federale Overheidsdienst (Federal Public Service - Belgium)	ft	Foot
GAO	U.S. General Accounting Office	GM	Metacentric Height
GNSS	Global Navigation Satellite System	H&S	Health and Safety
HRH	Her Royal Highness	HU	Hull
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities	IBS	Integrated Bridge Systems
ICS	International Chamber of Shipping	IMO	International Maritime Organization
IMPA	International Maritime Pilots' Association	ISO	International Organization for Standardization
Kw	Kilowatt	LH	Left Hand (propeller direction)
LT	Local Time	m	Meters
MAIB	Marine Accident Investigation Branch	MAS	Maritime Assistance Service

MCA	Maritime and Coastguard Agency	MGN	Marine Guidance Note
MIN	Marine Information Note	MOB	Man-Overboard
MPX	Master/Pilot Exchange	MRCC	Maritime Rescue Coordination Centre
MSC	Maritime Safety Committee	MSI	Maritime Safety Information
MSIU	Marine Safety Investigation Unit (Malta)	MSN	Merchant Shipping Notice
NATO	North Atlantic Treaty Organization	NEMA	National Marine Electronics Association
NGO	Non-Governmental Organization	NLc	Nederlandse Loodsencorporatie (Netherlands Pilotage Corporation)
NOS	National Occupational Standards	OOW	Officer of the Watch
OSC	On-Scene Coordinator	PECs	Pilotage Exemption Certificates
PFD	Personal Flotation Devices	PLA	Port of London Authority
PMS	Planned Maintenance System	PPE	Personal Protective Equipment
PPUs	Portable Pilot Units	PSC	Port State Control
PSSA	Particularly Sensitive Sea Area	PTA	Pilot Transfer Arrangement(s)
Racons	Radar Beacons	RA	Risk Assessment
RH	Right Hand (propeller direction)	RMS	Royal Mail Ship
ROT	Rate of Turn	RPM	Revolutions Per Minute
SAR	Search and Rescue	SBL	Single Buoy Mooring
SMS	Safety Management System	SOLAS	International Convention for the Safety of Life at Sea

SS	Single Point Mooring	STCW	Standards of Training, Certification and Watchkeeping
SWATH	Small Waterplane Area Twin Hull	TBA	To Be Advised
TDMA	Time division multiple access	TM	Transport Malta
TRANSIT	Navy Navigation Satellite System	TSVTS	The Turkish Straits Vessel Traffic Service
UK	United Kingdom	UKC	Under Keel Clearance
UKMPA	United Kingdom Maritime Pilots' Association	UMS	Unmanned Machinery Space
UN	United Nations	UNEP	United Nations Environment Program
US	United States	USACE	U.S. Army Corps of Engineers
USC	United States Codes	USCG	U.S. Coast Guard
UTC	Coordinated Universal Time	UHF	Ultra-High Frequency
VHF	Very High Frequency	VLCC	Very Large Crude Carrier
VTC	Vessel Traffic Center	VTS	Vessel Traffic Service

Please note that some abbreviations might have slightly different meanings depending on the context, but these are the most common definitions based on the sources.

Module 1

Foundations of Marine Pilotage and Safety

Introduction to Pilotage

An overview of the role, responsibilities, and historical context of marine pilotage. Understanding the function of pilot organizations and competent pilotage authorities. The importance of adhering to local requirements and continuous professional development will be emphasized.

Pilot Transfer Operations Safety

Detailed information on the safe conduct of pilot transfer operations, aligning with recommendations on personal safety training. This includes understanding pilot ladder certification, identification, and record-keeping. The importance of complying with regulations such as SOLAS V/23 and IMO Resolution A.1045(27), as amended, will be covered. Common issues such as non-compliant pilot transfer arrangements and the significance of reporting near-misses will be addressed.

Personal Protective Equipment (PPE)

Understanding the types and proper use of equipment designed to enhance safety during pilot transfer operations.

Risk Assessment and Management in Pilotage

Principles of formal risk assessment and its application to pilotage operations, aiming to reduce risks to a level that is as low as reasonably practicable. Identifying hazards associated with pilot transfer, navigation, and ship handling, and implementing control measures will be a focus.

Emergency Preparedness and Response

Developing and implementing emergency response or crisis management plans for serious casualties or fatalities during pilot transfer operations. This includes identifying necessary resources and establishing liaison with emergency services and other stakeholders.

The importance of pilots becoming familiar with port emergency plans and updating their knowledge regularly will be highlighted.

Source video and picture: TSB Canada YouTube

Module 2

Ship Handling Principles and Maneuvering

Ship Characteristics and Hydrodynamics

Understanding the fundamental principles of ship maneuvering, including the pivot point concept. Knowledge of how hull design, propulsion systems (including azipods and thrusters), and rudder types affect a vessel's behavior. The influence of squat, interaction between vessels, and anchoring techniques will be studied.

Maneuvering in Various Conditions

Developing practical skills in ship handling under different environmental conditions, including the effects of wind, tide, and weather. Techniques for controlling speed while maintaining steerage and the concept of balancing rudder angle will be taught. Understanding how to execute large alterations of course safely, even in restricted sea room, will be covered.

Tug Operations

Understanding the capabilities and limitations of different operational tug types and their effective use in various ship handling maneuvers, including in restricted visibility.

Berthing and Unberthing Operations

Detailed study of techniques for approaching open and closed side berths. Emphasis will be placed on pre-planning and safe execution of berthing and unberthing maneuvers. The importance of checking ahead and lateral speed using references will be explained.

Module 3

Navigation, Information Systems, and Vessel Traffic Services

Nautical Knowledge and Publications

Comprehensive understanding of nautical charts (electronic and paper), tide tables, tidal stream atlases, and navigational warnings. The importance of maintaining an up-to-date Bridge Log Book will be emphasized.

Electronic Chart Display and Information Systems (ECDIS)

Thorough training in the operation, functionality, and limitations of ECDIS. Understanding its integration with other bridge equipment and the legal aspects surrounding its use will be covered.

Radar and ARPA

Effective use of radar and Automatic Radar Plotting Aids (ARPA) for navigation and collision avoidance, particularly in conditions of restricted visibility.

Automatic Identification System (AIS)

Understanding the principles, operation, and use of AIS for vessel tracking and information exchange.

Portable Pilot Units (PPUs)

Practical instruction on the operation and application of PPUs for enhanced situational awareness during pilotage.

Vessel Traffic Services (VTS)

Understanding the role, functions, and services provided by VTS, including information services, traffic organization, and navigational assistance. Trainees will learn about VTS communication procedures, reporting requirements, and expected conduct within a VTS area. The importance of maintaining alertness and responding promptly to VTS communications will be stressed.

Module 4

Communication, Bridge Resource Management, and Human Factors

Bridge Resource Management (BRM)

Developing essential BRM skills, including effective communication, leadership, decision-making, workload management, and situational awareness. The pilot's role as the leader of the port team on the bridge will be emphasized.

Master-Pilot Information Exchange

Comprehensive training in conducting clear and effective information exchange with the vessel's master, including passage planning, roles and responsibilities, and local conditions. Understanding potential barriers to effective communication will be addressed.

Communication Skills

Enhancing verbal and non-verbal communication skills, including the use of Standard Marine Communication Phrases (SMCP).

Human Factors in Pilotage

Understanding the influence of human factors on maritime safety and pilot performance. Concepts such as error chains and strategies to mitigate human error will be introduced.

Module 5

Local Knowledge and Pilotage Area Expertise

Pilotage District Familiarization

In-depth study of the specific pilotage district, including channels, depths, navigational aids, critical landmarks, and potential hazards. Completing a required number of familiarization passages across all parts of the district under various conditions (daylight, darkness, weather) will be mandatory.

Berth and Terminal Specifics

Detailed knowledge of individual berths, terminal layouts, shore-side equipment, and any specific operating procedures.

Local Environmental Conditions

Understanding prevalent local weather patterns, tidal characteristics, currents, and any specific environmental regulations relevant to the pilotage area.

Local Regulations and Byelaws

Thorough understanding of local and national legislation relevant to pilotage, including reporting requirements for apparent anomalies.

Module 6

Specialised Pilotage Operations and Technologies

Helicopter Pilot Transfers

Understanding the operational safety criteria and procedures for receiving a pilot by helicopter. This includes helicopter details, landing/hoist area requirements, safety precautions for the vessel, and communication protocols. Procedures for aborting operations and reporting deviations will also be covered.

Deep-Sea Pilotage (if applicable)

Specific training for pilotage in defined geographical areas, including knowledge of relevant regulations and the use of deep-sea pilot identity cards.

Other Specialised Operations

Depending on the pilotage area, this may include training for river pilotage, canal pilotage, or escorting high-risk vessels.

Module 7

Training, Assessment, and Professional Development

On-the-Job Training (OJT)

Practical training through mentored passages with experienced pilots, progressively gaining experience and responsibility under supervision. Maintaining a detailed record of training and observed passages will be required.

Simulator Training

Utilizing bridge, manned-model, and VTS simulators to practice ship handling, emergency response, and bridge team management in a controlled environment. The objectives of simulator training and its application to real-world scenarios will be emphasized. Simulators can also assist with a port's risk assessment process.

Observed Passage Reports and Assessment

Formal assessments involving practical ship-handling tasks conducted under the observation of experienced and qualified pilots. Observing pilots will assess performance against defined criteria, including planning, execution, communication, and response to problems. Ensuring impartiality and proper setup for simulator-based assessments is crucial.

Written Assessments

Comprehensive assessments to evaluate theoretical knowledge and practical understanding across all modules.

Reflective Practice

Encouraging trainees and qualified pilots to analyze their performance after each pilotage act to identify areas for improvement. Maintaining a dossier of observations and learnings is recommended. The hands-on practice, traineeship, or apprenticeship are the next steps after this completing this course.

Continuing Professional Development (CPD)

Requirements for ongoing training, revalidation of licenses, and staying updated with industry developments, technological advancements, and changes in regulations. This course is also part of your CPD, and fully compliant with the industrial guidelines from the IMO and other regulatory bodies for marine pilotage. This course is the next step your own CPD to achieve your goal becoming a pilot.

Full story here

Module 8

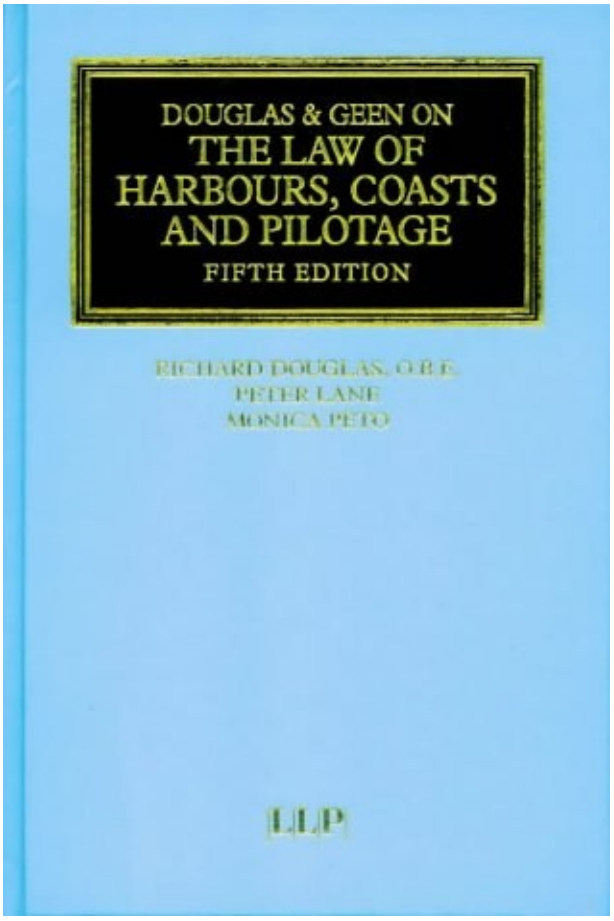
Professional Conduct, Legal Aspects, and Incident Reporting

Professional Conduct and Ethics

Understanding the ethical responsibilities and standards of conduct expected of a marine pilot.

Legal and Regulatory Framework

Awareness of national and international legal frameworks governing pilotage, including the powers and duties of pilots and pilotage authorities. Understanding potential liability issues associated with pilotage.



Module 9

Pilot Transfer Operations: Safety and Best Practices

- **Personal safety training** requirements for pilots, including survival and personal protective equipment (PPE). This will delve into the necessary training to support safe pilot transfer operations, aligning with IMO Assembly Resolution A.960(23).
- **Assessment of pilot transfer arrangements**, including the use of pilot ladders, pilot boats, and helicopters. This will incorporate relevant international standards such as ISO799 parts 1, 2, and 3 concerning pilot ladders.
- Detailed procedures for the **safe use of pilot ladders**, conduct on pilot boats, and specific considerations for helicopter transfers.
- Guidance on **Personal Protective Equipment (PPE)**, including risk assessment, and the use of helmets, protection against drowning, and appropriate clothing for various weather conditions. It will also cover the compatibility and any necessary modifications to PPE.
- **Emergency preparedness and response** during pilot transfer operations, addressing medical emergencies, falls from height, man-overboard (MOB) situations, and procedures for serious casualties. This will also include liaison with emergency services and post-incident response.
- The importance of **incident reporting** and fostering a learning culture within pilotage organisations.

Module 10

Legal and Regulatory Framework of Marine Pilotage

- An overview of the **legal history of pilotage** and relevant legal concepts, particularly English civil and criminal law.
- Detailed examination of the **UK Pilotage Act 1987** and subsequent amendments, including the role of Competent Harbor Authorities (CHAs) and Pilotage Directions.
- The process and requirements for **Pilotage Exemption Certificates (PECs)**, including eligibility and the obligations of the Master.
- Consideration of **international law** as it applies to shipping and pilotage, including the role of the International Maritime Organization (IMO) and relevant resolutions such as A960 concerning pilot training and operational procedures.
- The legal aspects of **pilot qualifications and liabilities**.
- An understanding of **harbor authorities' statutory and non-statutory duties**, including the obligation to conserve and facilitate the safe use of the harbor.

Module 11

Advanced Ship Handling and Bridge Resource Management for Marine Pilots

- **Advanced ship handling techniques**, including controlling speed while maintaining steerage, understanding the concept of Balancing Rudder Angle (BRA) and Rudder Giveaway (RG) Point, and managing directional stability.
- Execution of **large unaided alterations of course**, particularly in restricted sea room, and considerations for pilotage in restricted visibility.
- Principles of **passage planning** from a pilot's perspective, including route planning, considering navigational hazards, and options for speed reduction.
- In-depth exploration of **Bridge Resource Management (BRM)** and Bridge Team Management (BTM) from the pilot's role as the manager of the port team within the harbor environment. This will emphasize the importance of effective communication skills and the Master/pilot exchange.
- Understanding the **maneuvering characteristics** of different vessel types and the impact of environmental factors such as wind, tide, and interaction.

Module 12

Technology and Modern Practices in Marine Pilotage Operations

- The use of **Vessel Traffic Services (VTS)** in marine traffic regulation and the importance of VTS-user interactions. This will also touch upon training and certification of VTS personnel.
- The application of **electronic navigation systems** such as ECDIS, GPS, and DGPS in pilotage and the associated human factors considerations.
- The role of **marine simulation** in pilot training, including bridge simulators and manned-model facilities, for developing ship handling skills, BRM, and emergency procedures.
- Concepts of **risk assessment and marine safety management systems** in pilotage operations.
- The importance of **continuous professional development (CPD)** for pilots and the various methods for maintaining and updating their knowledge and skills.
- An overview of different **types of harbor tugs**, their design, operation, and maneuvering capabilities, and the principles of maneuvering with tugs.

Course Module 1
Foundations of Marine Pilotage and Safety

This module provides an introduction to the fundamental aspects of marine pilotage and safety, encompassing the role of pilots, the function of relevant organisations, the necessity of adhering to local requirements, and the importance of continuous professional development.

Introduction to Pilotage

Pilotage is the act of guiding ships safely through dangerous or congested waters, typically when entering or leaving ports. Marine pilots are experienced mariners with specialised local knowledge and ship-handling skills who assist the Master and bridge team. The origins of pilotage can be traced back to early maritime history, with foundations in Northern European traditions and development alongside trade to ensure the safe arrival of valuable cargoes. Much of the basis for modern pilotage, including regulatory structures, originated in the United Kingdom (UK). Pilotage is seen as a vital enabler for shipping and commerce in Europe, whereas in the US, it has a firmly regulated framework, viewed as an essential safety service with a duty to the public.

The **role of a marine pilot** is crucial in promoting maritime safety and the prevention and control of pollution from ships. While a pilot is onboard, the **Master** in most jurisdictions retains full responsibility for the safety of the vessel. The pilotage service is generally termed 'advisory', with the pilot responsible for maneuvering and navigating the vessel safely not only to the Master but also to the Harbor Authority in harbor pilotage. Pilots exercise independent and professional judgement in their work, contributing significantly to marine transportation safety. They have a responsibility to a wider society than just the ship and its Owner.

The **responsibilities of a marine pilot** include committing to the safety of navigation, safety of life at sea, safety of the port infrastructure, and prevention of pollution at all times. Pilots should report to the appropriate authority anything observed that may affect safety of navigation or pollution prevention, including any incident that may have occurred to the piloted ship. They may also refuse pilotage if the ship is believed to pose a danger to safety or the environment, with such refusal and the reasons reported to the appropriate authority. Furthermore, pilots are expected to take all necessary personal safety precautions, including using appropriate Personal Protective Equipment (PPE) and ensuring it is properly maintained.

Function of Pilot Organizations and Competent Pilotage Authorities

Pilot organizations and **competent pilotage authorities** play vital roles in ensuring the safe and efficient conduct of pilot transfer operations and pilotage services in general.

The **International Maritime Pilots' Association (IMPA)**

Source picture: impahq.org

is a key international body that aims to provide information to pilot organizations and competent pilotage authorities on the conduct of pilot transfer operations, focusing on factors to be considered when preparing for and executing these operations to meet local requirements. IMPA actively promotes the use of appropriate PPE by pilots and supports organizations responsible for pilot safety. They also collaborate with the International Chamber of Shipping (ICS) to produce guidance on pilot transfer arrangements. IMPA emphasizes the professionalism required of pilots and advocates for the recognition of their unique role and independence of decision in the interest of safety and efficiency. IMPA has also published a comprehensive guide titled 'IMPA on pilotage', bringing together the experience of numerous pilots and industry experts.

National, regional, and local pilots' organizations also support the safety of pilots by actively promoting the use of appropriate PPE and sharing information on good practices during pilot transfer arrangements. They can support organizations and personnel responsible for pilot safety in reporting unsafe pilot transfer arrangements, which should be treated as near-miss incidents and reported to relevant authorities like Port State Control.

Competent pilotage authorities are responsible for establishing entry requirements and developing standards for obtaining pilotage certificates or licenses within their jurisdiction. They enforce the maintenance of these standards and specify the necessary prerequisites, experience, and examinations to ensure pilots are properly trained and qualified. These authorities also arrange for reports on investigations of incidents involving pilotage to be considered in pilot training programs. Every pilot should hold an appropriate pilotage certificate or license issued by the competent authority, stating the pilotage area and any limitations on the size, draught, or tonnage of vessels they are qualified to pilot. Competent authorities should

also ensure that pilots meet medical fitness standards. In the UK, **Trinity House** historically regulated pilotage and continues to be responsible for 'Deep Sea' pilotage. The **Pilotage Act 1987** passed the responsibility for district pilotage to **Competent Harbor Authorities (CHAs)**. Harbor authorities exercise control over various aspects of pilotage, including publishing local regulations, issuing pilotage directions, and overseeing pilot qualifications and training. They have a duty to maintain and improve the conservancy of their harbor and ensure a safe working environment for all users.

The **International Maritime Organization (IMO)** plays a crucial role in establishing the global maritime framework, including recommendations and guidelines concerning maritime safety and the prevention of marine pollution. IMO Resolution A.960 provides recommendations on training, certification, and operational procedures for maritime pilots other than deep-sea pilots. IMO also recognizes that each pilotage area requires highly specialised local knowledge and that this standard should be maintained. SOLAS Regulation V/23 provides primary legislation for pilot transfer arrangements. IMO Resolution A.1045(27) provides further guidance on pilot transfer arrangements. IMO Resolution A918 outlines the Standard Marine Communication Phrases for effective communication.

Source Picture: IMO.org

Adhering to Local Requirements

A critical aspect of a marine pilot's role is their **local knowledge**, which is vital for the safe navigation of river and harbor areas. This encompasses geographical knowledge (channels, shoals, buoys, landmarks, depths, tides, currents), statutory knowledge (local and national rules, pilotage directions, port bye-laws), environmental knowledge (weather patterns, environmental sensitivities), knowledge of port services (tugs, boatmen, VTS), and understanding the nature of cargoes handled in the port. Pilots must be aware of the limits of local pilotage areas and the system of buoyage used.

Pilotage directions specify the geographical areas where compulsory pilotage applies and the types of ships (defined by dimensions, tonnage, or cargo) that must take a pilot. Local procedures are established to comply with national and international legislation, and pilots must learn and understand these for efficient and safe traffic movement. The decision to transfer to or from the pilot ladder is ultimately made by the Pilot, based on their professional judgement. Pilots should be familiar with compliant and non-compliant pilot transfer arrangements and have the authority to STOP WORK if necessary to ensure their safety when embarking or disembarking. Unsafe and non-compliant pilot transfer arrangements should be reported to the relevant authorities, including Port State Control.

Local knowledge is not static and can change rapidly; therefore, pilots must continuously update themselves with all relevant information to provide the best possible service. This knowledge must be applied to the ship's passage plan in collaboration with the Master and bridge team to ensure a safe navigational passage.

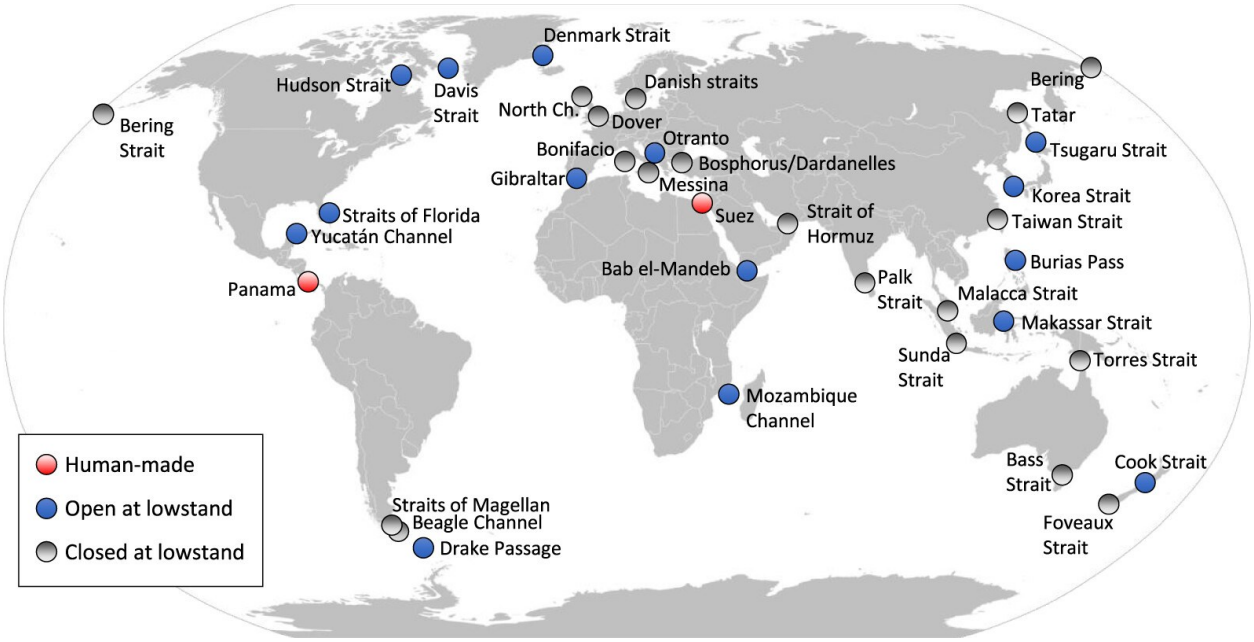
Continuous Professional Development (CPD)

Continuous Professional Development (CPD) is essential for marine pilots to maintain and enhance their skills and knowledge throughout their careers. The shipping industry is constantly evolving, particularly in technology, and pilots must update their technical knowledge to keep pace with these developments. A pilot's local knowledge, the cornerstone of their effectiveness, must also be kept constantly up to date.

CPD can take various forms, including instruction on local bye-laws and procedures (potentially gained through visits to VTS operations), learning local procedures in the marine environment, understanding and following the port emergency plan, and receiving instruction on required software. CPD also involves consolidating core skills such as man overboard drills, personal survival, first aid, and the use of PPE. Some ports view CPD as an essential component in revalidating a pilot's license and may set minimum requirements for this.

Examples of Country Requirements

In the UK, there is a move to introduce a national marine pilotage certificate based on the National Occupational Standards, which will be revalidated alongside a pilot's port authorization. This highlights the increasing recognition of the importance of ongoing development and competency checks for marine pilots. The goal of pilot training programs is the development of safe and competent pilots for the routes they are licensed for, requiring trainees to consider qualitatively what being a pilot involves and providing documentary evidence of orderly learning and detailed assessment.



Source Picture: francesco chiocci

United States (US):

- In the US, pilotage has a **dual system of federal and state jurisdictions**. Federal pilotage primarily governs US-flagged vessels in coastwise trade, where masters and mates often pilot their own vessels under federal licenses or endorsements. State pilotage generally covers foreign trade vessels.
- The sources highlight that the current US system lacks **nationally accepted guidelines or baseline standards** for pilot selection, training, licensing, professional oversight, and discipline. There isn't a single national marine pilotage certificate akin to what is being discussed in the UK.
- There's a recognition of the need for a **national approach to upgrading pilotage systems**, potentially moving towards a single pilotage system in each port, similar to the common European model. This could involve route-specific and vessel-specific authorizations for qualified masters and mates of US-flag ships.
- A **national commission on pilotage, navigation, and waterway safety** has been proposed to guide the development and implementation of national standards and an accreditation process for pilotage systems. This commission could also define and promote a consolidated port-level system of pilotage.
- The **Federal First Class Pilot's License** serves as a de facto national entry-level standard for many marine pilot development programs. However, it's not a comprehensive national pilotage certificate in the sense of ongoing professional development and revalidation tied to local authorizations.
- The sources indicate that pilot associations and some docking master associations in the US have organized their own professional development programs, often exceeding federal minimum requirements. However, these are not nationally mandated certificates.

European Union (EU):

- Pilotage in Europe is characterized by **considerable variation in standards and requirements between countries and even harbors**. The EU aims to improve port services through common regulations, but progress has been slow due to the complexity of different working practices and national interests.
- While the EU has engaged in improving the provision of port services, and there have been studies on the qualification of pilots and Pilotage Exemption Certificates (PECs), the sources do not indicate a move towards a **single, EU-wide national marine pilotage certificate** like the UK's proposed one.

- The focus in Europe seems to be more on national and local regulations, with bodies like the **European Maritime Pilots' Association (EMPA)** facilitating the exchange of information to improve professional and technical proficiency among member associations.

EUROPEAN MARITIME PILOTS' ASSOCIATION
EMPA

Source Picture: empa-pilots.eu

- The **EU Port Services Regulations** came into effect in 2019 but primarily apply to harbor pilotage and focus on market access and transparent regulation by Competent Authorities. Deep-sea pilotage is not subject to these provisions.

Source Picture: Transport.ec.europa.eu

Other Regions:

- **The Netherlands:** Pilotage is established by national legislation, with pilots being self-employed but organized in a nationwide public body, **Nederlandse Loodsencorporatie (NLc)**, responsible for training, qualification, and licensing. There appears to be a national system for pilot qualification within the Netherlands, but it's structured differently from the UK proposal of a certificate revalidated with port authorization.

Source Picture: https://loodswezen.nl/

- **Australia:** Pilotage is compulsory in many ports and coastal areas, and pilots require **Australian Maritime Safety Authority (AMSA) certification**. AMSA also describes the goals of their pilot training program. This suggests a national-level certification in Australia, but the specifics of revalidation linked to port authorizations aren't detailed in the provided excerpts.

Australian Government
Australian Maritime Safety Authority

Source Picture: https://www.amsa.gov.au/

- **Canada:** The **Canada Marine Pilots Association** is mentioned, indicating a national body for pilots. However, details on a national certificate system and its revalidation are not provided in these sources.

CANADIAN MARINE PILOTS' ASSOCIATION

Source Picture: https://www.marinepilots.ca/

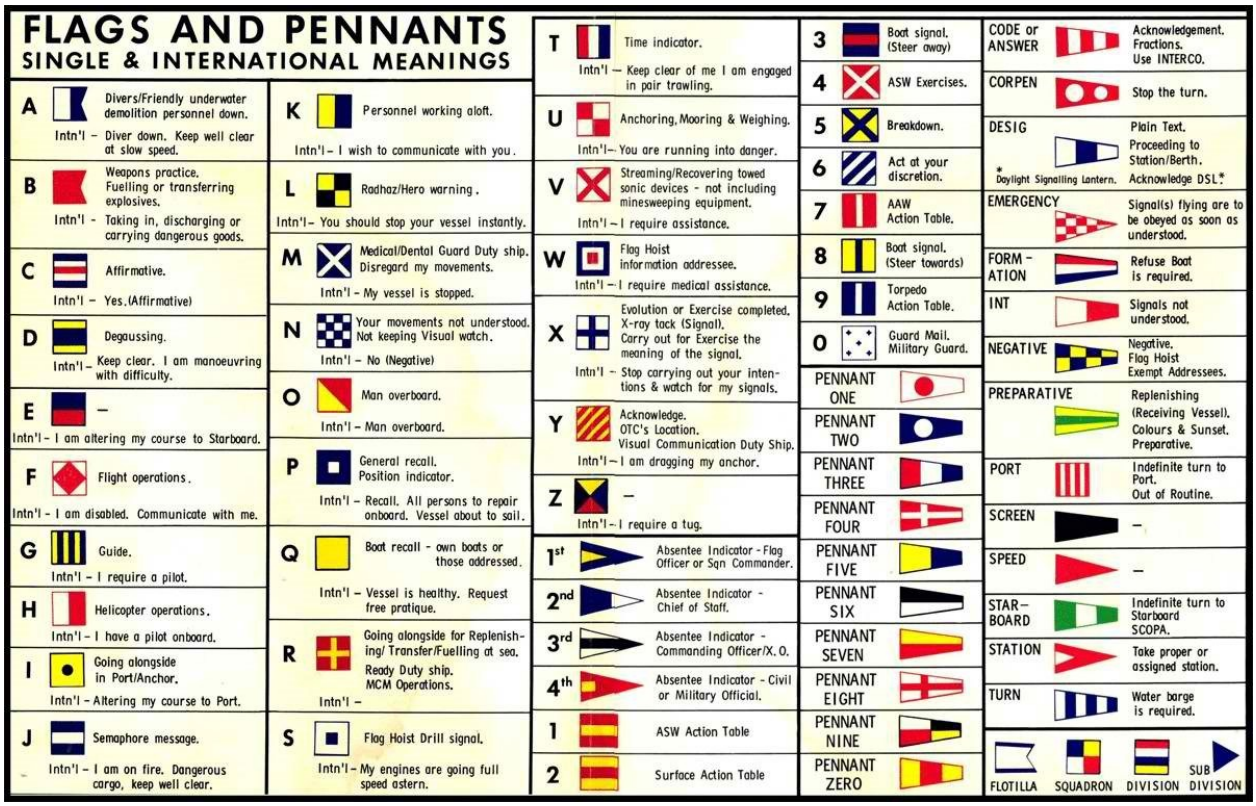
- **International Maritime Organization (IMO):** The IMO has issued **recommendations on training, certification, and operational procedures for maritime pilots (Resolution A.960)** and for deep-sea pilots. These serve as international guidelines but are not binding national certificates.
- **International Standard for Maritime Pilots' Organizations (ISPO):** This is a concept initiated by EMPA and IMPA to standardize pilotage authority practices globally. Accreditation under ISPO is voluntary and focuses on the organization rather than a specific national certificate for individual pilots.

ISPO

Source picture: https://ispo-standard.com/

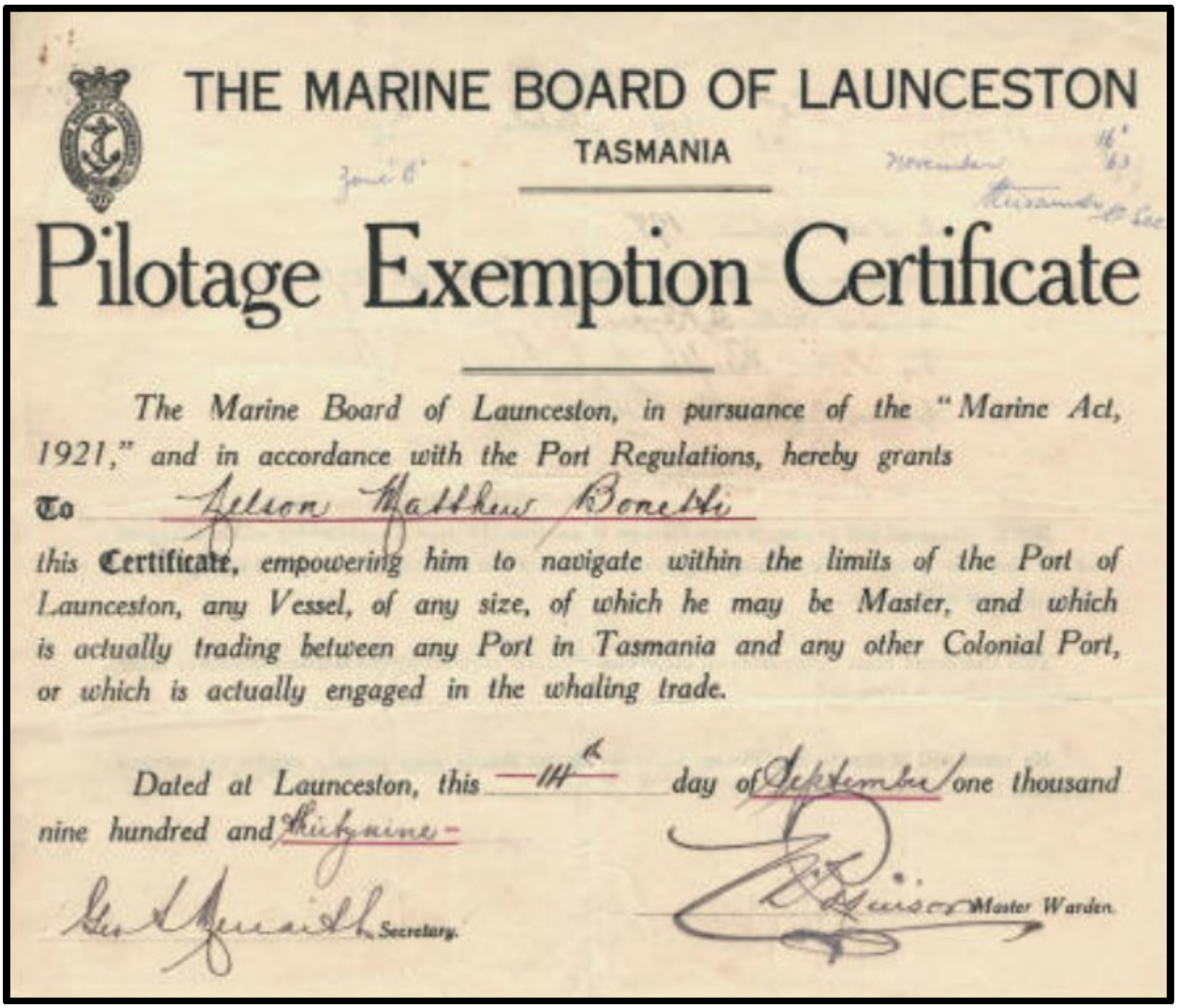
In summary, while the UK is moving towards a national marine pilotage certificate based on NOS and linked to port authorization, the **US has a more fragmented system with federal and state jurisdictions and is considering a move towards national standards and a consolidated port-level system**. The **EU has significant variations between member states, and there isn't an indication of a unified EU-wide certificate**.

Other regions like the Netherlands and Australia have national-level certification systems, but their structure and link to port authorizations may differ from the UK's proposed model. International bodies like the IMO provide recommendations but do not issue national certificates.



Source picture: blog.sailtrilogy.com

PEC, Pilot Exemption Certificate from 1921



THE MARINE BOARD OF LAUNCESTON

TASMANIA

Pilotage Exemption Certificate

The Marine Board of Launceston, in pursuance of the "Marine Act, 1921," and in accordance with the Port Regulations, hereby grants

To Nelson Matthew Bonetti

this Certificate, empowering him to navigate within the limits of the Port of Launceston, any Vessel, of any size, of which he may be Master, and which is actually trading between any Port in Tasmania and any other Colonial Port, or which is actually engaged in the whaling trade.

Dated at Launceston, this 11th day of September one thousand nine hundred and Eighty nine -

Secretary.

Master Warden.

Source Picture: collections sea museum

Module 1

TEST

Here are 10 questions with to test your understanding of the Foundations of Marine Pilotage and Safety module, drawing on the provided module and your own research.

1. **Question:** According to the IMPA document, what is the primary aim of providing information on pilot transfer operations?

   a) To prescribe a specific approach to all pilot transfer operations globally.

   b) To provide information on factors to be considered when preparing for and executing pilot transfer operations to meet local requirements.

   c) To establish professional and industry standards of care for pilot transfer.

   d) To mandate the adoption of specific safety equipment for all pilotage authorities.

2. **Question:** Which international regulation is explicitly mentioned in the sources as being crucial for compliance regarding pilot transfer arrangements?

   a) SOLAS Chapter VI

   b) SOLAS Chapter V Regulation 23.

   c) MARPOL Annex VI

   d) STCW Convention Regulation I/10

3. **Question:** What is the role of IMPA in relation to unsafe pilot transfer arrangements, according to the sources?

   a) IMPA is responsible for enforcing compliance with pilot transfer regulations.

   b) IMPA provides the legal framework for handling non-compliant arrangements.

   c) IMPA supports pilots in reporting unsafe arrangements, which should be considered near-miss incidents.

   d) IMPA has the authority to penalize ships with unsafe pilot transfer arrangements.

4. **Question:** According to the International guidelines, who ultimately makes the decision to transfer to or from the pilot ladder?

   a) The ship's Master.

   b) The pilot boat crew.

   c) The Pilot.

   d) The Responsible Officer designated by the ship's Master.

5. **Question:** What is a key element of the Master/Pilot Information Exchange (MPX) upon the pilot boarding the vessel, as highlighted in "Theory and Practices of Marine Pilotage"?

   a) The pilot immediately takes full control of the vessel's navigation.

   b) The Master is relieved of all responsibility for the vessel's safety.

   c) The Master should furnish the pilot with information such as engine and propeller characteristics.

   d) The pilot provides the Master with their personal travel itinerary.

6. **Question:** What does the "Marine Pilotage" document suggest about the qualifications of marine pilots in the UK?

   a) All marine pilots in the UK are employed directly by Competent Harbour Authorities.

   b) Trainee pilots in the UK typically begin their careers on large, deep-draught vessels.

   c) Many pilots are professional seafarers holding an IMO STCW II/2 Master's qualification.

   d) Local community knowledge is the sole prerequisite for becoming a marine pilot in the UK.

7. **Question:** In the context of pilot transfer operations involving helicopters, what crucial information should organisations ensure Pilots are familiar with?

   a) The helicopter pilot's personal flying history.

   b) The catering options available on the helicopter.

   c) Entry, egress (and emergency egress), emergency procedures, and safety equipment on each aircraft type they use.

   d) The preferred radio communication frequencies of the aircrew.

8. **Question:** According to the IMPA document, what should pilots comply with onboard a pilot boat to ensure their safety and the safe operation of the boat?

   a) They should remain on the open deck to have a clear view of the approaching ship.

   b) They should comply with any reasonable instructions given by the pilot boat crew.

   c) They should independently assess the safest route to the ladder position without consulting the crew.

   d) They should operate the pilot boat's machinery to familiarize themselves with its controls.

9. **Question:** What does the "Theory and Practices of Marine Pilotage" document state regarding the Master's responsibility when a pilot is onboard?

   a) The Master's responsibility for the safe navigation of the ship is entirely transferred to the pilot.

   b) The Master should not question the pilot's actions under any circumstances.

   c) **The Master retains the ultimate responsibility for the safety of his ship and should monitor the pilot's actions**.

   d) The Master's primary role is to socialize with the pilot to build a good rapport.

10. **Question:** What is suggested regarding the safety of the marine navigation and piloting system?

    a) The system is entirely foolproof and requires no further improvements.

    b) Accidents involving piloted vessels are always solely the fault of the pilot.

    c) The system is for the most part safe, but it can be made safer through specific improvements in marine pilotage and waterways management.

    d) Data on pilotage risk is readily available and fully adequate for detailed analysis.

Possibility to Submit your answers to ADMIN for marking and get awarded with an Official Recognized CPD Certificate after successful completion of all 8 modules.

If you want to become a Marine Pilot this valuable CPD certificate can be the difference between you and others to be granted an opportunity for the next step, **the Marine Pilot Paid Traineeship, which starts around $ 86,400.- USD per annum. (**Example PLA). See our complete video about it, here

To score the best career opportunities one must simply have a better CV and history than the competition. **In later modules we will also help you to build a strong convincing CV, and how to profile yourself to standout from the crowd.**

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1. **Purchase module by module to manage your cost and timing, you can do that by contacting** ADMIN here.
2. **Purchase the full course package at once at a discounted rate, you can do that** here.
3. **In both cases send a clear email to ADMIN regarding, include all your important information.**

End of Module 1.

If you want to proceed further, if you haven't already done it, you can purchase the next module or the full course on MarinePilotage.com Proceeding with the complete course enables you obtain a Recognized CPD Certificate in Marine Pilotage after successful completion.

Hope to see you back soon in Module 2!

Best regards,
Capt. John.

Answers Sheet

Your full names:

Date submitted:

01). Answer:

02). Answer:

03). Answer:

04). Answer:

05). Answer:

06). Answer:

07). Answer:

08). Answer:

09). Answer:

10). Answer:

- CPD Certificate: Yes/No

If you are not officially enrolled in the full course you do not have to submit your answers, you can keep them for your own references please.

- Resubmission: Yes/No

Everyone, officially enrolled in the full course has the right to once resubmit their work, in case of a mark below 75% on the first submitted test.

Answers

01). Answer: b)
02). Answer: b)
03). Answer: c)
04). Answer: c)
05). Answer: c)
06). Answer: c)
07). Answer: c)
08). Answer: b)
09). Answer: c)
10). Answer: c)

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