Training, Education, and Learning Sciences, Vol. 193, 2025, 51–62
https://doi.org/10.54941/ahfe1006645

Assessment of Georgian Marine Pilots Training and Certification System

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ABSTRACT

Pilots with knowledge of local specifications have been employed to safely navigate the vessels for centuries already. Georgian pilots have been safely navigating ships without any major incidents so far. However, the maritime industry in Georgia is expanding rapidly, with new ports and larger vessels, which will increase the demand for highly skilled pilots. In order to maintain navigation safety and prevent accidents, it is essential to elevate the standards of maritime pilot services and identify the areas for improvement in national requirements. This study compares Georgia's marine pilot training and certification procedures with international guidelines and best practices of other countries. A qualitative analysis was conducted of the national legislation and regulations of Georgia and other marine countries that were thought to have the best practices in maritime pilotage. Also, compliance with IMO resolution A.960 (23) "Recommendations on training and certification and operational procedures for maritime pilots other than deep-sea pilot" was analyzed. Finally, a thorough review and comparison was conducted on the documents. Comparative analysis revealed the necessity to develop an enhanced and detailed supplementary regulatory framework pilotage certification program, having regard to the technical and natural characteristics of the region, as well as the best practices of other nations and recommendations of important advisory regulations.

Keywords: Georgian pilots, Maritime pilot certification, Training and certification, Global maritime professional

INTRODUCTION

Georgia's Black Sea coast has been a major trade hub between Europe and Asia for a long time. Georgia has three important industrial ports: Batumi, Poti, and Kulevi. There is also a smaller port in Sokhumi, which is not under government control presently. Additionally, offshore SPM extends from the NW of Supsa Terminal. A Number of main and auxiliary berths included in the development plan of Supsa Sea Port.

Maritime industry of Georgia is experiencing rapid growth, with new developments underway. One of these is the "Poti New Seaport," which has been in operation since 2022 (MOESD, 2022). Another project is expansion of existing Poti Sea Port, which involves constructing a 400 m multipurpose quay by 2026, and 300 m container quay in the second stage. This expansion will double the port's annual container capacity to over 1 million TEUs

and enable it to accommodate container vessels of up to 9,000 TEU (APM Terminals, 2024).

The Deep-sea Port of Anaklia is also currently under construction. The main quay wall will consist of totally twelve container, dry bulk and Liquid Bulk jetties inside the Breakwaters. The turning basin will be capable of accommodating 10000TEU, 300 m LOA vessels (Anaklia Development Consortium, n.d.).

In last five years, the record of incidents involving Georgian maritime pilots has been minimal: zero incidents in 2018 and 2020, one incident each in 2019, 2022 and 2023 (MOESD of Georgia, 2024). This number of incidents is relatively low considering that according to statistics an estimated 1,600 to 1,760 vessels called at Georgian ports annually between 2020 and 2023 (National Statistics office of Georgia, 2024). Despite these minimal incidents, the significant developments ahead will require the handling of significantly increased maritime traffic. This emphasizes the importance of a robust training and certification framework for maritime pilots to ensure they are adequately prepared to conduct pilotage safely and avoid accidents.

THE AIM OF THE STUDY

Marine piloting, an old profession, and a critical aspect of maritime navigation, relies on skilled pilots possessing intricate local knowledge to guide vessels safely through complex waterways. Using "local knowledge" has always been preferred in maritime navigation. This entails having a "Pilot" aboard who is well acquainted with the location of rocks, shoals, and channels. It' used to be customary to enlist the expertise of a local indigenous native or fisherman for this purpose, and ship owners and captains were willing to pay generous fees for their guidance into port (Spinney, n.d.).

The main objective of this study is to identify areas for improvement in Georgia's national requirements and to examine effective methods used by maritime states that have established efficient systems for training, assessing, and certifying the competence of pilots. In addition, this study aims to propose recommendations for improving training and certification approaches, with a particular focus on long-term progress.

A comparative analysis was conducted utilizing a purposive selection method of maritime countries. The selected countries have recorded more than 50,000 marine pilotage assignments annually with a notably low incident rate of less than 0.01% attributable to pilot error. To ensure geographical diversity, countries from different continents were selected, all of which had comprehensive online legislative resources available in English. This included not only primary legislation but also relevant secondary laws and orders, which were readily accessible and up to date. These selection parameters ensured a robust comparative framework that facilitated an in-depth analysis of best practices in marine pilotage across varied regulatory environments worldwide. Based on these criteria, Canada, Denmark, and Australia were purposively selected for the study.

The literature review encompassed an extensive evaluation of sources form various institutions such as IMO and WMU, also the legal acts of Maritime

authorities: Australian Maritime Safety Authority (AMSA) Marine Orders 54 (Coastal pilotage) and 76 (Health—medical fitness); Danish Maritime Authority's (DMA) Pilotage Consolidated act 352 and Executive Order 1824 on Pilotage; General Pilotage Regulations SOR/2000-132 under the Pilotage Act of Canada. These rules specify requirements for pilot qualifications, operational procedures, mandatory pilotage areas, safety standards for pilot boats, duties of pilots and master's during pilotage and medical fitness certification for seafarers and licensed pilots (AMSA, 2018), (DMA, 2020), (Government of Canada, 2022).

A similar comparison was made in the paper published in WMU journal, "An Analysis of the Maritime Pilot Training and Certification System: A Comparative Study between Denmark and Namibia" (Kakulu, 2018). The result was that both Namibia and Denmark took the IMO regulations into account, but there were still suggestions for improvement to the Directorate of Maritime Affairs of Namibia.

The paper "Introduction and Overview of China's Pilot Training Regime" outlines the Chinese pilot training system as prescribed by the China Maritime Safety Administration (MSA). Dalian Maritime University's program effectively combines theory and practice and provides a learning experience that meets the requirements of the MSA (Li et al., 2016).

A number of studies on maritime pilotage were reviewed, but none of them dealt with specific case studies.

PILOTAGE ORGANIZATION IN GEORGIA

The Legal Entity under Public Law– Maritime Transport Agency of Georgia (MTA) is a subsidiary of the Ministry of Economy and Sustainable Development of Georgian. Article 8 of the Georgian Maritime Code stipulates that MTA regulates the maritime industry in accordance with Georgian Law.

Order No. 019 of the Director of the Maritime Transport Agency on Approval of "The Port Rules" establishes terms and conditions of a pilotage in the Maritime Ports of Georgia. The main legal documents that govern pilotage service organizations and pilot certification is an Ordinance of the Government of Georgia No. 327, "Activities of Pilotage Service and Certification of Pilots" (Georgian Pilotage Regulation). In accordance with this ordinance, the MTA is responsible for issuing, rejecting, suspending, renewing, and extending the validity period, as well as canceling, supervising, and controlling the pilot service providers' and pilots' certifications. The present technical regulations were developed in accordance with the:

- Resolution A.960(23) of the IMO of December 5, 2003 "Recommendations on training and certification and on operational procedures for maritime pilots other than deep-sea pilots."
- International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) as amended, including the 1995 and Manila Amendments.

- Law of Georgia "Maritime Code of Georgia" adopted by president of Georgia, as amended and other normative acts.

In Georgia, pilotage services are provided by authorized private companies rather than state-operated ones. Presently, three licensed marine pilot providers extend their services at particular ports of Batumi Sea Port, Poti Sea Port (including Supsa SPM), and Kulevi Oil Terminal Sea Port. In each pilot service company, there are generally four or three pilots working. The youngest pilot is 39 years old and has served for two years, while the most senior pilot is 63 years old and has 28 years of experience.

Georgia's pilotage services have maintained a good safety record in recent years. According to the MTA, there have been no major pilotage incidents in the country since 2018. However, ongoing efforts are needed to improve the standards of pilotage services and ensure the safety and efficiency of navigation in Georgian waters.

REVIEW OF TRAINING AND CERTIFICATION STANDARDS

Pilot Certificate, Categories, Validity, Restrictions

In compliance with the guidelines of Resolution A.960 the pilots are required to hold a pilot certificate or license that is issued by the appropriate pilotage authority. The certificate or license must specify the designated pilotage region. The authority has the capacity to define certain criteria, such as the maximum size, draught, or tonnage of vessels, that its holder is permitted to navigate.

Based on these guidelines Maritime Pilot licenses are categorized or classified in different manners by numerous Maritime Authorities to ensure the safe and effective maneuvering of various vessel types in inland waterways under different circumstances. Categorization provides a clear and consistent system for the training, certification, and regulation of maritime pilots.

DMA Pilotage Act No. 352 outlines pilot assignments categorized A to E and '*'. To obtain or maintain the certificate, it is necessary to provide training in the appropriate categories stated for the specific pilot area of Danish waters. In addition, the DMA requires pilot certificates to be restricted to a particular ship size or draft, ensuring pilots are qualified and capable of piloting the vessel safely.

AMSA Marine Order 54 (Coastal Pilotage) regulates the issuance and requirements of various classes of pilot licenses in a manner distinct from other member states. Classifications of Pilot Certificates Includes:

- Trainee pilot – candidate undertaking training activities to obtain a restricted pilot license.
- Restricted pilot – carries out pilotage of vessel in a stated pilotage area, except loaded tankers and gas carriers or vessels with exceeding drafts.
- Unrestricted pilot – authorized to navigate any vessel within a specified pilotage area.
- A check pilot – qualified Unrestricted pilot who assesses a trainee pilot or pilot.

The Transport Canada General Pilotage Regulations (SOR/2000-132) has a varied approaches across different Pilotage Authority Regions. In certain regions, there are three classes of pilotage licenses (Class A, Class B, and Class C) and certificates that are issued based on the gross tonnage of the ship. However, in other regions, the gradation criteria for pilot classes are based on the length of the ship and the district in which the pilotage duties will be performed (Class A or Class B Montreal Harbor license or certificate; Class A, Class B, Class C license or certificate; and Class D apprentice pilot permit).

Georgian Pilotage Regulation identifies only two categories of pilot certificates - Trainee Pilot Certificate and Pilot Certificate. Both categories require specifying in the certificate the port where the pilotage is to be provided. It is optional to indicate any relevant restrictions or conditions that the pilotage authority deems relevant. This limited certification system may not adequately reflect the varying levels of experience and expertise among pilots, nor does it allow for specialization in certain types of vessels, waterways, or terminals.

The conditions for maintaining, suspending, withdrawing, or canceling a pilotage certificate are largely in line with international maritime standards. Nevertheless, there is a special provision in the Georgian pilotage regulations for the annulment of the certificate, which relates to the age of the pilot. A pilot's license is automatically terminated when they reach 65, even if the certificate has not yet expired.

Training Standards

According to Resolution, the competent pilotage authority is responsible for the establishment of training and certification standards to obtain a pilot certificate. Practical experience, under the supervision of certified pilots and training in bridge resource management to ensure the maintenance of effective communication during both routine and emergency situations, must be integrated into this training.

The eligibility criteria for accepting a person in training to become a Pilot are generally the same for all maritime authorities and is in line with Resolution A.960. According to Georgian Pilotage regulations, the pilot candidate must hold a valid certificate of competency and have at least 36 months of approved seagoing service in the capacity of Master and Chief Mate (12 months of which as Master) on ships of 3000 gross tonnage or more.

Georgian pilotage regulations take a different approach regarding the specifications of the practical and theoretical training programs for pilotage license applicants. The regulation emphasizes the need for:

- completion of a training/upgrading course in a training center recognized by the MTA, designed in accordance with the international standards/programs of Resolution A.960, and

- providing the documentary evidence of successful completion of at least three months of pilotage training in accordance with the Georgian Pilotage Regulations in a harbor where the applicant is expected to provide pilotage duties.

Important to note that the Georgian regulations do not specify the criteria, methods, or format for this documentary evidence. Only compliance with the "international standards/programs established by Resolution A.960" is required.

The DMA's or AMSA's approaches to pilot training requirements could serve as a benchmark for creating an effective framework. DMA Order No. 1824 on the Issuance of Pilot Licenses and Pilot Exemption Certificates mandates two types of training for pilots: Pilot Training Programs and Peer-to-Peer Training, both of which culminate in theoretical and practical aptitude assessments. The pilot training program includes courses such as Bridge Resource Management (BRM) and emergency training, ship handling, pilotage law and personal safety - all specifically designed for pilots whose needs are not sufficiently addressed by the standard BRM for ship crews. Training for emergency situations focused on loss of steering, loss of propulsion, failure of radar and vital systems or automation in a narrow channel or fairway (IMO, 2003). A further requirement for obtaining a pilot license is proof of adequate (i.e., sufficient for pilotage) knowledge of ECDIS.

In case of Peer-to-peer training, certain number of trips per category must be completed, as listed in Annex 3 (DMA order No. 1824, 2020).

The annex to the Order itself lists the topics that should be included in the training programs and also the number of trips required for onboard peer-to-peer training. The format of the DMA approaches may serve as a benchmark, but it would be beneficial to increase efficiency by supplementing the requirements with detailed explanations of the specific types of manoeuvres such as berthing, unberthing, anchoring or navigating in narrow passages under different light conditions. This would provide both trainees and instructors with a clear understanding of the essential aspects that should be covered throughout the training process.

AMSA adopts a more coordinated and efficient approach to the regulation of pilot qualifications. While the statutory authority to regulate pilot competence and operations is found in the Navigation Act and the detailed requirements are set out in Marine Orders, the function of regulating the process is delegated to the marine safety agencies of the various Australian states. Each step, from the initial training trips to assessments, complies with an approved pilot training plan, which sets out the details of the planning and conduct of a pilot's training for the purpose of obtaining or upgrading a license.

An essential element is the maintenance of detailed records in an approved Pilot Training record (or workbook) documenting the activities undertaken and information acquired by trainees within specific trips in specific areas. This program ensures that the candidate obtains systematic, structured knowledge and experience in the duties and responsibilities of a coastal pilot through mandatory observer trips or training trips.

Medical Fitness

As per the guidelines outlined in Resolution A.960, it is a prerequisite that Maritime pilots must adhere to the medical fitness standards that are required for masters and Officer of the Watch (OOW) under the STCW Convention or to any other standards that are deemed suitable by the competent pilotage authority.

Based to studies, the majority of maritime authorities are requiring pilots to adhere to the medical fitness standards established by the STCW Convention. However, certain competent authorities are implementing their own medical criteria. Under AMSA Marine Order 76 (Health - Medical Fitness), Section 13(2)(a), a medical inspector must determine the medical fitness of a licensed pilot in accordance with the Standards for the Medical Examination of Seafarers and Coast Pilots published by AMSA. This standard sets out separate criteria for assessing the fitness for work of ships' crews and coastal pilots. The table of Annex 1 lists the range of physical and other responsibilities encountered while working on a vessel. Table explicitly indicates some responsibilities that a pilot on board the vessel typically does not expect. Footnote comments clarify that these duties "are not normally required of a pilot" highlighting the distinction in medical fitness requirements between pilots and other crewmembers (AMSA, 2020).

The Georgian Pilotage Regulations require pilots to meet medical fitness standards outlined in the STCW convention. It's important to note that Georgia has an Order of the Director of the MTA on "Standards of Health Condition of Seafarers" which takes into account the physical abilities set out in table B-I/9 and follows the guidance contained in the ILO/WHO publication Guidelines for Conducting Pre-sea and Periodic Medical Fitness Examinations for Seafarers (STCW, 2018). However, that order is not specifically tailored to pilots. Therefore, pilots may not be required to strictly comply with the medical standards set in order.

In practice, pilots may be permitted to perform their duties even with a medical condition that is not acceptable for deep sea seafarers, provided that pilots with such health issues are regularly medically observed or treated with medication.

FINDINGS AND CONCLUSION

The research and analysis have identified the following areas for improvement in relation to the research questions:

- The Georgian Pilotage Regulation classifies pilot certifications into two categories: Trainee Pilot Certificate and Pilot Certificate. There is a lack of specific rules governing the categorization or limitation of pilot certificates based on vessel size, draft, or deadweight, as well as the characteristics of berths or waterways.
- Upon reaching the age of 65, pilot certificates are automatically revoked, regardless of the expiration date, without implementing regular evaluations of physical and cognitive capabilities.

- Lack of established standards, methodologies, or procedures for the practical or theoretical training of pilots.
- Georgian Pilotage regulations adhere to the medical fitness standards of STCW Convention, which might not align with pilots' physical capabilities since they do not undertake all tacks and functions required by STCW. Consequently, pilots may operate under less stringent health conditions compared to deep-sea seafarers.
- Standards or requirements or rest and work hours is not yet addressed in Georgian Pilotage regulations.

In light of the identified findings, this paper suggests methodological approaches and strategic proposals, aimed at enhancing the pilot training and certification framework.

Training Standards

Resolutions, as commonly understood, are drafted to ensure universality and easy adoption by any authority. While this grant flexibility to national authorities in customizing programs to local legislation, it also presents a challenge in adopting common training programs. To effectively address this challenge, there is a need for a comprehensive and unified training and assessment program that can be documented as reference.

To establish a clear Specification of minimum standard of competence for pilots, it is suggested that the format of the competence table in the SCTW Code be used in the Annex to the regulation (Table 1). This would involve providing explicit definitions for functions, competences, knowledge, understanding, and proficiency (KUP), as well as clear guidelines for demonstrating these competences and criteria for assessing them. The regulatory standards must specifically focus on training components that are directly connected to the execution of pilotage duties.

In consideration of the best practices from DMA and AMSA and in accordance with the recommendations of IMO Resolution A.960, it is essential that the Georgian Pilotage Regulation include clearly specified competencies that all candidates for certification as a pilot must have satisfactorily completed.

Table 1: Sample of format of competency table.

Competence:				
Column 1 No.	Column 2 Knowledge Understanding	Column 3 Proficiency/ Practical Skills	Column 4 Methods for demonstrating competence	Column 5 Criteria for evaluating competence

The following competencies must be covered in a structured and organized training course offered by an MTA-recognized training centers:

- Knowledge of bridge resource management principles for pilots
- Ship maneuvering and handling for pilots

- Pilot Local Area Knowledge
- Proficiency in national and international legal acts pertaining to pilotage operations
- Crisis management and emergency preparedness through the utilization of simulator exercises
- ECDIS for Pilots.

This approach will ensure a structured framework that enables the effective development of syllabuses with appropriate components such as aims and objectives, learning outcomes, course structure and schedule, instructional methods, and resources, as well as assessment methods.

Apart of this The Georgian Pilotage regulation currently provides only a broad framework for the traineeship by merely specifying requirements for the minimum number of trips and their total duration. To enhance the effectiveness of this framework it is recommended to establish comprehensive system for tracking and documenting trainee performance. This system would serve as a tool for monitoring and improving pilot competencies.

It is recommended to introduce a mandatory document, such as Pilot Training record Book or a similar Workbook, for all applicants seeking a pilot certificate. This document should be designed in compliance with Georgian Pilotage regulations and include detailed records of activities aligned with clearly defined criteria. Clear and precise criteria should be developed for completing observer trips, training trips, shore-based training, and other instructional activities specific to each pilotage area.

Training trips should encompass the full range of movements, including back and forth maneuvers from the pilot boarding ground to a different berth, anchorage area, single point mooring, spider mooring buoys, etc.

It is advisable to set quantitative benchmarks, such as completing sufficient number of trips and conducting a required portion of operation during the dark hours of day. Additionally, to enhance applicants' proficiency in diverse scenarios training program should consider maneuvers based on specific features of the seaway. Examples may include passing in narrow basins with or without tug assistance, turning around anchors for berthing, or passing through shallow waters. A well-rounded approach should also include exercises under specific environmental conditions.

Table 2 serves as an example template for a workbook. The exact structure, format, specific content and methodologies to be implemented remain topics for further research and collaboration with the relevant authorities.

Table 2: Example template for a workbook.

Port or Associated Area: Batumi Sea Port, Oil Terminal Berths No. 1, 2, and 3		
Type of Ship	**Description of Trips**	**Additional Requirement**
Oil Tanker with LOA of 150m–180m	A minimum of five inbound and outbound trips between the pilot boarding area and each berth is required	At least two berthing and unberthing operations must be conducted during nighttime hours

Maintaining a detailed record of training activities will provide a reliable mechanism for tracking the applicant's progress, verifying their adherence to the established criteria, and ensuring their readiness for final examination or assessment trip.

Certification

Considering the complexity of Georgia's port infrastructure, which includes Single Point Mooring (SPM) and Spider Buoy Mooring terminals, a very narrow turning basin in Batumi container terminal, and a narrow and weather-exposed entrance to the port of Poti, a tiered pilot certification system that would distinguish between restricted pilots (by certified maximum LOA and draught in certain ports) and Unrestricted Pilots by the broader qualification would be beneficial. In addition, recognition of experience by length of service or number of pilotages completed could lead to the Senior Pilot designation. These pilots would take on more demanding navigational tasks and guide new pilots. This certification hierarchy aims to raise standards in Georgian maritime pilotage in order to optimize the allocation of pilots to different types of vessels or waterways, ensuring that the most proficient pilots are assigned to more complex tasks.

Fatigue Management

Dealing with fatigue is an extremely important area that is not yet addressed in the Georgian pilotage regulations. Considering the increasing number of ships calling at Georgian ports every year and the fact that only 3–4 pilots are available in each port spread across shifts with fewer pilots per shift, there is a risk that compliance with working and rest hours regulations might be compromised. This makes it necessary to take measures against the risks of fatigue by establishing comprehensive guidelines detailing maximum working hours for pilots across various conditions and circumstances. Additionally, it should be mandatory for service providers to implement a Fatigue Management Plan through their SMS to ensure safety and well-being.

Medical Fitness and Age Limitation

As it was mentioned "Standards of Health Condition of Seafarers" of Georgia are not specifically tailored to pilots. To address this issue, Maritime regulatory bodies should be guided by the recommendations of STCW Code Section B-I/9 items 7 and 8, and consider Suggestions outlined in Footnote 3 of Table B-I/9 to create a more specific list of physical abilities for pilots, taking into account their temporary roles, limited duties and short period of stay on board. (At least to exclude such tasks as: Use of hand tools, Movement of ship's stores, Working in confined spaces, etc.)

CONCLUSION

In conclusion, the assessment of Georgia's marine pilot training and certification system reveals both strengths and areas for improvement. While Georgian pilots have maintained a commendable safety record and navigated vessels without major incidents, the rapid growth of the

maritime industry has revealed several areas that require attention and improvement. It necessitates a closer look at improving pilot training and certification standards. Further research and collaboration of authorities and stakeholders would be required to develop a comprehensive and unified training framework incorporating job-oriented teaching methods, advanced simulation technology and regular performance evaluation.

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