

## STCW Convention Changes and Its Impact on Crew

Guiqiang Zhu<sup>1, a</sup>

<sup>1</sup>Merchant Marine College, Shanghai Maritime University, Shanghai 201306, China.

<sup>a</sup>zhgqwnx@163.com

### Abstract

The STCW Convention is a unified standard for crew training, certification, and watchkeeping that is widely adopted worldwide by the International Maritime Organization to regulate crew operations. The amendment in 2010 formed the STCW Convention Manila Amendment, which was formally implemented in 2012. In view of the significant changes in the relevant provisions of the Manila Amendment, we must learn the latest requirements of the amendment in time and make timely changes in crew training. This article focuses on the latest requirements for crew members in the new amendments and some new standards, and combines a series of problems with existing crew members, focusing on the crew, analyzing the impact on crew certification, the impact on crew training, and the impact on crews. The impact of English level, the impact on the operation of the crew information system, the impact on the individual quality of the crew, and the corresponding improvement measures are proposed, starting from the crew themselves, improving the crew's own quality, and allowing the crew to shorten the gap with the crew of advanced countries in the world. Better adapt to the new situation and new requirements, so that our country can realize the dream of a maritime power in the shipping industry earlier. This article uses the literature method and the systematic research method, mainly focusing on the changes of the STCW Convention and its impact on the crew. In response to a series of issues, put forward related suggestions, hoping that it can help the crew training.

### Keywords

STCW Convention, Manila amendment, Crew.

### 1. Introduction

On June 25, 2010, the International Convention on Crew Training, Certification and Watchkeeping Standards (hereinafter referred to as the "STCW Convention") Manila Amendment ") Manila Amendment[1]. The amendment adopted has made significant improvements in many aspects, including crew training and some adjustments to some certification standards. After careful interpretation by relevant experts, researched the deficiencies in previous education and training, and carefully formulated relevant measures to meet the new requirements. The major training universities have also adjusted the curriculum arrangements and training arrangements in a timely manner, increasing the relevant offshore Training, and strive to make the trained crews well adapt to the new standards, to be able to communicate well with shipping service personnel in advanced countries in the world, reduce the gap, and improve the professionalism and personal quality of shipping service personnel. Ground is in line with the world.

With the acceleration of the world's informationization process, ships are becoming larger, faster, modernized, and professionalized. Marine protection issues have also received more and more attention from various countries. New technologies such as information technology, remote sensing technology, and satellite positioning have emerged. They all have new

requirements and challenges to the crew. The crew must adapt to the new requirements under the new situation, ask themselves according to the new duty standards, and change their past habits. [2] Based on the problems that have occurred in the implementation of these years, through the research in this article, we mainly propose how to deal with the latest amendments to the crew, and provide corresponding solutions to provide a reference for the growth of the crew and make the crew better adapt New rules to improve crew quality. According to the requirements of the new amendments, with regard to the amendments, no longer study the impact on educational institutions, focus on the impact on crews, solve emerging problems, and make the quality of crews in the forefront of the world as soon as possible.

## 2. Interpretation of STCW Manila Amendment Changes

The amendment was adopted at the Diplomatic Conference of States Parties to the International Maritime Organization STCW Convention on June 25, 2010 in Manila, Philippines. The amendment is called the "STCW Convention Manila Amendment". In 2010, the new amendment was unanimously approved by the State party and passed the trial. After several years of implementation, it has been recognized worldwide. As one of the contracting states, China is also actively interpreting the latest changes, keeping up with the development trend of world shipping, and training high-quality crew members in accordance with the requirements of the new amendment. To cultivate high-quality crew members, a comprehensive and correct understanding of the Manila amendment is required first. Only by understanding the new standards can we better adapt to the standards and improve the quality of the crew. The new requirements for crew include: standardizing new standards for the certification of certain types of crew, corresponding training new requirements, emphasizing the enhancement of crew's awareness of the protection of the marine environment, and increasing crew's awareness in this respect; Astronomical navigation calculation software; added training and competency requirements for electronic staff. These changes make corresponding changes in the training of the crew [3].

### 2.1. Changes in Certification Management Information

The improvement of the current Manila amendment to the certification of crew members is mainly reflected in the informationization of the certification management of the competent authority, so the informationization has become the future development trend of the crew. The so-called informatization is to use the information technology method to comprehensively upgrade the crew certification management (including health certificate) system to make the system more standardized, which is the biggest difference from before. [4]

### 2.1. Crew Rest Rules

Aiming at the problem of fatigue driving that is common at sea, the new amendment quantifies the rest time and makes corresponding compulsory provisions to ensure consistency with the relevant provisions of the Maritime Labour Convention 2006, so that the crew has sufficient Rest time to prevent problems such as fatigue driving, drug abuse, and crew drinking during work hours, regulate the crew's work behavior and ensure safe driving.

The Manila amendment focuses on the new requirements for training content, mainly including:

- (1) Standardize the training and competence requirements for crews of special purpose ships;
- (2) Defined 4 types of security training and 3 types of security certificates;
- (3) Strengthened knowledge, understanding and proficiency requirements in marine environmental protection;
- (4) Proposed the use of electronic nautical astronomy calendar and nautical astronomy calculation software;

- (5) emphasized the requirements of team spirit, leadership and team work skills;
- (6) Added requirements for training and competence of electronic staff, and knowledge, understanding and proficiency requirements for ECDIS and other marine electronic equipment;

## **2.2. Emergency Handling Training**

The new amendments to the STCW Convention will be transferred from Part B to Part A and make corresponding mandatory requirements. Therefore, relevant departments need to pay attention to them. Mainly increased the training of various emergency incidents in team management in the training of bridge resource management and engine room resource management. This is an important measure in IMO research to reduce human factors affecting the safe driving of ships [5].

## **2.3. Astronomical Navigation**

The new amendment does not make mandatory requirements for crew members in this regard, but it is reflected in Part B "requiring training institutions to teach students astronomy and navigation knowledge carefully, the course mainly includes how to operate astronomical computer software and electronic nautical astronomy calendar" This is an important supplement to the development of the times in Chapter II "Captain and Deck Department". It can be seen that the application of electronic technology in navigation positioning has received the attention of international shipping organizations, and it will surely become a popularization on shipping vessels in the future.

## **2.4. Electronic Navigation Strategy**

With the continuous advancement of global informatization, informatization also has a great impact on navigation technology, which has played an important role in promoting the innovation of navigation technology. IMO is also deeply aware of the necessity of this reform, so it has widely implemented the e-navigation strategy worldwide. Mr. Brady, then Chairman of the Subcommittee at the 2007 regular meeting, said, "With the continuous advancement of information technology, electronic vessels should be set up on marine vessels to control and operate modern information systems. At the conference, representatives from various countries expressed their opinions on e-members, defining them as a hybrid of electrical and electronics, and more prominently the ability of e-members to master and use information technology.

## **2.5. Clear Term for Revision of Convention**

The STCW Sub-Committee noticed that scientific and technological updates are accelerating, and ship information systems are becoming more intelligent, but frequent amendments to relevant content of the Convention will have a huge impact on maritime administrations, crews, shipowners, training institutions, etc. . The Sub-Committee also reached relevant consensus on the revision period of the STCW Convention, and determined that the revision cycle is defined as a five-year supplementary revision and a 10-year comprehensive revision, which can ensure that the convention can be in line with the latest scientific and technological achievements.

## **3. Impact of STCW Manila Amendment on Crew**

The STCW Manila amendment has been implemented for many years, and the corresponding crew training in our country is gradually changing in order to adapt to these changes. As the new amendment has made major amendments in many aspects, in the several years of formal implementation, major universities and training institutions have been transforming their training methods to better adapt the crew to these changes. Many of the standards in the Manila amendment are very different from the previous ones. This has a profound impact on both the

crew members who already hold the crew's "big certificate" and the students who are preparing for the certification.

### **3.1. Impact on Crew Certification**

Crew members must now be licensed to work. The new amendment has made a lot of changes in many standards, and the most direct impact is on crew certification. There are also new changes in the examination subjects. Compared with the original amendments, the new amendments have changed the examination subjects from four to five. The four major nautical colleges are three theories and seven assessments. The difference between the crew certification is that the concept of "Functional Approach Certificate" has been strengthened, the focus has been shifted to practical operation capabilities, the assessment of theoretical knowledge has been gradually weakened, and more emphasis has been placed on practicality. [6] This is different from the traditional view of "lighting practice and emphasizing theory", which will be a major innovation in the evaluation of theoretical knowledge. It is conducive to the improvement of the crew's actual ability, can better adapt to work at sea, avoids the embarrassment of only understanding the theory and cannot operate, and helps to continuously improve the overall level and professionalism of the crew on board.

The new amendment also adjusts the validity of lifeboats, basic safety, and advanced firefighting, which we call the four small cards and three small cards, to five years [7]. Compared with the previous case, the relevant operation is no longer focused on, and the new regulations address this situation. After the relevant certificate expires, the relevant certification must be provided to ensure that the crew is still proficient in the operation and must not have skills. "Discarded" situation, if the assessment fails to meet the standards or can not provide the corresponding certification, the relevant qualification certificate will be re-examined. This requires the crew to continue to exercise this ability after obtaining the certificate, and this skill cannot be ignored as before.

### **3.2. Impact on Crew Training**

The Manila Amendment imposes mandatory minimum requirements on the four small and three small cards for all crew members, that is, four and three small cards must be obtained to board the ship. At the same time, the crew is required to study marine-related courses, such as marine environmental diversity, marine environmental protection, and marine biodiversity studies, and students are required to have knowledge about marine environmental protection. It emphasized the training of teamwork, increased the training of information exchange between crew members, and conducted the necessary fatigue driving hazard study, requiring crew members to strictly control working hours.

### **3.3. Impact on Crew English Proficiency**

The Manila amendment also made relevant requirements for crew members' English proficiency. The crew is required to communicate fluently in English, and to communicate with the staff of the ship traffic management system on shore in standard maritime English. It is first proposed that if there are staff from different countries on board, they must be able to communicate proficiently in English to ensure barrier-free communication between all crew members and achieve safe driving of the team. [8] According to the new regulations, the crew must also be able to operate various instruments of the English operating system proficiently, requiring the crew to pay more attention to the learning of English, not just to understand, but more importantly to be able to communicate effectively. The crew needs to allocate more study time to English during the training to ensure that the English level of the new amendment can be reached. [9]

### 3.4. Impact on the Personal Qualities of the Crew

The new Manila amendment places higher demands on the personal qualities of the crew. The crew should have the following marine protection awareness: "Marine environmental protection awareness", "Emergency measures related to marine pollution", "Destruction of the marine environment by shipping personnel", "Basic knowledge about the complexity and diversity of the marine environment", "Effects of operational or accidental pollution on the marine environment", etc. [10] In the new amendment, an explicit prohibition on alcohol consumption during working hours is required, requiring that the alcohol concentration in the blood of all crew members on duty must not exceed 0.05% or the alcohol concentration in the breath must not exceed 0.25 mg / L. [11] In addition, the new amendment shortens the validity of the crew health certificate to 2 years. The new amendment requires crew members to take reasonable rest as scheduled. The crew needs to make reasonable arrangements for their rest time and cannot continue driving. The crew must have a qualified rest period, that is, a minimum of 10 hours of rest within 24 hours and a rest period of not less than 77 hours within 7 days. No overtime is allowed.

### 3.5. Impact on Crew Operation of Electronic Marine Instruments

With the continuous advancement of informatization in various industries, the operating system, positioning system, and marine instruments on the ship are constantly updated. The systems and instruments that previously depended on human positioning operations have gradually been replaced. Now that Premier Li Keqiang has proposed to create an "Internet +" era, traditional shipping is inevitably included. Informatization and intelligence will be the development trend of future shipping. The crew also needs to be proficient in the new electronic equipment to meet the new navigation requirements according to the development of the times.

## 4. Response to New Changes

### 4.1. Strengthen Practical Exercises

Now for the seafarers who have just boarded the ship, the company and the captain attach the most importance to the crew's ability to operate. It is hoped that the new seafarers can enter the role directly after boarding. The biggest difference in the research is to strengthen the concept of "Functional Approach Certificate" and pay more attention to the actual operation ability of the crew. According to this requirement, we need to focus on improving the students' practical ability and continuously improving their practical ability. It is required that various universities and training institutions must increase the measures of engineering training links and exercise the practical ability of the crew more. Colleges and universities should strengthen cooperation with enterprises, so that each student can get the opportunity to practice at sea before graduation, and exercise their practical ability in practice.

### 4.2. Improve English

According to our many years of English learning experience, for English learning, we must not neglect all aspects of listening, speaking, reading and writing, especially speaking, it is a problem that English learning has not been able to solve now. First of all, we should simulate a real language environment. In this environment, we will naturally cultivate English thinking. The new amendment also specifically mentions the issue of English learning. It emphasizes that the use of navigation simulators in English learning should be increased during the college training process because it is an essential and practical tool for future training. Therefore, major maritime colleges and some training institutions should modify their teaching programs and add maritime English simulators so that students can practice English in an environment similar to the environment on board. On the navigation simulator, effectively use standard

maritime English to complete a series of basic operations such as communication with the bridge, communication with the ship traffic management system, entering and leaving the port, urgent situations, urgent dangers, and avoiding ships. Students have basic listening, speaking, reading and writing skills, and better use of nautical English.

### 4.3. Improve Overall Quality

The new Manila amendment also puts forward new requirements for the personal qualities of the crew, which are also mentioned above. In order to adapt to the new navigation requirements, the crew must strictly abide by the requirements of the new amendment, cultivate the crew's teamwork ability, cultivate the collective concept of the crew, and improve the environmental protection concept. Let the crew meet strict requirements, get rid of some bad habits, insist on exercising, and ensure that they can adapt to the requirements of safe navigation.

### 4.4. Strengthen Information Training

Informatization is an inevitable trend in the development of shipping, and it is necessary to strengthen informatization training. We know that "Internet +" is very popular now, and this will definitely be applied to shipping. This requires us to plan early. We also need to pay close attention to the latest scientific and technological achievements applied to the development of ships, keep up with the development of world shipping, and always stay at the forefront of shipping technology, so that we will not feel uncomfortable when we next amend the Convention.

### 4.5. Increase on-Board Leisure and Entertainment Projects

Adding leisure and entertainment programs on board will not only allow the crew to pay attention to exercise, but also easily meet the requirements of the Manila amendment on the physical fitness of the crew, but also make the life on board of the crew more fulfilled, no longer a boring single life. Making the crew's life more colorful will also help the crew to relax their spirits, eliminate bad habits, reduce the chances of crew's fatigue driving, work in a better mental state, and help safe navigation.

## 5. Conclusion

This article focuses on the interpretation of the current STCW Convention Manila amendment, hoping to provide a reference. Later, some problems in shipping are described, and according to their own understanding, specific suggestions are made, and some future trends in shipping are made, and relevant suggestions are also given. Because of his own level and no long-term life on board, the questions raised are based on what he saw when he consulted the information, and the suggestions were based on consulting the literature and combining his own understanding. The shortcoming of this article is that I did not really feel the difference between the school and the actual operation through long-term practice on the ship, I was not able to experience the problems on board, I hope that I can have a chance to exchange better and perfect articles on board.

## Acknowledgements

Natural Science Foundation.

## References

- [1] Maritime Bureau of the People's Republic of China. Manila Amendment [M]. Dalian: Dalian Maritime University Press, 2010.

- [2] Helen Sampson. International seafarers and transnationalism in the twenty-first century [M].Manchester: Manchester University Press. 2013.
- [3] Duan Zunlei.Analysis of countermeasures for electronic staff compliance under the STCW Convention Manila Amendment [J] Navigation Technology, 2013 (06) .33-37.
- [4] Cao Yong.Main amendments of the STCW Convention Manila Amendment [J] .Navigation Technology, 2011 (3) .46-53.
- [5] Sean Trafford. Maritime Safety [M]. Brighton: Book Guild Publishing, 2009.
- [6] Meng Xiangwu.The Impact of STCW Convention Manila Amendment on the Education and Training of Chinese Seafarers and Countermeasures [J] .Nautical Education Research, 2010 (03) .73-80.
- [7] Ma Qiang, Liu Xinjian.The Manila Amendment to STCW Convention and the Response of Maritime Education [J]. Maritime Education Research, 2011 (02) .73-81.
- [8] Shi Jingyi, Fan Lidong.Structure of Maritime English Education under the Background of STCW2010 Manila Amendment [J], Journal of Jiujiang Vocational and Technical College, 2012 (03) .88-93.
- [9] Liu Xiaopei.Rethinking of Maritime English Teaching from the Perspective of the STCW Convention Manila Amendment [J] .Journal of Maritime Education, 2013 (3) 66-75.
- [10] Shi Jicai. Training strategy for seafarer crew under the STCW Convention Manila Amendment [J]. World Water Transport, 2014 (2) .38-45.
- [11] Yu Jian.Revision of STCW Convention at STW40 Meeting and Response of China's Maritime Education [J] Navigation Education Research, 2009 (3) 35-46.