

# **UNIVERSITY OF PIRAEUS**



## **DEPARTMENT OF MARITIME STUDIES**

### **POSTGRADUATE STUDIES MSc Shipping Management Program**

#### **CREW TRAINING AND CERTIFICATION IN GREECE**

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**MND19053**

**A master's thesis presented  
to the Department of Maritime Studies  
in partial fulfillment of the requirements  
for the Masters' degree  
in the Shipping Management**

**PIRAEUS**

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**October 2020**

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The members of the Committee are:

- Aggelos Pantouvakis
- Dionysios Polemis
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The approval of the Masters’ thesis from the Department of Maritime Studies of the University of Piraeus does not imply acceptance of the writer’s opinion.”

*To my Family*

**«Ἐστὶν ἡμῖν πατὴρ αἱ διακόσμιαι νῆες πεπληρωμέναι»**

**Θεμιστοκλῆς 480 π.Χ**

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## **ABSTRACT**

The object and purpose of this dissertation is to present the overall picture of naval training, as it has been formed today, as well as the way of certification of seafarers in Greece. This work obviously examines the compatibility of Greek naval training according to international standards as they have been set by international organizations. Problems and difficulties facing naval training and certification are also a major factor analyzed in this study.

Keywords: naval training and certification, maritime academies, STCW

## **INTRODUCTION**

The geography and history, the whole course and the timeless culture of Greece are fermented with the sea. Our ancient civilization was a culture of the beaches (Of Asia Minor and mainland Greece) and the islands. In times of crisis, two sectors of the production process remain intact and make a major contribution to the recovery of our economy, tourism and shipping. Greek ships plow seas and oceans and have our merchant fleet in the n the first place on the world stage for decades and decades.

The training and certification of seafarers is now the subject of extensive discussions for our country. This study attempts to answer questions about the necessity and optimization of maritime training, the legal basis that should govern it at this time, those involved in it in order to draw safe conclusions about what needs to be done in the future.

Specifically, the first chapter refers to the Greek fleet, the decisive strategic and economic role of Greek shipping and statistics on the number of Greek and foreign seafarers employed on Greek and Greek-owned ships.

In the second chapter, an extensive analysis is carried out in the international and Greek context concerning the training of seafarers focusing on the STCW International Convention and the amendments, in the current MoU and Greek legislation, as it is important to define standards for training, the issue of associated certificates, watchkeeping and crew safety, and to identify and evaluate the qualifications of officers for implementing the safe and efficient operation at sea.

The Greek maritime education and certification system is the subject of the third chapter and specifically provides information on the bodies responsible for it. There is a historical review of the types of naval training in Greece in the past and then a reference to public naval training and certification through the vocational naval schools, the Maritime Academies, the Training Centers of Commercial Navy Officers (KESEN), the Schools of Lifesaving and Fire-Fighting Media as well as to the private bodies that provide naval training and certification to make up for public weaknesses.

The factors that affect the effectiveness and efficiency of maritime education are varied and are internal and external, as they are analyzed in the fourth chapter and

consist of the attraction and number of new students, their educational background and profile, the phenomenon of dropout in Academies and vocational rehabilitation of graduates, in the role of the State, the shipping owners and trade unions.

The last chapter highlights findings and proposals arising from the final conclusions as derived from the preceding chapters.

# CHAPTER 1: GREEK SHIPPING AND ECONOMY

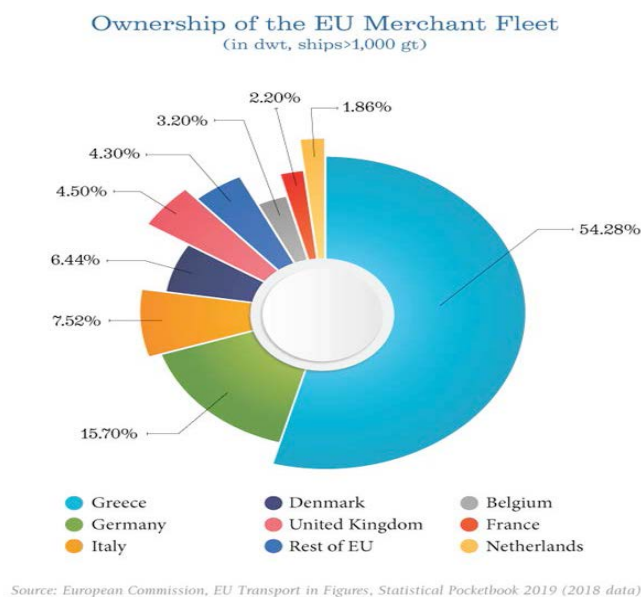
## 1.1 Introduction

Greek shipping is one of the cornerstones of the global economy and a major facilitator of global trade, while constituting a pillar of the Greek economy. Greek shipowners are primarily involved in bulk / tramp shipping, which is an example of a sector with characteristics of perfect competition. Comprising mostly small and medium- sized, privately-owned / family businesses, Greek shipping is very flexible and adaptable to changing economic environments and trade flows. It mainly carries staples that are essential for the EU and global economies, including agricultural and forest products, oil and oil products, gas, chemical products, iron and other ores, coal and fertilizers. Importantly, the Greek-owned fleet is the world’s largest cross-trading fleet, with more than 98% of its trading capacity carrying cargoes between third countries.

## 1.2 The Strategic and Economic Role of Greek Shipping

### 1.2.1 The Greek-Owned Fleet

The top five ship owning nations include Greece, Japan, China, Singapore and Hong Kong. These five countries account for more than 50% of the world’s tonnage.



**FIGURE 1**

In recent years Germany, Japan and the Republic of Korea have been losing ground, while Greece, Singapore, China and Hong Kong have increased the size of their fleet.

Greece remains the world's largest shipowning nation. Though the country accounts for only 0.16% of the world's population, Greek shipowners own 20.67% of global tonnage and 54.28% of the European Union (EU)-controlled tonnage (Figure 1).

Between 2007 and 2019, Greek shipowners have more than doubled the carrying capacity of their fleet (Figure 2), while they control:

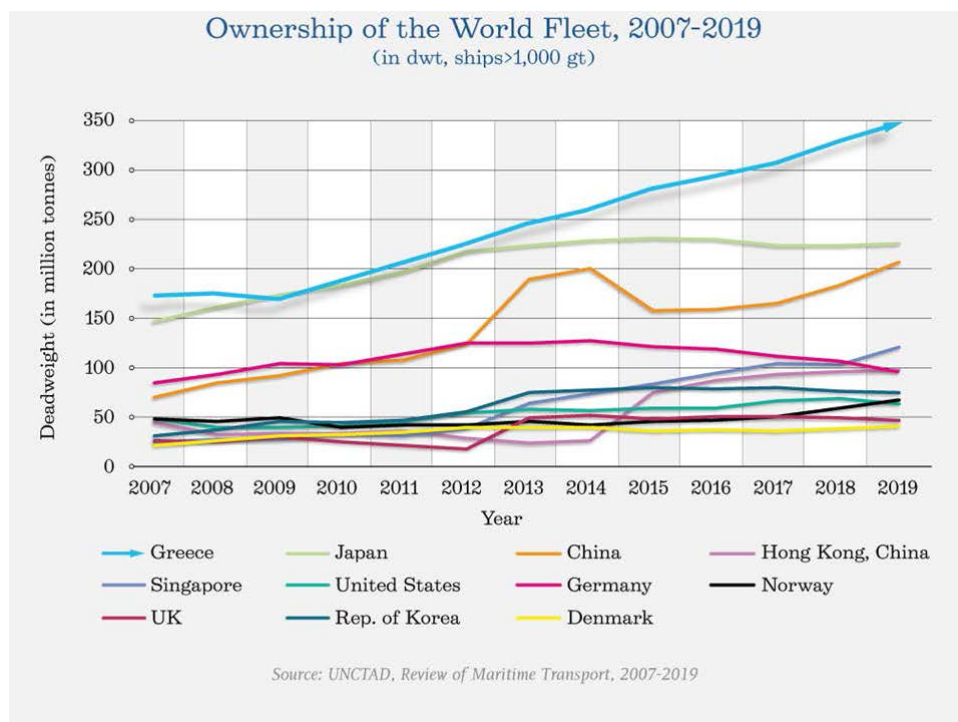
32.64% of the world tanker fleet,

15.14% of the world chemical and products tankers

16.33% of the global LNG / LPG fleet,

21.7% of the world bulk carriers, and

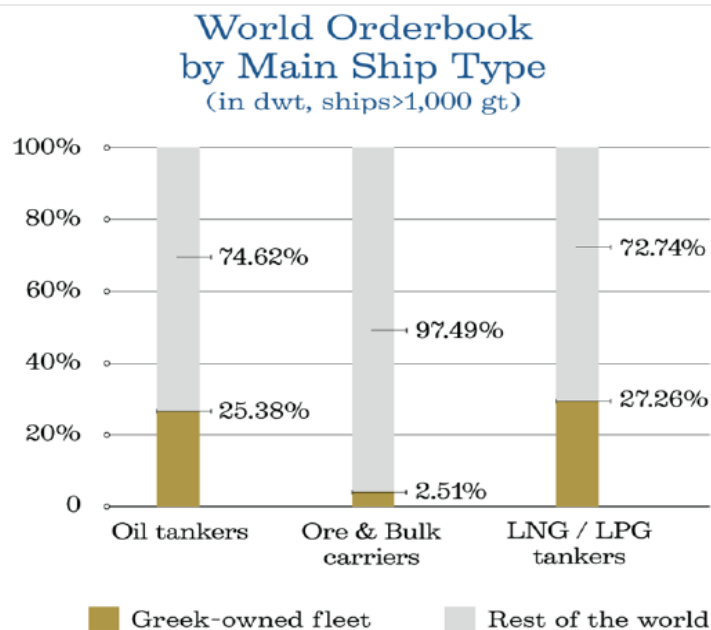
8.92% of the world container vessels.



**FIGURE 2**

New building orders by Greek interests amounted to 128 vessels (over 1,000 gt) or 15.928 million deadweight tons (dwt) out of a global total of 2,425 orders of 166.825 million dwt at the beginning of 2020 in diverse ship types (Figures 3). Greek shipowners have been investing heavily in new, efficient ships, with the average age of the Greek-owned fleet (9.17 years) being lower than the average age of the world fleet (9.61 years).

In fact, 28.61% of the Greek-owned fleet under EU flags was built after 2013 and according to the global standard of the Energy Efficiency Design Index – EEDI (MARPOL, Annex VI, Reg. 21), which guarantees better energy efficiency. The corresponding percentage for the EU- flagged fleet is 21% and 23.2% for the world fleet. Additionally, the average size of Greek-owned vessels at 81,118 dwt is almost double than the average vessel size of the world fleet which is 43,766 dwt. Economies of scale improve efficiency and environmental gains, thereby reducing even further the carbon footprint of Greek shipping.

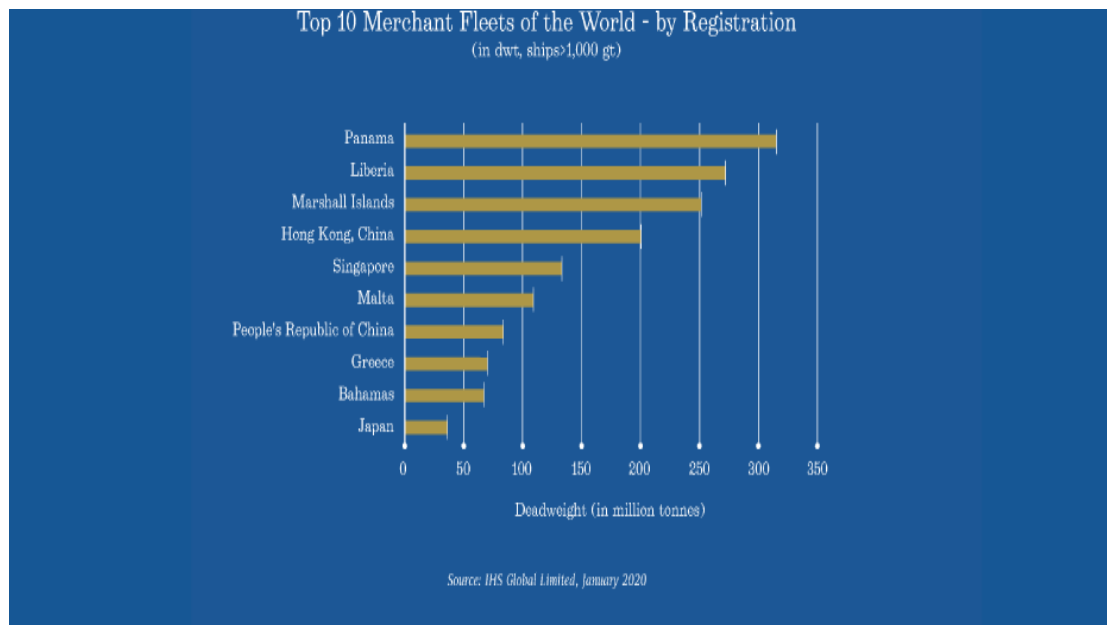


*Source: IHS Global Limited, January 2020*

**FIGURE 3**

Greece remains on the UN IMO “List of confirmed Standards of Training, Certification and Watchkeeping for Seafarers (STCW) Parties” and on the White Lists of the Paris and the Tokyo Memorandum of Understanding, while it is one of the

safest fleets worldwide with 0.96% of the Greek merchant fleet (based on number of ships) and 0.37% of the fleet (based on tonnage) being involved in minor accidents. The Greek Register numbers 706 vessels (over 1,000 gt) amounting to 39.19 million gt. The Greek-flagged fleet ranks 8<sup>th</sup> internationally (Figure 4) and 2<sup>nd</sup> in the EU (in terms of dwt).



**FIGURE 4**

### 1.2.2 The Strategic Role of Greek Shipping

Greek shipping is also of strategic importance to the EU, as both its economy and the welfare of its citizens rely on access to affordable energy. Importing 88% of its crude oil needs, 74% of its natural gas needs and 44% of its solid fossil fuels needs, the EU heavily relies on maritime transport. With energy security concerns on the rise, Greek shipping plays a crucial role in securing the EU's diverse energy imports from remote regions of the world. Its strategic importance is also evidenced by the fact that the EU relies on international shipping for approximately 76% of its external trade.

### 1.2.3 The Economic Role of Greek Shipping

Greek shipping remains one of the pillars of the Greek economy. The receipts in the country's Services Balance of Payments from maritime transport amounted to

approximately €17,303 million for the fiscal year of 2019, which represents a 4.05% year-on-year growth (Figure 5).

However, the industry’s contribution to the Greek economy is far broader than its input to the Services Balance of Payments. Greek shipping is at the heart of a thriving maritime cluster that generates investments and employment opportunities in the country



*Source: Bank of Greece, February 2020*

**FIGURE 5**

A recent study concludes that the total contribution of the Greek shipping industry in the country, including indirect and induced effects, exceeded €11 billion in 2019 accounting for 6.6% of the Gross Domestic Product (GDP). Greek shipping, by its size and characteristics, also sets Greece apart as lynchpin of the multilateral trading system, despite the country’s relatively modest size. It is an essential and strategic partner of major trading nations: approximately 22% and 20% of the fleet’s activity serves the U.S. and European trade respectively, while the largest share, approximately 32%, serves the fast-growing Asian economies.

In addition to all the above, Greek shipowners have been very actively engaging in social welfare initiatives while the Union of Greek Shipowners (UGS) is the only



industry group in Greece that has developed its own social welfare company, i.e. SYN-ENOSIS.

Greek shipping is one of the cornerstones of the global economy and a major facilitator of international trade, while constituting a major pillar of the Greek economy. The Greek-owned fleet is one of the safest, most energy efficient and environmentally-friendly fleets.

### 1.3 Greek Shipping and Employment

The total Greek shipping contribution in terms of jobs created or sustained in Greece, including indirect and induced employment, surpasses 3% of total Greek employment.

According to the latest census from the Hellenic Statistical Authority (ELSTAT) of September 20<sup>th</sup> 2018, out of 1,238 vessels, 100 tonnage and up, which were registered on the Seamen's Pension Fund (NAT), 1,155 had the Greek flag and the remaining 83 were Greek-owned but under various flags and under contract with NAT. Out of the 1,155 Greek flag vessels, 1,021 were in active service, while 134 were decommissioned. Out of the 83 Greek-owned, NAT contracted vessels, 71 were active and 12 decommissioned.

Serving on those 1,238 vessels were 20,691 Greek and foreign seamen. Specifically, on the Greek ships there were 19,648 seamen, out of which 57.5% were Greek and 42.5% foreigners.

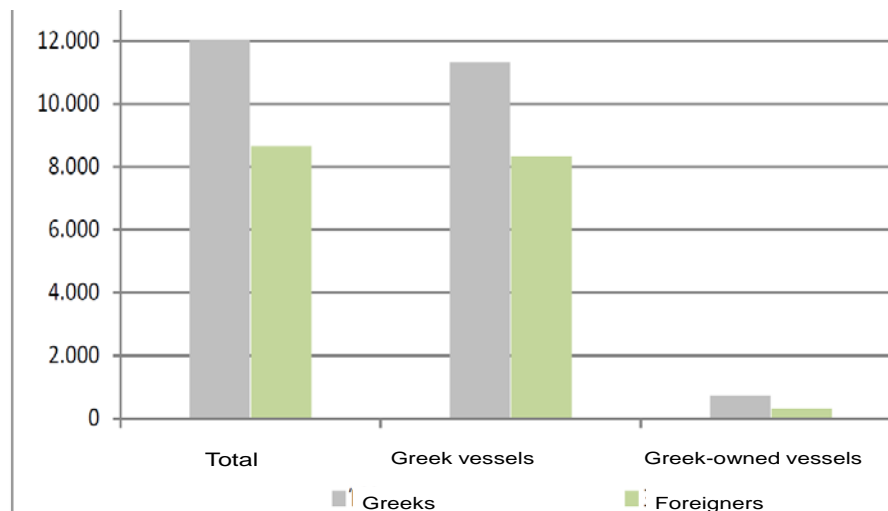


FIGURE 6

On the Greek-owned vessels with foreign flags under contract with NAT were 1,043 seamen, out of which 70.5% were Greeks and 29.5% foreigners. (Figure 6)

Comparing the data of the 2018 census to the same data of the 2016 census, the number of Greek and foreign seamen on Greek vessels (1,155 vessels) dropped by 4.9%, while on foreign flag ships under contract with NAT (83 vessels) the same number raised by 34.8%. Also, the number of Greeks serving on Greek vessels dropped by 2.9%, while the number of Greeks serving on Greek-owned, foreign flag vessels raised by 43%. Respectively, there is a decrease, by 7.5%, of foreign sailors serving on Greek ships while an increase of 18.5%, of those serving on Greek-owned ships with a foreign flag contracted with NAT.

Breaking down seamen by vessel type, 4,397 (21.3%) were serving on freight ships, 9,171 (44.3%) on tankers, 6,489 (31.4%) on liners and 634 (3.1%) on other vessels.

According to the 2018 census, out of 19,678 Greek officers serving on Greek vessels, 32.4% (6,367) were high rank officers, 60% (11,794) were lower rank officers, cadets and medical staff made up 7.4% (1,448), while the rest 0.2% (39) did not have a naval education. Also, out of 1,043 Greek officers serving on Greek-owned foreign flag vessels, 29.8% (311) were high rank officers, 64.5% (673) were lower rank officers, cadets and medical staff made up 2.7% (26), while the rest 3.2% (33) did not have a naval education.

On a study compiled by Deloitte, commissioned by “Naftemporiki”, shipping employs 160.1 thousand jobs, out of which 29.5 thousand are direct employment and 130.6 indirect employment positions.

## **CHAPTER 2: INTERNATIONAL AND NATIONAL LEGAL FRAMEWORK FOR SEAFARERS EDUCATION AND CERTIFICATION.**

### **2.1 Introduction**

It is well known that almost 80% of traffic accidents are due to human error. It is the human element on board that can either provide the skills that can prevent a disaster, or the weakness or lack of competence that can cause a disaster. And, while the skill, complexity, and enormous power of technology seem to be exponentially accelerating, the human element remains an essential ingredient with all its strengths and weaknesses.

The safe and efficient operation of ships has a direct impact on the safety of human life at sea and on the protection of the marine environment. So it's based on the ability of seafarers to work efficiently for the vessel. The key to maintaining a safe marine environment and preserving our clean oceans lies with all seafarers around the world, observing high standards of competence and professionalism in the tasks they perform. A well-trained and certified crew in relation to an unskilled crew, it is clear how it will lead to a smoother operation of the ship and minimize the occurrence of maritime accidents due to human error that may result in damage to equipment. Unless otherwise stated, a simple incident can turn into a serious accident due to the human factor. Therefore, there is a serious financial incentive to assess the risks arising from human error and to take measures to limit the risks.

It is important to note that the maritime profession differs from the rest and the working conditions are peculiar in so far as they are affected by adverse weather conditions, changing climatic conditions, the security of the cargo carried and the psychological state of the seafarer who is required to do so, staying aboard and undergoing interpersonal relationships sometimes enjoyable and sometimes unpleasant.

The human factor, however, consists not only of the crew on board the ship, but also of the employees of a shipping company. Their harmonious co-operation based on a common culture will work best.

Seafarers training related issues are regulated by STCW. The International Convention STCW clearly and thoroughly displays the process of training, education and certification of seafarers and it is important to emphasize that its content is a result of very detailed study and practice in action.

The Convention on the Standards of Training, Certification and Watchkeeping for Seafarers (STCW) is a comprehensive set of international regulations designed to ensure the maintenance of the highest standards of seafarer competence worldwide. The rules apply not only to seafarers but also to shipowners, educational institutions and national maritime authorities. In essence, the above-mentioned stakeholders have a common goal, the ship's smooth operation and hence the preservation of a healthy marine environment.

The national legal framework that regulates seafarer training related issues is consisted by a series of laws and regulations that in fact validate the International Convention STCW and adjust its regulations in the Greek educational structures and corresponding certifications that are necessary for seafarers.

## **2.2 Analysis of the STCW**

The STCW Convention is a book consisting of three sections. The articles which outline the legal responsibilities a party has to meet, the annex which gives technical details on how the legal responsibilities referred to in the articles should be met and the Code which specifies in more depth the technical details contained in the annex. It contains part A and part B. The Part A refers to the mandatory standards of training, certification and watch-keeping and the Part B is recommended guidelines on training, certification and watchkeeping.

### **2.2.1 The STCW 78 Conventions**

International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, was adopted on 7 July 1978 and entered into force on 28 April 1984. Focused almost entirely on the theoretical knowledge that seafarers must possess, attempted to introduce the necessary standards for training, the issuance of associated certificates, watchkeeping and crew safety, and to identify and evaluate the

qualifications of officers for ensuring the safe and efficient operation at sea that countries are required to meet or exceed.

The ultimate goal was to curb the widespread diplomatic fraud that had spread especially to the Far East countries. It also seeks to accept and submit all Port State control certificates.

In general, STCW '78 focuses on the human factor including 17 articles, while technical requirements are included in a specific annex. Its components relate to the general provisions relating to control procedures, those relating to master and deck, engine room, radio communications, to specific requirements for tankers as well as to the specific capabilities required when one is on board a rescue vessel.

### **2.2.2 The Revised STCW Convention 1995**

On 7 July 1995, the IMO carried out a comprehensive review of the STCW to resolve the recognized need to amend the contract and to respond to critics who stressed the many ambiguous terms, resulting in different interpretations containing the technical details of the contract provisions. The amendments entered into force on 1 February 1997. The Contracting Parties to the STCW'95 Convention must fully comply with the requirements of the STCW'95 Convention from 1 February 2002.

The STCW-95's focus has moved to theoretical expertise-based practical skills and competencies. Generally speaking, the aim of the amended STCW 1995 is to integrate the learning, verification and assessment of the knowledge of seafarers (i.e., competence, perception and most established skills).

A feature of the revision was the division of the technical annex into chapters, as before, and a new STCW code, in which many technical regulations have been transposed. The Code deals with issues of quality promotion of maritime training, qualifications and conditions of teaching staff and various other instructions related to the provision and recognition of education. Part A of the Code is compulsory while Part B is recommended. The rules in the Annex to the Convention are similar to the numbering used in the Code.

Another major change was the requirement for the contracting parties to provide detailed information to the IMO on the administrative measures taken to ensure compliance with the contract. This is the first time IMO has been called upon to comply with compliance and enforcement - in general, implementation is implemented in flag states, while port state control also ensures compliance.

According to Chapter I of Regulation I / 7 of the Revised Convention, the Contracting Parties are required to provide detailed information to the IMO on the administrative measures taken to ensure compliance with the Convention, education and training courses, certification procedures and other factors relevant to implementation.

The requirements apply to seafarers on board vessels (irrespective of vessel size) and have the right to fly the flag of a member of the STCW Convention, except for warships, fishing vessels, pleasure crafts and wooden vessels constructions. The Convention stipulates that officers are required to have knowledge of the serious impacts of marine pollution resulting from operational discharges by ships, as well as that resulting from

Procedures are also set out to be disclosed in order to trace the qualifications of all crew nationalities. At the same time, applicants' ages, mental and physical health, as well as required service will be assessed for the relevant certificates.

Shipping companies must ensure that seafarers have undergone appropriate training with safety issues, on-board management issues and the length of time off from rest of work purposes and must enhance the conviction of all officers that to be actively involved in the training of new crews as well as to evaluate and review regularly the development of new staff in the acquisition of new knowledge and skills during their service.

Compliance with the above depends on the policy of the respective authorities. The Convention stipulates that the flag states and coastal states should impose penalties on shipping companies that deliberately do not comply with the new requirements.

The key requirement of the amended STCW 1995 Convention is the guaranteed identification of seafarers' qualifications through certification, guided sea voyage training as well as the imperative need for all seafarers to be proficient in English.

### **2.2.3 The Amended STCW 2010 Convention**

The Manila 2010 amendments were intended to include all changes agreed since 1995, tackling new technology, inconsistencies, interpretations and outdated provisions. Particular emphasis has been placed on improving the provisions in Chapter 1 on the control and communication of certification and addressing the specific requirements of offshore and short sea shipping.

There was also a general commitment to harmonize the modified STCW Convention where applicable with the provisions of the Maritime Labor Convention (MLC) 2006. Although the STCW-78 Convention focused almost exclusively on knowledge, its emphasis has shifted to practical skills and competencies supported by theoretical knowledge.

The 2010 amendments continued to emphasize competence rather than maritime service or training. The standard set by this Convention applies to seafarers of all grades serving on merchant vessels registered under the flags of the countries party to the Convention.

Among the amendments adopted, there are a number of significant changes to each chapter of the Convention and the Code, including:

Improved measures to prevent fraudulent practices related to certificates of competence and to enhance the evaluation process (monitoring compliance by the Parties to the Convention).

- New certification requirements for competent seafarers
- Revised requirements on working and rest hours, which include minimum rest periods of three periods and no longer two, and new requirements for the prevention of drug and alcohol abuse, as well as updated standards on seafarers' medical fitness standards.
- New requirements for training in modern technology, such as electronic maps and information systems (ECDIS).

- New education and training requirements for maritime environment awareness and leadership and teamwork and compliance with the MARPOL Convention: the amendments include adding maritime awareness issues to the lesson on personal safety and social responsibility which is carried out in the context of Basic Safety Training.
- New training and certification requirements for electrical engineers
- Updating the adequacy requirements for personnel serving all types of tankers, including new requirements for personnel serving liquefied gas tankers.
- New requirements for safety training, as well as provisions to ensure that seafarers are adequately trained to handle if their ship is attacked by pirates.
- Introduction of modern training methodologies, including distance learning and online learning.
- New training guidelines for personnel serving ships operating in polar waters.

Some other amendments have been introduced with the 2010 amendments to align the STCW with the MLC-ILO are:

- **Recordkeeping Program:** Importantly, the 2010 amendments require that individual seafarers' rest time records be kept in order to demonstrate compliance. Unless the flag status requires otherwise, these records must comply with the modern formats agreed by the IMO and ILO in the published guidelines. It is important that these records can be inspected by port State control as of January 2012. Each separate record of rest hours must be signed by the seamen they cover. It should be noted that minimum rest requirements apply to every 7 days of any 24-hour period (without calendar days) and the calculations required to check compliance are complex, especially if seafarers often deviate from their normal scheduled working hours. Therefore, it is recommended to use the system-based recording system for rest hours.
- **Registration and Schedule:** STCW also requires companies to maintain on-board schedules of work arrangements, stating the normal working hours for various seafaring categories, which must be posted on board at an easily



accessible point. Unless the flag status requires otherwise, the format must also comply with that recommended by the relevant IMO-ILO guidelines.

#### **2.2.4 STCW Certificates**

The term ‘certificates’ covers all official documents required under STCW. It includes certificates of competence, endorsements, certificates of proficiency, and any documentary evidence showing that a requirement of the convention has been met.

Certificates are important as they are the main paper evidence you have on hand to prove that your level of maritime education and training, your length of service at sea, your professional competence, medical fitness and age all comply with STCW standards. Every party to the convention has to ensure that certificates are only issued to those seafarers who meet STCW standards.

More specifically:

- Certificate of competence: This document is issued to masters, officers, radio operators and ratings forming part of a watch who meet the standards of competence relevant to their particular functions and level of responsibility on-board. The table below indicates the title of the certificates under STCW and the various limitations and tonnage thresholds that apply
- Endorsement: A document issued to masters and officers, either as part of the certificate or as a separate document. This attests (endorses) that the national certificate has been issued in accordance with all STCW requirements
- Endorsement of recognition: This endorsement certificate is issued by an administration as an official recognition of the validity of a certificate issued by another administration. This procedure is necessary as many merchant fleets are manned by seafarers certificated by other administrations. Under the 2010-amended STCW Convention regulation I/2 all seafarers serving on foreign ships must obtain an endorsement.
- Certificates of proficiency: These are documents issued to the seafarer to certify that he or she has met the required standard of competence in a specific duty. These certificates include certificates for personnel serving on certain types of ship (tankers, and passenger ships) and for those assigned with safety, security and pollution prevention duties. It certifies that the holder meets

STCW standards of competence in specific functions related to safety, care of persons, or cargo.

- Certificates and general requirements by rank Documentary evidence: This is a document which is not necessarily issued or recognized by the administration (and is not, therefore, called a certificate). Documents issued by the ship owner or master of the vessel to attest that the seafarer has participated in a safety drill or has completed some type of training

It is important to keep these documents since they are one of the accepted ways of demonstrating that you have achieved proficiency in a given task (basic safety training, for example). Where such evidence is not available of on-board training and experience you will be required to undergo a five yearly refresher trainers and assessors.

The question itself is whether the ongoing revision of the STCW Convention is sufficiently comprehensive to resolve all the existing problem areas and disadvantages in the current implementation of the Convention or is it simply updating the curriculum to cope with the rapid technological advances in the shipping sector. Nonetheless, in the ongoing revision of the STCW Convention, which poses the need for additional work and revision of the Convention in order to achieve its goals of ensuring maritime security and protecting the environment by raising the global professional standard of seafarers, numerous shortcomings, unattained artifacts and deficiencies in the implementation phase are not addressed.

Below (figure 6) there is a matrix of mandatory certificates according to STCW for the top four crew members on board a ship.

Master				Chief mate			
NAME OF CERTIFICATE	REVALIDATION	REG.		NAME OF CERTIFICATE	REVALIDATION	REG.	
National certificate of competence and endorsement	Yes	I/2, II/2,	C/R	National certificate of competence and endorsement	Yes	I/2, II/2,	C/R
Flag state endorsement of recognition	Yes	I/10	E/R	Flag state endorsement of recognition	Yes	I/10	E/R
GMDSS endorsement	Yes	IV/2	C/R	GMDSS endorsement	Yes	IV/2	C/R
Basic safety training - Personal survival techniques - Fire prevention and fire fighting - Elementary first aid - Personal safety and social responsibility	Achieved within previous five years	VI/1	D/P	Basic safety training - Personal survival techniques - Fire prevention and fire fighting - Elementary first aid - Personal safety and social responsibility	Achieved within previous five years	VI/1	D/P
Medical first aid	No	VI/4	D/P	Medical first aid	No	VI/4	D/P
Survival craft and rescue boats	Yes	VI/2	D/P	Survival craft and rescue boats	Yes	VI/2	D/P
Advanced fire fighting	Yes	VI/3	D/P	Advanced fire fighting	Yes	VI/3	D/P
Medical fitness	Yes	I/9	C/R	Medical fitness	Yes	I/9	C/R
Basic safety familiarisation	On assignment	VI/1	T/O	Basic safety familiarisation	On assignment	VI/1	T/O
Ship specific familiarisation	On assignment	I/14	T/O	Ship specific familiarisation	On assignment	I/14	T/O
Security familiarisation	On assignment	VI/6	T/O	Security familiarisation	On assignment	VI/6	T/O

C/R certificate required. D/P Documentary proof. T/O Training onboard. E/R Endorsement required.

Chief engineer				Officer in charge of a navigational watch			
NAME OF CERTIFICATE	REVALIDATION	REG.		NAME OF CERTIFICATE	REVALIDATION	REG.	
National certificate of competence and endorsement	Yes	I/2, III/2, III/3	C/R	National certificate of competence and endorsement	Yes	I/2, II/1, II/3	C/R
Flag state endorsement of recognition	Yes	I/10	E/R	Flag state endorsement of recognition	Yes	I/10	E/R
GMDSS endorsement	Yes	IV/2	C/R	GMDSS endorsement	Yes	IV/2	C/R
Basic safety training - Personal survival techniques - Fire prevention and fire fighting - Elementary first aid - Personal safety and social responsibility	Achieved within previous five years	VI/1	D/P	Basic safety training - Personal survival techniques - Fire prevention and fire fighting - Elementary first aid - Personal safety and social responsibility	Achieved within previous five years	VI/1	D/P
Medical first aid	No	VI/4	D/P	Medical first aid	No	VI/4	D/P
Survival craft and rescue boats	Yes	VI/2	D/P	Survival craft and rescue boats	Yes	VI/2	D/P
Advanced fire fighting	Yes	VI/3	D/P	Advanced fire fighting	Yes	VI/3	D/P
Medical fitness	Yes	I/9	C/R	Medical fitness	Yes	I/9	C/R
Basic safety familiarisation	On assignment	VI/1	T/O	Basic safety familiarisation	On assignment	VI/1	T/O
Ship specific familiarisation	On assignment	I/14	T/O	Ship specific familiarisation	On assignment	I/14	T/O
Security familiarisation	On assignment	VI/6	T/O	Security familiarisation	On assignment	VI/6	T/O

C/R certificate required. D/P Documentary proof. T/O Training onboard. E/R Endorsement required.

FIGURE 6

## Certificates and general requirements by rank

### 2.2.5 Paris Memorandum of Understanding

In January 1982, 14 countries signed the Memorandum of Understanding for the control of ships, known as Paris Memorandum of Understanding (MoU). The Paris Memorandum of Understanding is applied since July 1982 and after the passage of time more countries were added, like Greece. For the first time, a regular and systematic control of ships and the certification of its crew is being operated by a local team consisted of port countries that are members of the relative conventions. The Paris MoU is operating as a model in which the international community controlled by PSC relies.

After Paris MoU, more MoUs have been signed, some of them are the following:

- The Tokyo MoU (About the Pacific Ocean)
- Acuerdo Latino MoU (About South and Central America)

- The Caribbean MoU (About the Caribbean)
- The Mediterranean MoU (About the Mediterranean Sea)
- The Indian MoU (About the Indian Ocean)
- The Abuja MoU (About the West and Central Atlantic Ocean close to Africa)
- The Black Sea MoU (About the Black Sea)
- The Riyadh MoU (About the Persian Gulf)

### **2.3 National legal framework**

STCW was ratified by Greece with the N.1314/83 (FEK 2A/83) and was put into force in April 1984. It was the first convention that set the basic requirements regarding issues of training, certification and watchkeeping of seafarers, both for seafarers as well as for the lower crews in international level. The revision of the above law happened in 2010 and was incorporated in the Greek legislation with the p. d 79/2012 (FEK A'137).

According to the revised Convention new requirements are being defined regarding the provided training, qualifications, conditions of certification and watchkeeping of the seafarers of the departments of deck, engine and telecommunications between ships personnel.

The law 3450/06 'Upgrade and restructuring of seafarer training and other regulations' following law 2638/98 is coming to evolve the current status quo of the Hellenic Maritime Academies and seafarer training in general.

Furthermore, the Seafarers Training Directorate of the Hellenic Ministry of Maritime Affairs and Insular Policy was established according to article 13 of N4150/2013 (FEK A' 102), 'Reconstruction of the Hellenic Ministry of Maritime Affairs and Insular Policy and other regulations' in order to inform and provide guidance to students as well as to become the connecting link between the Hellenic Maritime Academies students and shipping corporations, which would facilitate their

impressions in corporate ships and complete their first practice through the mandatory maritime training voyages, with total duration of 12 months of maritime service of directed training.

In 20/10/2014 in FEK A' 232 was published the presidential decree 141/2014 'Prerequisites for obtaining proof of naval competence and service rights on ships and other regulations- Substitution of presidential decree 243/1998' with which consorts the Greek legislation regarding acquisition of proof of naval competence according to the new requirements of the International Convention STCW 1978, as it has been modified. Consequence of the above publication was the modification of the national legislation regarding the prerequisites for obtaining proof of naval competence as well as the service rights on ships

Also according to the regulations resulting from the law of 2003 (n.3153) the supervisory framework of the Private Schools of Naval Vocational Training and Education (NEKE) is provided by the Greek state, which consists of:

- The study content
- The ensuring of quality
- The training personnel and
- their material-technical equipment

With these the basis of the application framework for the establishment and operation of private schools that will cover the whole spectrum of maritime training is formed. This puts an end in the suffering of Greek merchant navy officers, who were forced to leave to other countries for their after training.

It is worth noting that the countries that are members of the European Union, adopted in September 2011 the 'Proposal of the directive of the European Parliament and of the Council for the modification of the 2008/106/EU directive of the European Parliament regarding the minimum level of maritime training' and since 2012 new international rules condition seafarer training, regarding their skills, security, certification, which are not other than the amendments of the International

Convention for the training standards, issuing of certifications and watchkeeping  
STCW 2010 (Manila Amendments)

It is obvious, as it happens after all generally with Greek legislation, the countless amendments and laws without the existence of one and only legal framework for maritime training have as a consequence the difficulty both of understanding and application.

## **CHAPTER 3: THE HELLENIC MARITIME TRAINING AND CERTIFICATION SYSTEM**

### **3.1 Introduction**

Greece, as a traditional shipping country, has established a training system, so that they can reciprocate fully to the constant growing changes that are being enforced by international marine activity as well as technological change and of course by the institutional framework that rules in Greece both in national and international level, as it was mentioned in chapter 2.

The competent entity for marine training and certification is the Ministry of Maritime Affairs and Insular Policy in cooperation with the Greek Ministry of Education and Religious Affairs and more specifically the Administration of Marine Training, which belongs to the Marine Department of the Headquarters of Greek Coast Guard.

The Administration of Marine Training, which also supervises the Maritime Academies (AEN), the Training Centers of Commercial Navy Officers (KESEN), the Schools of Lifesaving and Fire-Fighting Media and the Public School of Commercial Naval Training of Stewards (DSEN/MET Stewards), is responsible for the development and installment of training programs, the further training and education of seafarers, the proper functioning of the respective public schools as well as the design and implementation of measures aimed at attracting young people and introducing them into the maritime profession. Among other things its responsibilities include the following:

- ✓ definition of the conditions for admission to AEN,
- ✓ supervision and administration of the Public Schools of the Merchant Navy,
- ✓ the preparation of operating regulations and training courses
- ✓ the selection, reform and modernization of educational texts,
- ✓ the handling of issues relating to student grants,

- ✓ the schedule and monitoring of the implementation of maritime education courses, financed by the European Union, in cooperation with the PA (Partnership Agreement for the Development Framework),
- ✓ the planning for the necessary training and technological equipment items of the Maritime Schools,
- ✓ the observation of the maritime training sailing of the cadets,
- ✓ the collection of data at national and international level,
- ✓ the study and presentation of measures relating to the conditions, the skills and the process for acquiring marine competence certifications as well as the establishment of new certifications,
- ✓ the monitoring of the work of international organizations in the field of the award of evidence of maritime competence,
- ✓ the issue of certificates in accordance with the International Convention on Standards of Training, Certification and Watchkeeping of Seafarers.

### **3.2 History**

Marine training in Greece started before 1750 when one of the oldest Maritime Schools of Europe was operating in Hydra, consisting of Italian and Portuguese teachers. Next significant year was 1830, when the Greek state decided to found Marine Schools, but this time consisting of Greek staff, unlike the one and only Marine School in Hydra till then, that consisted of staff from other countries of Europe. Relevant schools were created in Spetses, Galaxidi, Syros, Argostoli, Nafplio and elsewhere.

In 1907 a Marine School operated in Ithaka, while in 1927 the first State School started operating in Piraeus. Three years later, a School was founded in Chios, while at the same time Maritime School in Hydra was converted into a state Maritime Academy.

The history of the modern naval training in Greece, after the end of the Second World War, is not only limited to the history of the public Maritime Academies (AEN), but



also includes many other institutions that provided naval training, such as the naval high schools ( both public and private), the Training Centers for Commercial Naval Masters, Engineering, Radio electronics / Radio communications, the Schools of Lifesaving and Fire-Fighting Media, the schools of Radio Operators, the schools of Stewards and Cooks, but also the many private naval schools (Mechanics and Radio telegraphers or the School of Engineering of Eleusina), which operated under the auspices of municipalities or private organizations and entities or belonged entirely to civilians (e.g. School of Piraeus Association, Prometheus, Heron, Archimedes, Lamian, Nireus, Vallianios, Vrana, Palmer, Euclid etc.). Training provision was much wider for deck officers than the engine officers who had to attend private Naval Schools operating at that period in the Piraeus area.

In 1950 Merchant Marine Schools were separated from the other Technological Schools, thus showing early on the specificity of this sector and the need to pursue an autonomous policy, while in 1975 these Schools were completely separated from the operating regime applied to the other technical and professional educational institutions, demonstrating once again the fact that this sector was distinguished both for its specificity and for its full autonomy.

In 1951 the first Public Maritime Academy (Captains and Engineers) was founded in Aspropyrgos, Attica, while a Captains School was founded in Syros in 1961, as well as in Oinousses in 1965. Similar Schools were founded in 1966 in Kefalonia, in Kymi and Preveza in 1968, in Nea Michaniona and Thessaloniki in 1975 and in Chania of Crete in 1979.

Finally, ten years after the opening of the first Public School of Engineering in Aspropyrgos, in 1961, the second School of Engineering was founded in Chios, followed by the foundation of the Schools of Engineering in Chania, Crete in 1963 and Nea Michaniona, Thessaloniki in 1969. However, it is worth mentioning that all these years many private Schools (for Captains and Engineers) were operating in addition to the Public Schools.

### **3.3 Vocational Naval Senior High Schools**

Vocational Senior High Schools (EPAL), which operate as day and night, in addition to other specialties also have a naval sector that provides the captain and engineer

specialty. Students that have graduated from High School attend three years (daily EPAL) and four years (evening EPAL) and attend also the courses of general education. Students that have graduated from Senior High School and enroll in Vocational Senior High Schools, attend one year less and attend only the specialty courses, which are Navigation, Stability, Loading, Maritime Art, Emergencies Needs, Duty on the Bridge, Maritime Communications, Maritime Knowledge and English Nautical Terms. If a student does his service on a boat while attending senior high school, he has the option to be declared as a private student with the obligation to take oral and written exams at the end of the school year. Upon graduation, the student receives a captain's or engineering degree that allows him, provided that he is below 27 years old, to take part in the nationwide exams for admission to the Maritime Academies (AEN).

The recent upgrade of the professional rights of the graduates of the Country's Senior Naval High Schools gives all graduates of the EPAL with naval specialty the opportunity to become first class Merchant Marine officers, under conditions. More specifically Law 4676 (FEK 67/A/19-3-2020, Article 82) refers to the professional rights of EPAL graduates in the sector of Maritime Professions and modifies the current presidential decree 141/2014 (A'232) which determines the conditions of obtaining a Naval Competence Certificate and the rights of Service to ships.

According to law 4676: In order to become a third class Captain or Engineer provided that he comes from the EPAL department of Maritime Professions, he has to attend a new Special Class with reformed content the duration of which will be 7 and 9 months respectively. The sea service that is required is 24 months.

Then in order to become a graduate EPAL officer of the second class, he has to do 36 months of sea service, attend the new Special Class for second class Captains and Engineers of two semesters duration and attend the promotion cycles of KESEN.

In order to become a first class officer, he has to attend the cycle of KESEN and do the 24 month sea service as well AEN graduates do. There is no other Special Classes to attend, given that he is an experienced officer.

All Special Classes for Captains and Engineers take place in the Maritime Academies (AEN) with the concern of Ministry of Maritime Affairs and Insular Policy (YNANP).

### **3.4 Maritime Academies (AEN) for Captains and Engineers**

#### **3.4.1. The Maritime Academies**

Maritime Academies (A.E.N.) are public schools of the Highest Level that are administratively under the Ministry of Maritime Affairs and Insular Policy and are supervised by the Directorate of Naval Training of the Coast Guard-Greek Coast Guard Headquarters. They are the main training bodies of merchant navy officers in Greece and are distinguished in Captain's Schools and Engineering Schools. Their training is co-financed under PA (Partnership Agreement for the Development Framework), (2014-2020) through the "Human Resources Development, Education and Lifelong Learning" & "Competitiveness, Entrepreneurship and Innovation", and at this stage have been integrated and implemented the actions "Supporting a Maritime Education System of A.E.N. in accordance with international standards and relevant EU legislation" and "Practical exercise of A.E.N. students on board to fulfill their first sea educational journey", respectively. Attendance in Maritime Academies (AEN) is free of charge and accommodation for students is provided to all A.E.N., except Aspropyrgos, Kalymnos and Macedonia, while concerning female students accommodation is provided only in A.E.N. of Crete, Epirus, Kymi and Oinousses.

Maritime Academies in total are eleven and operate in various cities of Greece:

#### **AEN OF ASPROPYRGOS**

It was founded in 1951 in Aspropyrgos, 20 kilometres from Athens and Piraeus. It is the largest school in Greece with the most students. It operates both as a Captain's School and as an Engineering School. Until 2008 it was the only school that female students could enroll in, unlike today that women can enroll in all maritime schools in Greece. It is an external school, meaning that it doesn't provide indoor accommodation. In its framework also operates the School of Rescue and Firefighting

### AEN OF EPIRUS

From 1973 to 1992 it was known as the School of Radio Telegraphs. In 1991 the Captain's School also operated. The school of Preveza is located less than a kilometer from the center of the city in Vathi area. As in the other schools besides the one in Aspropyrgos, it provides indoor accommodation to students. It is noteworthy for this school that in its laboratories it has a complete old ship communication system.

### AEN OF IONIAN ISLANDS

It is located in a coastal location 700m north of the main square of Argostoli and has been operating since 1975 as a Captain's school. It provides the possibility of internal education.

### AEN OF KALYMNOS

It is located in Kalamiotissa Parish in the center of Kalymnos and it has modern and recently renovated facilities. The Academy is the 11th in a row of AEN in the country, as it was founded in December 2018, when it accepted its first admitted students.

### AEN OF CRETE

Although it was founded in 1963 as a school of Engineering, it operated in 1972 and later, in 1981 the Captain's School. It is located in the area of Vlite Souda Chania, at the 2nd kilometer of Souda Street - Chania Airport, 8km from the city. It offers the possibility of internal education and has modern facilities.

### AEN KYMI

It was founded in 1955 on the initiative of the Prime Minister Konstantinos Karamanlis and the then Minister of Merchant Shipping Georgios Vogiatzis whose origin was in Kymi. It is located at the easternmost tip of Euboea, in Kymi, at a distance of 500 metres from the port. It is exclusively a Captain's school and provides students with the possibility of internal education.

### AEN OF MACEDONIA

AEN Macedonia was founded in 1969 and operated as an Engineering School, in 1975 the Captain's School also operated. It is located 32 km from Thessaloniki at about 500 metres from the Municipality of Nea Michaniona. It is the second largest school in Greece after the one in Aspropyrgos. The school does not provide students with internal education. Also right next to the school is the building of the School of Lifesaving and Fire Rescue.

### AEN OF OINOUSSES

It is located in the Port of Oinousses Island. It was founded in 1965 and is only a Captain's School. Students have the opportunity to stay in the school's dormitory, as the school provides internal education.

### AEN OF SYROS

In the area of Nisaki on the beach of Ermoupolis, it has been located since 1961 when the Maritime Academy of Syros was founded. It is exclusively a Captain's school and its students can stay in the school's dormitory.

### AEN OF CHIOS

The Engineering School of Chios was founded in 1965 in parallel with AEN Oinousses. It is located in the city of Chios at 26 Dimokrtias street, next to Vounaki square. It provides the possibility of internal education.

### AEN OF HYDRA

It is the most historic of the schools. It was founded in 1749 as the School of Agios Vasilios which then evolved into the "Navy School of Hydra" on the initiative of the elder-republic of the island and is the oldest operating school in the world. Italians and Portuguese taught the Maritime art, theory, as well as foreign languages there. In 1930 it became public and was named the Merchant Shipping School of Hydra, since in 1927 it had passed into the care of the Seafarers' Association of Hydra and operated as a private school. During the German-Italian occupation the school's command post was occupied by the Italians to set up their headquarters, but the

School did not cease to operate and continued operating in Athens at the offices of the Union of the Shipowners and later in Piraeus in Kastela until 1949. On November 1st of the same year the first two classes returned to Hydra in the building where the school operates to this day. The school is located in the port of the island, it is exclusively a Captain's school as it has always been and provides the possibility of internal student attendance.

### **3.4.2 Procedure of attendance in AEN**

Training in these schools includes the theoretical field, practical in laboratories as well as training with the help of simulators, as well as paid work on board for two semesters. During their studies, the Captains acquire basic knowledge in courses such as: Mathematics, Elements of Constitutional and Maritime Law, Maritime Art, Shipping, Communications, Informatics, Meteorology, Radar, Naval Electronic Instruments (N.H.O.), Ship Economic Exploitation, etc. Engineers acquire basic knowledge in general courses and in specialty courses, such as Electrotechnics, Thermodynamics, Naval Engines, Mechanical Design, Internal Burning Machines, Automatic Control Systems, Materials Technology, etc. The English course is considered necessary in both specialties and is a basic requirement of the International Maritime Organization (IMO) for the acquisition of any diploma of merchant ship officer.

After the end of the first semester students are called to get a naval brochure, for which the schools take care to inform the students where and how they will receive it, after having attended some short-term seminars on Lifesaving and Firefighting equipment. In the Schools of Lifesaving and Firefighting students are trained in safety issues for their life on board or for their rescue in the event of a shipwreck, as well as in matters of fire and first aid. These are necessary because in a maritime accident everyone must be well trained in how to deal with it calmly and not put their lives at risk. After finishing the above training then they receive from the Port Authority of their area the Naval Brochures and begin the search for a shipping company that will hire them and ship them to one of its ships in the place of the Cadet Captain/Engineer (Apprentice Officer / Engineer or Cadet).

During the first semester of on-board internship the student is required to make a training trip lasting 4-6 months. At the successful end of their educational journey they are repatriated and return to the school for the second and third semesters which last until the summer of next year. When they complete the two semesters they are invited to go on the second training trip for an on-board internship lasting 6-8 months, provided that the total duration of both training trips is not less than twelve (12) months. After being repatriated from this trip then they continue in the last two years to the school (D' - E' - F' Semesters) where somewhere in between they will attend the second cycle of seminars on life-saving and fire-fighting equipment.

More specifically, Captain students, when they finish the Maritime Academy, receive their Degree and do further special practical and theoretical two week training in KESEN R/T (Radio telegraphers) which is located at the Maritime Academy of Aspropyrgos in Satellite and Terrestrial Risk and Security Communications GMDSS. This training is useful for obtaining the third class Captain's Degree and obtaining the title GMDSS General Operator. After passing the GMDSS examinations then they pass health examinations from the Higher Naval Health Service - ANYE at the Naval Hospital of Piraeus and after they are deemed suitable they receive from the Ministry of Maritime Affairs and Insular Policy the diploma and are called Captains Class C. After obtaining the diploma, each lieutenant shall, in order to be ready to be assigned and to take up duties according to the type of ship to be served, pass another series of special training in accordance with the STCW International Convention on various electronic navigation systems, maritime instruments and simulators such as ECDIS, RADAR/ARPA, Bridge Resource Management - BRM, Bridge Team Management - BTM, Advanced Oil/Gas/Chemical Tanker Safety Training, Accident & Risk Assessment, Bridge Maneuvering Simulator - BMS, Cargo Handling Simulator, Crowd & Crisis Management, Ship Security Officer Training - SSO, Ice Navigation, Voyage Planning, Accident & Incident Investigation, Adverse Weather Course and many other special training programs that have to do with the type of ship and the provisions and regulations set by the STCW.

Students who finish the first and second semesters are required to make educational trips, registered by Greek Shipping Companies that have ships under the Greek Flag or even foreign flag ships but contracted with the N.A.T. (Navy Fund). In order to

overcome problems resulting from the finding of a ship for the execution of the 1st and 2nd sea trip, the Ministry of Maritime Affairs and Insular Policy by decision (no. M 3615/ 02/13-20/06/2013) announced that: "Students of the Maritime Academies (AEN), first and second marine training periods who do not find ships flying the Greek flag to perform their practical exercise on or ships flying the flag of a third country contracted with the Naval Planning Fund (NAT), are exceptionally permitted be on board ships flying the flag of a Member State of the European Union or the flag of a third country not affiliated with the NAT. This maritime service shall be taken into account for the acquisition of a Captain's or Engineer's Diploma of the 3rd Class of the Merchant Navy if it is recognised as pensionable to the NAT. In the event that on the above ships do not serve a Greek Merchant Navy officer, the registration is exceptionally permitted provided that the student's communication with the officer responsible for training of the Merchant Navy in English is ensured. In this case, the student must have a certificate of knowledge of the English language at least level B2."

Prior to their departure, the students, with a written certificate from the company that has hired them, receive from the offices of the Directorate of Marine Training the book K.E.P. (Guided Training on Board) where this is considered an important aid for the Cadet Captain/Engineer in getting to know the ship and getting the supplies they need for the school and the maritime profession. The KEP is received by students on both trips. When the student arrives on board the officers and the rest of the crew take the responsibility for him and undertake his training. Usually the hours followed by cadet captains are 4 hours on the ship's bridge and 4 hours on deck under the supervision of someone for manual labor. The Cadet Engineers are employed in the various tasks of the engine along with someone who will supervise them since there are many risks. This manual work helps the student learn the ship, its configuration and the maintenance it needs. Also manual work on board is also an offer to all the people who work for it.

The student becomes a graduate after the expiry of the prescribed duration of study provided that he has successfully attended with all the courses in accordance with the provisions of the Rules of Studies of the Academy, has completed his graduate work and has completed the sea educational trips.



### **3.4.3 Admission to the Maritime Academies**

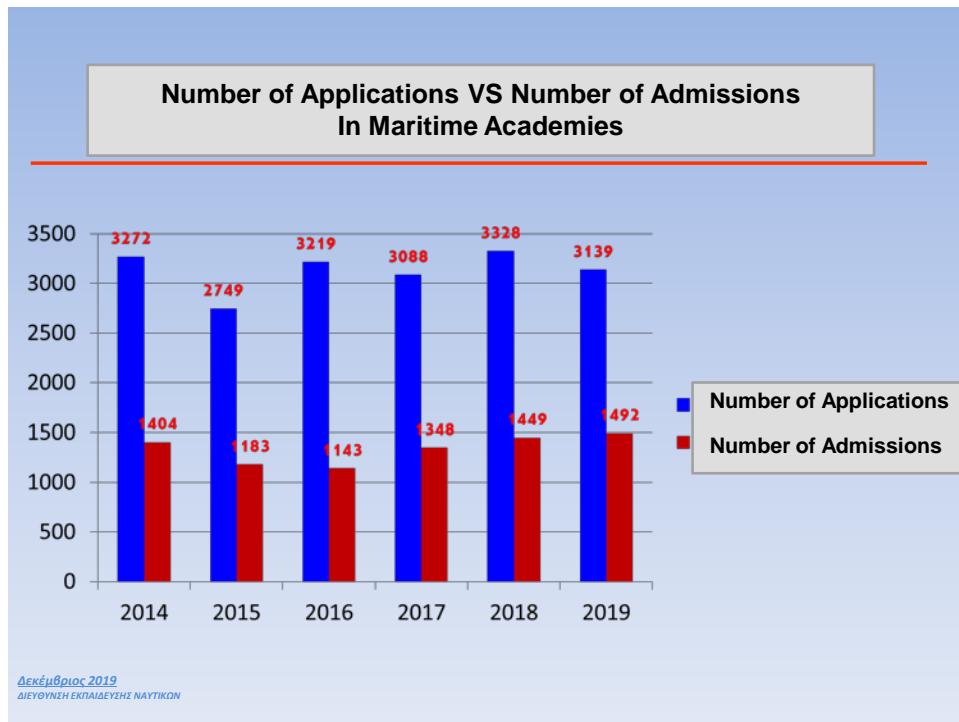
The admission of students to the Maritime Academies from the academic year 2020-2021 takes place only through the system of Panhellenic examinations contracted by the Ministry of Education and Religious Affairs. In previous years, candidates were given the opportunity to enter the Academies by participating in the Nationwide Examinations or by their allocation by submitting only their Senior High School Diploma.

The allocation of the positions of the imported students in accordance with the last notice of the Ministry of Maritime Affairs and Insular Policy (n. 2232.1/36725/16-06-2020) concerns:

1. 65% of the total number, coming from daily General Senior High Schools from the scientific fields of Science and Technological Sciences and Economics and Informatics Sciences (2<sup>nd</sup> and 4<sup>th</sup> fields). In addition to these positions, 1% is covered by candidates from Evening General Senior High Schools.
2. 35% of the total number of admissions, coming from daily Vocational Senior High Schools of all sectors. In addition to these posts, 1% is covered by candidates from Evening Vocational Senior High Schools.

In excess of the number of students admitted to the Maritime Academies (AEN) special categories of candidates shall be admitted in the order of success between them, provided that they gather the success rating base in accordance with the applicable provisions.

The diagram of the image below shows the number of applications and admissions of students to AEN in the years 2014-2019.



### 3.4.4 Admission requirements to the Maritime Academies

According to n. 2232.1/36725/2020/16-06-2020 last proclamation of the Minister of Maritime Affairs and Insular Policy each candidate must obtain the following qualifications:

- a. To have participated in the Panhellenic examinations of the Ministry of Education and Religious Affairs.
- b. To have Greek citizenship and be registered in the registers of males or in the population register
- c. To be less than 27 years old
- d. To be, in the opinion of a competent health committee, competent physically and spiritually for the maritime profession, in accordance with the provisions applicable to each specialty.
- e. Not to have been punished by deprivation of his or her civil rights and not to have been convicted of a felony or to imprisonment of more than six months for relapse or more than six months for smuggling or smuggling drugs or for

violating the Law on the Protection of the National Currency or for an offence referring to the on-board service and not to have been definitively deprived of the right to practice the maritime profession.

### **3.5 Training Centers of Commercial Navy Officers (KESEN), Schools of Lifesaving and Fire-Fighting Media**

In the Commercial Marine Executives Training Centers (KESEN), interested parties have the opportunity to attend courses and special training courses necessary by the applicable national legislation and international standards for the exercise of the maritime profession. In Greece there are three (03) Training Centers for Commercial Navy Officers (KESEN), for Captains, Engineers and Radioelectronics-Radiocommunications (RE-RC).

Two public Training Centers of Commercial Navy Officers (KESEN) for Captains and Engineers operating in Athens and Macedonia and there are also two Schools of Lifesaving and Fire-fighting Media in Aspropyrgos and Macedonia.

Merchant Navy Officers, after graduating from the Maritime Academies, are offered courses in retraining and knowledge renewal, while there are also provided with training in specialized subjects for service on special ships (tanker-passenger ships) in order to be able to follow the specialized technologies of their profession

In K.E.S.E.N. for Captains take place:

Educational courses for the acquisition of a diploma of first and second class Captain

- Educational course for the acquisition of a first class Captain's degree
- Educational course for the acquisition of a second class Captain's degree

Special training courses for the certification of Officers and Crews:

- Adaptation of the knowledge of Captains of all classes (STCW Manila 2010 amendments)

- Ensuring continuous competence and modernization of the knowledge of Captains
- Review - Renewal of Certificates
- ECDIS -Electronic Chart Display & Information System A-I/12 & B-I/12 (training and evaluation in the operational use of electronic map presentation systems and information)
- Ship Security Officer (SSO) A-VI/5 (Special school of ship security officer)
- SSO (Replacement of old certificates)
- SSO (Additional Training in Piracy)
- Ship Handling Simulator Training- Bridge Team Management (BTM) & Bridge Resource Management (BRM)
- BRM for renewal of old certificates
- Medical care training
- Training of passenger ships (Ro Ro)
- International Ship & Port Facility Security Code ISPS Code A-VI/6-1. (training and information for all seafarers in ship security, International Ship & Port Facility Security Code)
- Security Training For Seafarers with Designated Security Duties A-VI/6 (ship security training for seafarers assigned to security duties)
- A-V/1-1-1 & A-V/1-2-1 Basic Tanker - Chemical & Liquefied Safety (basic training in the safety of oil tankers, chemicals, mixed-type and lpg tankers)
- A-V/1-1-2 Advanced Oil Tanker Safety (advanced training for cargo operations in oil tankers)
- A-V/1-1-3 Advanced Chemical Tanker Safety (Advanced training for cargo operations in chemical tankers)

- A-V/1-2-2 Advanced Liquefied Gas Tanker Safety (Advanced training for cargo operations in Lpgs)

In K.E.S.E.N. for Engineers, there are:

Educational courses for the acquisition of a diploma of A' and B' class of Engineering

- Educational course of Studies for the acquisition of a diploma in Engineering 1st class
- Educational course of Studies for the acquisition of a diploma in Engineering 2nd class

Special training courses for the certification of Engineers:

- Adaptation of engineering knowledge of all class E.N. (STCW Manila 2010 amendments)
- Ensuring continuous competence and modernization of the knowledge of Engineers
- Training in the engine room simulator and electrical pneumatic control systems (ENGINE SIMULATOR)
- ERM Complementary (for legacy ERS holders)

KESEN RE-RC operates in accordance with the standards of the Board of Directors STCW 78, as modified in 2010 and is valid until today, and its operation is subsidized by the European Union.

The main subject of training of KESEN RE-RC is Radio communications (GMDSS system) as currently provided for by the Board of Directors of PAAZETH (SOLAS) of the International Maritime Organization (IMO) and the International Radio Communications Regulations of the International Union of Radio Communications (ITU).

Courses of KESEN RE-RC

The main subject of training of KESEN RE-RC is Radio communications (GMDSS system) as currently provided for by the Board of Directors of PAAZETH (SOLAS) of the International Maritime Organization (IMO) and the International Radio Communications Regulations of the International Union of Radio Communications (ITU).

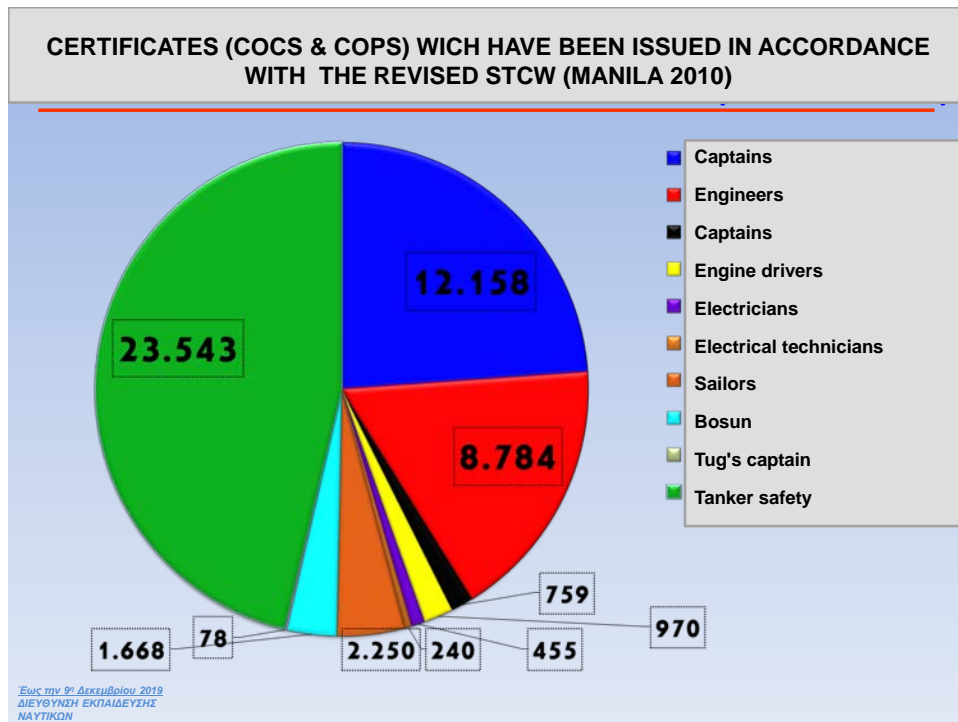
- Department Of General Use Operators GMDSS (GOC)
- Special Department Of GMDSS General Use Operators for AEN graduates after 1993 (GOC)
- Department Of Limited Use GMDSS Operators (ROC)
- Department Of Operators of Short Range in areas A1
- Department Of Ensurance Of The Continuous Competence and Modernization of The Knowledge of GMDSS General Use Operator (GOC REFRESHING)
- Department Of Ensurance Of The Continuous Competence and Modernization of The Knowledge of a GMDSS Limited Use Operator (ROC REFRESHING)

The Schools of Lifesaving and Fire-Fighting Media of Aspropyrgos and Macedonia which are addressed to seafarers of all levels provide the basic and advanced training in the rescue and fire-fighting equipment of ships and carry out the cycles listed below:

- Basic Training In Survival Craft and Rescue Boats A-VI/1-1
- Fire Prevention and Fire Fighting (A-VI/1-2 STCW1978/2010)
- Proficiency In Survival Craft and Rescue Boats (A-VI/2-1 STCW 1978/2010)
- Proficiency In Fast Rescue Boats (A-VI/2-2 STCW 1978/2010).
- Advanced Training in Fire Fighting (A-VI/3 STCW 1978/2010)
- Security awareness (A-VI/6-1 STCW 1978/2010).

- Elementary First Aid (A-VI/1-3 STCW 1978/2010)
- Medical First Aid (A-VI/4-1 STCW 1978/2010)

The diagram in the figure below shows the number of certificates issued in accordance with the provisions in force.



### 3.6 Private naval training in Greece

In Greece today, the degree that an officer must have in order to continue his development, training and professional rehabilitation in the maritime profession is obtained only through the AEN, and through the procedures mentioned above by the Public Maritime Academies.

According to the current conditions of marine training in Greece, there are efforts to develop private initiatives, which want to invest in the skills of Greeks who wish to develop in the field of shipping. Graduates of the private Maritime Academies, however, must certify their diplomas in order to be recognized by the Ministry of Maritime Affairs and Insular Policy.

The last years private maritime academies were established in Greece. Metropolitan College's Maritime Academy offers cadet training programme in collaboration with

the Warsash School of Maritime Science and Engineering of Solent University in Southampton. The programme offered cover both deck and engine cadet training and aim to create highly-skilled Officers of the Merchant Navy, able to respond to current industry demands and challenges.

The City Unity College, in cooperation with the Arab Academy of Science, Technology and Maritime Transport and with the support of the Hellenic-Arab Chamber of Commerce and Development, established the first private Maritime Academy in Greece that offers undergraduate and postgraduate programs as well as doctoral studies. The goal of the Hellenic-Arab Maritime Academy is to provide high-level education combining academic teaching and practical training followed by an International accredited Bachelor Degrees Plus IMO White Listed “Certificate of Competency” COC issued by the Egyptian Authority for Maritime Safety .

Private Academies of merchant marine have also been established in Cyprus trying to fill the gap of the public Academy on the island. The Cyprus Maritime Academy was the first of its kind in Cyprus and was founded in the academic year 2015-2016. The Academy’s aim is to develop and offer Competencies to the three main areas of the Marine Industry that are Nautical Science (Officer in Charge of Navigational Watch), Marine Engineering (Officer in Charge of Engineering Watch), and Marine Electro-technology (Electro-technical Officer).

The Mediterranean Maritime Academy for Greeks and Cypriots was founded in 2016 in Limassol and offers the training programs “Officer in Charge of a navigational watch” and “Officer in Charge of a engineering watch” that are accredited by the Deputy Ministry of Shipping of Cyprus, and lead to a Certificate of Competency in three years (two years of studies plus one year of sea service), according to the IMO standards. The Merchant Marine Academy is a fully equipped training facility with TRANSAS Simulators for Bridge, Engine, ECDIS, Liquid Cargo Handling and GMDSS and as a Training Centre provides all STCW courses such as BRM, ERM, ECDIS, Safety courses, Medical, Security, Tanker course and much more.

Then, after graduation, the potential seafarer must obtain the necessary diplomas in order to be properly prepared to man the ship, to attend courses in retraining and knowledge renewal at KESEN (Training Centers of Commercial Navy Officers). This



part of maritime education can also be covered by the private sector, i.e. private Maritime Education covers the issue of diplomas, certificates and retraining (equivalent to the Greek KESEN), which are checked by European flags, and on this basis the certificates are equivalent to Greek, but in order to be recognized they need certification of the Greek authorities.

The private training centers providing the above services are approved by various European countries, according to STCW data and by the maritime authorities of these countries (e.g. in the cases of Malta and Cyprus).

The private marine training centers currently operating in our country and are equivalent to the public KESEN are listed below:

#### COSMOS NAUTICAL TRAINING CENTRE

Cosmos Nautical Training Centre is a fully-equipped Maritime Training Facility, with high-technology teaching facilities that enable to further training and knowledge in order to meet the new standards and upgrade skills. Promoting safety and excellence for seafarers and shipping companies' personnel, is the purpose.

Their full mission Bridge/Maneuvering Simulator, as a teaching tool, allows training and evaluating the Masters and Mates in all kinds of environments and emergencies. Their latest version Bridge, Engine Room, GMDSS & Cargo Handling simulators set tasks to improve the professional skills and capabilities

Cosmos Nautical Training Centre undertakes the refresher training for the Pilots for the Port of Piraeus and the Port of Lagos, Nigeria. The Centre is Accredited by the Transport Malta & Cyprus Maritime Authority and Certified by Lloyds Register Quality Assurance for ISO 9001:2008.

Their STCW Certificates are recognized by all European Community Countries and are acknowledged and endorsed by all the flag states, including: Panama, The Bahamas, Liberia, St. Vincent & The Grenadines, Honduras, Marshall Islands.

## HTMC - HELLENIC MARINE TRAINING CENTER LTD

Hellenic Marine Training Center is a private institution that provides Maritime Career oriented education to Seafarers. The Maritime Center was founded in 1999 and has gradually grown into dominating the Shipping Training Market of Piraeus.

The Center is carrying the approvals of all the main Flag State Administrations thus providing approved certification of training and is operating under ISO 9001:2008 approved by DNV and accredited by UKAS.

Furthermore this Center is in position to provide Seafarers with the issuance of Certificates of Competence as well as upgrading of Certificates to the next level for all ranks of Bridge, Engine and Deck personnel, under specific procedures and authority by the respective Administrations. These certificates are accepted for Endorsement by a great number of Flag States..

## PIRAEUS MARITIME TRAINING CENTRE (PMTc)

The S.RANIS – PIRAEUS MARITIME TRAINING CENTRE (PMTc) is an educational establishment providing first class maritime education and training (MET) to ship officers, crews and shipping companies' employees. Based in the Piraeus shipping hub, with more than 40 years at the MET forefront, the PMTC is ISO 9001 certified by Bureau Veritas and runs a full list of professional (STCW/2010, etc) courses, being accredited by major flag states (Malta, Liberia, Panama, Marshall Islands, Hondura etc.)

The Centre is accommodated in its own school premises and is equipped by state of art training equipment such as the TRANSAS Full Mission Bridge/Maneuvering/ARPA CLASS A Simulator, Kongsberg's Neptune Engine Room Simulator, GMDSS (global marine communications), TRANSAS Liquefied Cargo Handling Simulator (Oil Tanker, Product carrier ,LNG, LPG & Chemical Tanker) and ECDIS (electronic charts) simulators. PMTC's team of instructors comprises industry top professionals carefully selected on the basis of adequate theoretical knowledge and sea gained professional competence.

With the above facilities and courses and dedicated staff they are able to serve the PMTC's primary target to provide maritime education and training of the highest industry standards.

The Maritime Training Centre can also proceed to the provision of Panama Certificate of Proficiency for ratings.

#### QMS MTC

QMS MTC Maritime Training Center design and deliver accredited statutory maritime training and continuous education. QMS MTC courses share a uniform structure based on IMO Model Course specifications. With over 17,000 trainees since its establishment, and two branch offices in Chios and Crete islands, QMS MTC offers over 50 different courses and programs for seagoing and retired mariners, shipping company shore staff and middle and higher-level managers and executives for further professional development, through classroom, in house and on-board fleet programs.

The QMS MTC accreditations and approvals include Cyprus Maritime Administration and Malta Maritime Authority & Liberia Ship Registry and the Republic of Marshall Islands. The center is also certified against the international DNV Standard for Maritime Training Centers, and also ECDIS Type Specific Training Partner for Japan Radio Co. (JRC) and Kelvin Hughes manufacturers. The center is the only approved Test Center in Greece to conduct Maritime English language examinations by Marlins and ISF.

#### GMC MARITIME TRAINING CENTER

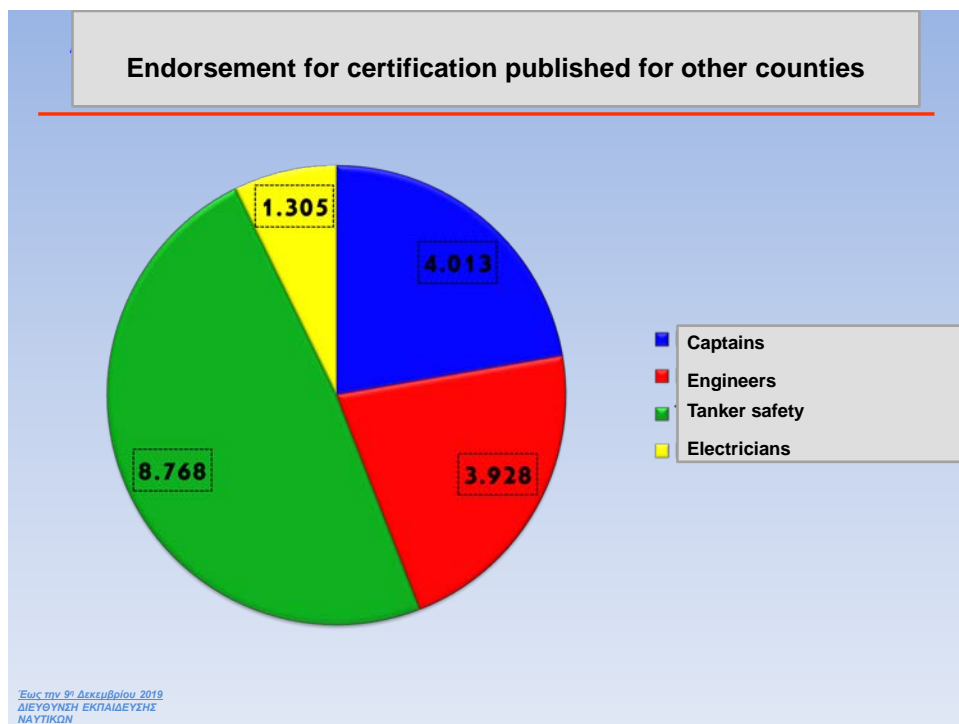
GMC was established in 2011 and is a fully equipped training center with high quality facilities, with a frame of reference and educational philosophy that is appropriate to the needs of the shipping market. Their teaching staff is consisted of Master Mariners, Chief Engineers, Naval Architects, Electrical Engineers and Radio Officers combining Academic background with extensive experience and knowledge in shipping and maritime education, University degree lecturers and executives who are actively working in the shipping market.

GMC is approved as an authorized training center to conduct maritime training courses on behalf of the Cyprus Flag, Malta, Finnish Transport and Communications Agency (Traficom), Panama, the Republic of the Marshall Islands & the Bahamas Maritime Authority under the STCW 1978 Convention as amended, defining the requirements and procedures by which regulatory training and certification for seagoing mariners should be provided by Flag Administrations and their authorized training centers

The company is certified according to ISO 9001:2015 by ABS Quality Evaluations regarding the design, development and provision of training courses. Provision of IMO Model courses and related to STCW and ILO requirements.

The above maritime training centers are recognized and operate in accordance with the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978. Through their courses they offer training and certification, which is in accordance with the maritime authorities of each country.

The following table shows diagrammatically the certificate recognitions by the Greek authorities that came from non-public educational centers and academies:



## **CHAPTER 4: ENDOGENOUS AND EXOGENOUS FACTORS IN THE HELLENIC MARITIME EDUCATION AND CERTIFICATION SYSTEM**

### **4.1 Introduction**

In the previous chapters an extensive reference was made to Greek shipping which arises the need for naval training for the country. The international and national legal framework for the ways in which this education should take place has been examined, based on strict rules of this framework. The entire network of schools and training centers in Greece was also presented.

Maritime training in our country is a multidimensional issue, which is dynamically influenced by endogenous and exogenous factors. The result provided, in other words the number and the quality profile of graduates from the various schools, is the result of these factors, which will be examined in this chapter.

In more detail, the factors mentioned relate to the attraction of new students, the number and educational background – profiles of those entering the Maritime Academies, the quality of the training provided (buildings, training materials, teaching staff), the leakage of attendance, the vocational rehabilitation after graduation, the attractiveness or not of the profession of seafarer due to its particular characteristics, the state intervention and efficiency, the role of the shipping industry, the role of the trade unionists and many others, which often become topics of workshops and forums in Greece.

### **4.2 Attracting new students**

The maritime profession is a profession that has a serious problem attracting young people to it. A survey carried out in previous years on high school seniors found that they have no knowledge of the importance of Greek shipping and do not know about the Maritime Academies. They do not consider the maritime profession attractive, because it is quite dangerous, quite difficult, and due to the seafarer's absence of months they think that it contributes negatively to the functioning and structure of

family and personal life. They believe that if the length of travel is reduced it will make the profession more attractive as its biggest advantage is high pay.

Despite all the efforts made from time to time, the problem of the lack of naval personnel is constantly exacerbated. According to estimates by leading shipping operators in the coming years there will be a significant shortage of thousands of officers worldwide due to the significant increase in the fleet. That is why attracting young people to maritime studies and strengthening human capital in the commercial shipping sector, together with measures to keep them in the profession, is a great need and a basic prerequisite for the development and maintenance of the maritime grid.

In order to make the maritime profession attractive to young people and to increase maritime employment by European workers, the EU implements a number of measures and policies to this end at many levels and sectors. With regard to the health and safety of workers and working conditions on board ships, there are directives similar to those applicable to other sectors of the economy. These are aimed at protecting workers from exposure to dangerous substances and preventing accidents on board. Directives on equal treatment between men and women based on an appropriate legal framework abolish discrimination and aim to increase the employment of women which is at low levels. There is a regulation favouring the mobility of workers from one Member State to another, without discrimination and loss of rights, as well as directives defining the working time of seafarers, which can be controlled in European ports.

The Directive on the training of seafarers in accordance with the IMO International Convention on Standards for Training Certification and Watch Keeping (STCW) and on the procedure for the recognition of third-country diplomas ensures quality standards for maritime professions. European countries are committed in these areas to implementing the *acquis communautaire*, which is now the relevant maritime employment conventions from the international organisations IMO and ILO.

The possibility of seafaring on competitive terms, compatible with those in force on the international maritime labor market, the recent change in the legislative framework for graduates of Senior High Schools of Naval Direction, by which they acquire the right to promotion up to the first degree of Captain and Engineer make

attractive the choice of the maritime profession to young people seeking job opportunities and vocational rehabilitation.

The aim is also to promote maritime employment through State aid to shipping, which in this case concern:

- the reduction of insurance contributions,
- the reduction of income taxes for European seafarers on registered ships flying Community flags. The reductions in both of these cases are so significant that in some countries they go as far as zeroing income tax or insurance contributions,
- training aid for on-board training,
- aid for repatriation or replacement of the crew when it is at very remote distances.

With coordinated information campaigns at both national and European level, the positive elements of the maritime profession must be put into view as for example the working conditions as they are now being developed and in force, the opportunities and possibilities that are offered, in order to improve its image and make it more attractive, especially in the current situation of rising unemployment.

#### **4.3 Number of the admitted students**

The number of Greek students admitted to the A.E.N. Masters – Engineers during the academic year 2020-2021 was 1153 Greek students (613 Captains and 540 Engineers) according to the announcement of the Ministry of Maritime Affairs and Insular Policy (YENANP), a small number considering the final number of students who will remain and eventually graduate.

The Hellenic Chamber of Commerce in 1999 had calculated that in order to be one Captain and one Engineer in the 90% of the Greek commercial fleet at the time that was about 3,200 ships and to be one Commodore and one Chief Engineer in the offices for every 4 ships, must be admitted to the Academies 2000 candidates each year.

Twenty years later it is estimated that the Greek fleet could fully meet its needs in Captains and Engineers if every year for the next decade the number of graduates reaches 2.000 students. For Greek-flagged ships in particular, about 1.200 are required in order to have a balance in offer and demand. Greek shipowners want the number of entrants to be increased in order to improve the balance of offer and demand. The proposal of the Union of Greek Shipowners to take the sponsorship of an AEN and increase the number of students in it, in order to increase the number of admissions and graduates, is still being considered by the Ministry of Maritime Affairs and Insular Policy (YENANP).

#### **4.4 Educational background - profile of those who have entered the Maritime Academies**

The level of students in AEN, regarding the bases of the final high school examinations of recent years, is improved compared to the bases of earlier years. A survey conducted by the Naval Chronicles team of the Eugenides Foundation on the sociological profile of first-year students in the country's AEN, as well as their future professional goals and expectations (November 2018 - February 2019) showed that 76.11% of students of public AEN have graduated from high school with a grade of 17 and above. This research result indicates that the choice to study at the Maritime Academies is beginning to become a conscious choice and that the level of knowledge of the students entered is gradually being upgraded. Of course, the exclusive admission to the schools through the panhellenic examinations contributed to this.

The level of students in AEN in past years has been significantly lower and despite the very low base of academies, only 7% were imported through the national ones, while the remaining 93% through the completion of the YENANP computerized application. Considering, therefore, that in earlier years students in AEN had a low educational background as it was chosen by those with poor school performance and came from low-income families, we realize how important this change in the development of the profession is.

It is a fact that modern, educated young people, even from geographical areas of the country or from families that do not have a maritime tradition, choose to study and serve the maritime profession. Boys and girls of all socio-economic levels associate



their professional perspective and career with the professions of the sea, obviously seeing that shipping is a professional field of action with many challenges and great potential for development. The criterion of professional rehabilitation, economic reasons primarily, but also love and interest in the sea were reasons for choosing the maritime profession, as stated in the survey. Of course, young people often choose the Academy without having sufficient knowledge of the nature and specificities of the profession and then become disappointed and abandon or consider it as a springboard for their entry into the labour market, in companies or in the public sector, avoiding serving on ships and strengthening the Greek commercial fleet.

#### **4.5 Quality of training provided in AEN and KESEN**

The abandonment of building infrastructure, the lack of teaching staff, the underfunding of public maritime education, the deprivation of several privileges, such as feeding and accommodation at the academy, the granting of a student card for public transport are the known weaknesses of the system. Concerning feeding was not treated with the allowance under Law 4504/2017 (Article 145) which gives 600€ per year for each student, because in reality each student receives finally only 300€ per semester caused of attending sandwich courses (theory – practice on board). Their right to feeding must be treated equally with other universities students. In addition, the "Student Card" is not accepted as a student pass and it is left to the goodwill of the responsible employ to discount the travel tickets of students who attend the Academy away from their place of origin. The equivalence of graduates' diplomas is also problematic, as they are not given the possibility of further education and the preparation of a master's degree in Greece (with the exception of those who have reached the rank of Captain of the First Class) depriving them of the possibility of academic development. Otherwise they must attend a relevant master degree programme in private universities.

The level of teachers turns out not to be commensurate with the circumstances. The hourly wages of most of them are on low pay and this does not attract Captains or Engineers to prefer to teach at the Academy by transferring their experience for a period of time and when this is done they transfer the conditions of the ships to the halls with disappointing pedagogical results. The YENANP sets as the main criteria of the candidate professors the diploma of Captain / Engineer A' and postgraduate

degree without reference to the pedagogical competence of the naval professors. In addition, there are very few naval Captains/Engineers A' with postgraduate studies in order to transfer even this experience to their classrooms.

Upgrading the quality of studies, the existence of appropriate infrastructure and timely staffing with qualified teachers will contribute to the improved quality of young people attending the Maritime Academies, as well as to the upgrading of the profession by extension. In recent years there has been a tendency by the Ministry to allow private naval training to participate actively, but under conditions in the production of high standards and requirements that will lead to the navy of the 21st century.

#### **4.6 Students' leak from AEN**

In this day and age, it is observed that several students enter the Maritime Academies, but a large number do not graduate and leave their studies. According to data from the Ministry of Shipping and published in Kathimerini newspaper (10-9-2019), during five teaching years (from the educational year 2010-2011 until 2014-2015) a total of 7,309 students entered the AEN and graduated with only 3,750 students (51.3%). Some of the reasons why students leave their studies are the economic reasons, the difficulties in fulfilling compulsory training trips in the context of their training due to shipowners' reluctance to bear the costs or to train female cadets. Also dissuasive for them are the difficulties they face due to the nature of the profession for which they were not prepared, as attending the Academy was not a conscious choice or was intended to temporarily postpone conscription.

This phenomenon has always troubled the shipping community, as it creates a shortage of Greek officers. As the Greek shipowners note, the small number of graduates from the AEN is also the reason why they do not easily find Greek officers for their ships and that is why many avoid the Greek flag.

#### **4.7 Professional rehabilitation of graduates**

A key problem faced by students and graduates is the reduced demand for work by Greek shipowners. The reasons are many:

1. The manning of ships by many shipowners with foreign crews in their effort to reduce the operating costs of their ships, as the wage differences between Greek and foreigners are significant.

2. The increase of ships with flags of opportunity and subsequent reduction of the capacity of the Greek flag. Flags of convenience are considered to be the national flags of those States where shipping companies register their ships with a view to increasing their private interests and reducing private costs by avoiding the economic and other arrangements and conditions and terms of employment of the inputs that would apply if their ships were registered in the countries of the company's national origin. For the shipowner, the convenience flag means avoidance of taxation in the country of establishment, lower crew costs as well as lower levels of control and anonymity. Panama and Liberia, which are in first and second place in terms of the number of ships registered, belong to the category of 'open registers' to which access is very easy and the obligations of shipowners are minimal.

This is the main reason that many Greek-acquired ships left the greek registry as the Greek ship is no longer competitive, in particular the operating costs of the Greek ship were higher than the costs of a ship flying other flags. Flags of convenience offer economic advantages to shipowners and allow them to reduce the operating costs of their ships as minimum number of Greek seafarers (which are more expensive) is not foreseen and shipowners have complete freedom in the composition of their crews. As a result they choose low-paid foreign crews. In contrast, ships flying the Greek flag and registered in the Greek registry have a restriction on the number of foreign employees.

3. The reduction of personnel due to automation of ships. As ship size increases and technology improves, machines replace a significant number of employees.

4. Shipping is global, and consequently so is the maritime labour market. The movement of seafarers from their country to another country is now a reality and began during the 1981-1987 crisis, when shipowners were looking for solutions to deal with it. Today most of the seafarers come from Asian countries, and the Philippines take the first place.

5. The tax regime is also a factor in the reduction of Greek seafarers. Differences in the taxation of shipping companies between European countries and third countries are significant and lead to shipowners leaving the European flag and turning to flags of opportunity.

6. Many shipping companies do not prefer to hire female officers on their ships, believing that their presence disrupts the operation of the ship or questioning their ability to cope with the difficult profession of seafarer.

#### **4.8 Specific characteristics of the profession of seafarer**

The maritime profession is also a way of life for those who practice it. The seafarer does not just work on the ship, he lives in it for as long as his contract lasts. This is also the main peculiarity of the maritime profession. The working stress of the seafarer is increased, because it is called upon to deal with the elements of nature, the sea and the unknown factor and in addition to manage the huge assets of ships and crews. All these cause a huge sense of responsibility, because the slightest mistake can lead to major human, ecological and economic disasters, disasters that indicate the high degree of danger of the maritime profession.

Sailors have been away from their family and social environment for a long time and contact with them is not always easy, even nowadays when the means of communication are several and global. Among the crew a number of variations is recorded such as hierarchical, specialization, nationality. To the extent that the appropriate systems do not exist and the required practices are not applied, these variations may undermine the effectiveness and coherence of the crew.

The physical conditions under which they offer their work change as the ship constantly travels and passes through different climatic zones. Moreover, another aspect that makes living conditions difficult for modern ships, always concerning the feeling of isolation of the seafarer, is the significant reduction in the length of time ships stays in ports, due to the optimization of technology, but also to the intensification of the international institutional framework. The seafarer has fewer and fewer opportunities to visit the ports of approach and escape from the monotony of his daily life. Thus, one of the traditional attractions of the maritime profession, which

was the possibility of direct visits to all ports of approach by gaining interesting and varied experiences, gradually becomes an inherent disadvantage of the profession.

The maritime profession includes risks to the safety and life of crews. These risks may come either from natural causes or from illegal/criminal acts, such as piracy which has been on the rise in recent years. Crew members must live together harmoniously and efficiently in order to enable the ship to function efficiently and safely. This is not always easy taking in consideration that today the crews are multinational and the crew members differ from each other in terms of nationality, language, culture, perceptions, etc.

The safety regulations adopted in recent years have increased the workload of seafarers and the limits of crew responsibility. The crew must always be able to effectively address any problem or difficulty that arises.

Modern work requirements are increased as a very good knowledge of the English language is necessary firstly for contact and communication between multinational crews. It is also necessary for the crew of the ship to communicate with other stakeholders such as charterers usually from foreign states, port operators that ships approach. Even contact with the shipping company itself often needs to be done in English. A very good knowledge of English is also necessary for the use and operation of electronic machinery and programs on board, all of which are structured in it.

It is necessary to use many electronic machines and programs both on the bridge and in the ship's engine room for the operation of a modern merchant ship as the technological development that has taken place in the maritime sector in recent decades is continuous and rapid. The seafarer and especially the officer must be immediately familiar and constantly informed with the use of all machinery and programs. In the Deck department, for example, there is direct daily use of electronic machinery, such as navigational instruments (radar, electronic maps, position instruments, depth finders), communication instruments (ground and satellite communication instruments), load monitors (control panel, loading and unloading programmes). Similarly, a large number of machinery and programs are constantly used in the engineering department, such as the main engine system and auxiliary

machinery systems. The theoretical knowledge with which the current officer must be trained in order to be able to meet the requirements is really great.

The Deck officer must have excellent knowledge of shipping, navigation, stability and loading of commercial ships, maritime meteorology, and maritime art at theoretical and practical level. Similarly, the engineer must have knowledge of basic technological sciences such as Engineering, Thermodynamics, Electrical engineering, Material strength. At the same time, all officers (especially those on the bridge) must be constantly informed about updates taking place in the huge institutional framework that operates around shipping. In particular, be aware of the national and international regulations governing the operation of the ship, such as the Code of Public and Private Maritime Law, the Law of the Sea, all codes and rules adopted by the International Maritime Organisation IMO<sup>3</sup>, such as Solas, Marpol, Load Line, ISM code, ISPS code, STCW, SAR, COLREG, AFS, INMARSAT and many other codes and conventions. The nowadays officer must also have a large field of knowledge and the capacity to properly manage the ship's business unit.

The small society of the ship in order to function properly must be governed by a form of organization and administration of things and people. For example, the bridge is a functional space with a diverse number of themes. The officer responsible for working in this area to respond accordingly must implement a form of command and organisation. Many accidents according to experts are caused by poor management of the operational space of the bridge. In order for management to function effectively and safely it must revolve around the five principles and functions of management, as follow: 1) planning and decision-making, 2) organisation, 3) staffing, 4) management and guidance and 5) control. The data becomes more difficult when on ships especially today, the staffing of ships is covered with multinational crews and at the same time the ship is at the centre of a complex interaction between the shipowner, the charterers and all the third parties involved.

#### **4.9 State intervention and effectiveness**

The Maritime Academies are subject to the Ministry of Maritime Affairs and Insular Policy and in particular to the Directorate of Naval Education, which ensures the attraction of young people to the profession of seafarer and the proper functioning of

the respective public and private schools, while the Vocational Senior Naval High Schools are under the supervision of the Ministry of Education and Religious Affairs, which defines the admission courses and carries out the required Pan-Hellenic examinations. Various educational problems regarding the equivalence of officers' diplomas are claimed to be due to the fact that the Maritime Academies are not subject to the Ministry of Education, but to the Ministry of Shipping. In other words, there is the involvement of two Ministries with the resulting distortions and bureaucratic procedures which make it difficult for the Academies to function.

In addition, the Directorate of Education, being responsible for the Regulations and Educational Programs, the Organization and Operation of Maritime Academies, the Training and Re-Training of Seafarers and the Evidence of Naval Capacity with the respective departments, has not been able to meet effectively the growing demands of the time having in mind that it is only staffed by four employees. Maritime training is an activity that has the specificity of requiring modern building infrastructure and equipment, experienced and qualified training personnel and constant adaptation to the data of the international shipping industry, and is subject to a strict international and European legislative and regulatory framework. The subsequent knowledge provided through the curriculums must go hand in hand with the requirements of the time through modern equipment. The number of admitted students should be the result of a study by the Ministry of its relationship with the labor market in the maritime profession, in order to ensure that all graduates are absorbed, because despite the lack of officers there has been unemployment in recent years, especially in class C of Captains and Engineers.

In addition, the revision of the education regulation, as was done two years ago for AEN, contributes to the optimization of the provided training and was necessary. The Ministry must take care of and ensure the realization of the educational trips of the students, who find it difficult to find a ship to sign up, as a result of which they cannot, according to the regulation, complete their education. For this reason, the Career Office of the Directorate of Naval Training of the Ministry of Maritime Affairs and Insular Policy was established in accordance with article 23 of Law 4150/2013 (Government Gazette A'102) in order to be the link between the students of AEN and the shipping companies to facilitate their enrollment in ships of the companies and to

complete their professional training. The availability of students in the shipping companies, their total number per AEN and category (Captain or Engineer) is declared through an electronic platform and there is direct supervision of the flow of absorption and management of available students and ships.

The Greek legal framework also does not allow graduates of private academies who have not been admitted to public academies to obtain a Greek diploma without the required certification, preventing their immediate enrollment and strengthening of all Greek officers.

According to the Hellenic Chamber of Commerce, the system of admission, training, educational trip and final production of officers leads to a vicious cycle of reduction of officers. While about 5.000 candidates apply, 1.300 students are eventually admitted each year, half of whom usually graduate or continue their careers and this is because the State does not provide the appropriate building and logistics infrastructure to absorb more applicants.

The cost of the four-year study amounts to about 20.000 Euros, most of which is covered by sponsorships and donations of shipping companies and less by European Union funds. It is not insignificant the offer project traditionally implemented by the Greek shipping community at a collective level through the Greek Shipowners Social Welfare Company SYN-ENOSIS, which actively contributes to the upgrading of the infrastructure and logistical equipment of the Maritime Academies based on the most thorough training of the cadets.

The participation of the State is negligible, while in contrast it fully covers the operating costs of all other educational institutions. The financial crisis of recent years and the inevitable reduction of appointments have created building and operational problems in the Academies and understaffing of teaching, administrative and support staff along with a permanent shortage of staff with naval experience, textbooks and modern equipment.

Many times the malfunction of the state mechanism creates delays and even cancellations of upgrade projects, as happened a few years ago with the supply through the PA (Partnership Agreement for the Development Framework) of laboratory units to KESEN that despite all the appropriate actions of the Ministry of



Maritime Affairs and Insular Policy were hindered by the Attica Region. The Greek bureaucracy also is often a brake on the will of shipowners to financially support maritime education.

#### **4.10 Influence of the Shipowners companies**

Shipping companies complain about the lack of Greek officers, but at the same time the students of the Academies are not absorbed by the shipowners to register as part of the two training trips. One claim until 2014 that by law (Government Gazette 845/B/2014) was also given the possibility of sea boarding on a ship flying a foreign flag not affiliated with the NAT, was that the educational trips had been borne by the Greek flag, which was represented by 850 ships out of a total of about 3700 Greek-acquired.

The current claim of shipowners is that their enrollment is unprofitable, because they are required to pay in addition to the costs of travel to remote ports and living, an additional monthly salary of 2,400 euros to students, who are not considered for their salary as apprentices. as all the other university students doing their internship. This difficulty in absorption results in students not being able to complete their studies or delay their graduation. Indicative of their attitude is the enrollment of students by some companies even with 800 euros, to which they are forced to go in order to continue and complete their studies.

#### **4.11 Role of trade unionists**

The trade unionists, through their collective body, support the enrollment of students under the current regime. They criticize the shipowners' tactic of manning Greek-flagged ships with only one Greek officer, the Captain, and the rest of the Greeks necessary for legal navigation to belong to the lower crew, because in this way the new officers are deprived of training and later hired foreign crews in the absence of the Greeks. They do not accept that salaries are high and demand an end to the persecution of Greek seafarers. Consequently, there is no consensus and the dissatisfaction on the part of the shipowners continues, considering the registration of Greek cadet officers unprofitable.

## CONCLUSION

The shipping industry has changed dramatically over the last 50 years, and therefore the global economy. The evolutionary process from a world made up of individual societies to a globally integrated society has probably occurred because of shipping and maritime trade, thanks to the great comparative advantage that the latter has over other transport such as road, air and rail.

International shipping is responsible for conducting world trade at just over 90%, the world maritime organisation claims. Moreover, it is clear that we are on a steady upward trajectory, as the rise of the global shipping boom, mainly due to the economic growth of the countries of China and India, leads us to the longest upward market ever recorded in history. Future trends in the supply and demand of seafarers worldwide are certainly positive. One fact is that demand for officers is steadily increasing due to the constant increase in world trade. Another fact is that the geographical scope of seafarers' extraction is transferred to the countries of the East due to a comparative advantage of low costs. However, in recent years there has been a perception of the need to maintain the maritime workforce and the developed countries, especially Europe, given that most of the shipping companies come from these countries and it is necessary to maintain know-how at this level.

Research carried out jointly by the two international organisations Bimco/Isf shows a future shortage mainly of merchant navy officers worldwide, which is due on the one hand to the increase in the global commercial fleet that monitors the progress of international trade accordingly and, on the other hand, to the increase in working hours on board ships resulting from the strengthening of the institutional framework and the more stringent data of the implementation of regulations such as ISM and ISPS codes. In the same survey, however, there is a movement of seafarers from the traditional countries of Western Europe, Japan and North America (OASA countries) to the Countries of the Far East of the Indian Peninsula and Eastern Europe, mainly due to the comparative advantage of the cheaper work offered by seafarers in the latter countries over those from the traditional maritime countries (OASA countries).

The relationship of the Greeks with shipping has been known since antiquity. Over the centuries they developed know-how at sea at international level that transcended the boundaries of the small Greek state. The fleet, currently managed by more than 1,000 shipping companies in Greece, is the largest in the world and makes up 49% of the European Union fleet. It can sail under various flags, but the shipowners are Greek and the shipping companies are mainly located in Greece with branches abroad.

Income from shipping is an important chapter in the Greek economy, from the creation of the Greek state to the present day. Shipping is the most successful sector of the Greek economy, with excellent international success over the last two centuries. It is a fact that shipping is the heavy industry of Greece as it contributes greatly to the GDP of our country (about 7% per year). Shipping also creates many jobs across the spectrum of maritime and para-navigation activities (cluster).

The contribution of maritime education to the wider maritime sector is evident from the earliest years to the present day. Over the years, the structure, training procedures and completion of studies in naval training have changed. These changes resulted from different needs. A particularly important factor that has brought about several changes in education and certification procedures is the institutionalisation and amendments of the International Convention on the Standards of Training, Certification and Watchkeeping of Seafarers-STCW of 1978, with its revisions of 1995 and 2010. The STCW International Convention clearly and meticulously sets out the process of education, training and certification of seafarers. The necessity of STCW is due to the multinational crews serving on board ships and ensures that all crew members, regardless of their country of origin, have received the basic knowledge. The revisions arose because the expectations of the Convention were high, but its implementation was not satisfactory, according to the IMO. The IMO does not stop considering the education and training of seafarers to be vital, since it has been found that in maritime accidents the human factor is responsible for around 80% and one way to reduce this percentage is to provide training to seafarers.

The rapid development of technology and the rules of maritime transport apply directly to the maritime profession. At the same time, new IMO provisions are constantly emerging on maritime transport and contribute greatly to their improvement, such as ISM, ISPS, etc. It is therefore necessary to upgrade maritime

training in terms of quality and the training provided to seafarers must be in line with all this.

Maritime training in Greece operates on the basis of the requirements for standards of training, certification and prison maintenance of the STCW International Convention. The most specific conditions in the fields of education are applied consistently and directly affect maritime work. Both Greece and Europe and the international area consistently strive to meet the requirements of the Convention and are improving both in the regulatory framework and in the programmes, so that officers and junior crews, combined with the experience and practical knowledge they acquire on board ships, become experienced and qualified sailors for the safe operation of the ship and the protection of the marine environment, trusted by the shipowners of Greece and other countries.

Public maritime studies in Greece are provided in the first degree by the Technical High Schools (EPAL) with a naval direction under the Ministry of Education and Religious Affairs and by the eleven Academies of the Merchant Navy under the Ministry of Maritime Affairs and Insular Policy as well as the Training Centers (KESEN) in which the graduates are certified. Taking into account the fact that two different ministries are involved in and that the conditions and examination courses for admission to academies are not set by a single authority in itself we realise the problems that are caused for the education provided. It is a matter of major importance to upgrade, modernise and optimise the Merchant Navy Academies and, respectively, the Training Centres, so that young seafarers can succeed in Greek shipping. The level and curriculum of the courses are at satisfactory levels as they also meet the requirements of the international level of STCW, but the lack of technological equipment, the lack of building infrastructure and teachers with appropriate experience and pedagogical competence, the absence of programs for the continuous training of teachers, the difficulty of students to find a company for educational mandatory travels are some of the problems facing maritime education in our country. In recent years, private naval academies have been established and private naval training centres are operating, respectively of the Greek KESEN in which the trainee seafarers are particularly satisfied. Perhaps the creation of private

schools creates healthy competition with more efficient results from both sectors and, by extension, in maritime education.

In recent years the maritime profession has become increasingly discredited because of the many problems it presents and these have to do firstly with maritime training in our country. A new start in the field of Maritime Education based on the strengthening and reorganisation of the Public Schools of Maritime Education must therefore be set as a target. Maritime training needs constant updating and updating with new educational fields, staffing with experienced and qualified naval teachers and planning. To make the right choice and recruitment of competent permanent teachers and not hourly wages, as is currently the case, with fees sufficient to show interest for the fully qualified usually former Masters or former First Engineers.

In addition, the maritime profession in our country is showing a trend of contraction. In recent years there has been a continuous decline in cadets and naval children. The competitiveness of Greek seafarers has been greatly reduced. A very basic problem is the replacement of Greek seafarers with lower foreign crews for reasons related to the operating costs of ships. The salaries of Greek seafarers (mainly officers) are significantly higher, for reasons related to their experience and know-how, than the salaries of seafarers from developing countries, with the result that shipowners choose the lowest seafarers to manning their ship in order to significantly reduce the crew's payroll costs. This is despite the fact that the productivity of Greek seafarers is much greater than that of foreigners, with qualitative elements of education, efficiency and dedication.

The maritime profession is admittedly considered one of the most difficult and the most important reasons that contribute to this perception are work stress due to the high degree of risk of the maritime profession, isolation from the social fabric that lasts long periods (usually more than 6 months), contact and cooperation with multinational crews. The very demanding daily program in terms of work, require the sailor to constantly have very good psychological and existential balance and physical well-being so that he can successfully meet his obligations. The requirements of the modern professional navy impose a high level of vocational training in many fields, such as English, computer knowledge, the proper management of large numbers of

crews and various bodies, theoretical knowledge of scientific applications and the huge theoretical institutional framework that he treats daily as part of his work.

A coordinated planning of competent Ministries of Education and Religious Affairs, Maritime Affairs and Insular Policy and the Union of Greek Shipowners would help to properly promote the maritime profession in the high schools with local visits and speeches to students, highlighting the positive side of career selection on board ships, economic benefits and rapid development. At the same time, the frequent presentation of the maritime profession in the media can have positive effects in attracting young people to this professional choice. In conclusion, more extensive and qualitative information to public opinion by the YENANP and the other relevant bodies is a necessary condition for increasing the interest of young people. In this direction, it might also help to change the current law at full simulation of the AEN degrees with those of the other universities with their acquisition and not by completing the conditions of the rank of Captain / Engineer I.

Of course, we should not overlook the efforts to create a positive and attractive image of the maritime profession by the Hellenic Chamber of Shipping and the Union of Greek Shipowners, who co-organize every two years the celebration of the "Greek Merchant Navy Day" with the aim of appreciating Greek shipping and informing Greek society and youth. In addition, at national level, the Ministry of Maritime Affairs and Insular Policy as the responsible body of national policy has in recent years reduced the maritime service for the acquisition of diplomas, reduced the tax rates of seafarers, increased pensions and improved and upgraded the operation of Maritime Academies in an effort to create incentives for young seafarers.

The fate of Greece and the Greek people is intertwined with the sea and shipping. Over the centuries, in all difficult historical moments it helped them to survive and grow. This continuity must be ensured and strengthened through effective maritime training and certification. All stakeholders must engage and solve the problems it faces by investing in it. In conclusion maritime education needs the support of all maritime agents.

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