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STCW 78 CONVENTION AND CODE: MANILA AMENDMENTS, FIVE YEARS LATER

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Abstract. In accordance of STCW Regulation I/15 the Manila Amendments currently are under the transitional period until 1 January 2017. During this time, IMO works hard on the development and adoption of a large number of instruments on safety, security and protection of environment, which directly or indirectly affect the scope of maritime education and training (MET) and also research activities of Maritime Universities through STCW Convention and Code. The paper reviews and analyses the IMO instruments and current trends relating MET and research, which influence or can affect the STCW Convention and Code after adoption of Manila Amendments, including e-navigation, Polar Code, III Code, IGF Code, Ballast Water Management Convention..., etc.

Key words: STCW 78, Manila Amendments, education, training

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1 INTRODUCTION

June 25, 2010, Manila, Philippines. This day the Diplomatic Conference has adopted the amendments to the STCW Convention and Code. Amendments made significant changes to the Convention and entered into force on 1 January 2012 with a transitional period until 1 January 2017, as per Regulation I/15, i.e. now we live within the transitional period of Manila amendments. This year 2015 IMO and all shipping society celebrate the World Maritime Day (WMD) under the theme of Maritime Education and Training. It naturally gives the motive to draw attention once again to the STCW Convention, which is undoubtedly one of the most important IMO tools for providing safe, secure and efficient shipping on clean oceans. During this transitional period of time the IMO has changed the structure of its sub-committees and sub-committee STW (Standards of Training and Watchkeeping), which actually worked on the updating the Convention, from the 1st of January 2014 changed the name to HTW (Human Element, Training and Watchkeeping). It obtained a new function - "Human Element", which fits perfectly to the framework and ideology of the STCW Convention and allows the sub-committee to work in other important area as ISM Code issues. In principle, for IMO it is timely and reasonable step forward, as such areas of activity, as training of seafarers, safety management, manning and fatigue are closely linked. Their separation when developing standards reduces the effectiveness of these standards themselves. The impact of non-technical training provisions in the Convention as Bridge Resource and Engine Resource Management, leadership, decision making, situation awareness, risk assessment confirms the reasonableness of inclusion the Human Element issue into former STW sub-committee activity.

It should be noted that the transitional period for the Manila amendments is not applied to Chapter VIII of the Convention - Watchkeeping. The amendments to this chapter are in effect since 1 January 2012. There are also a number of amendments, which began working since 1 July 2013 and 1 January 2014.

Five years have passed since the adoption of the Manila Amendments but STCW continues to be in progress, reflecting the dynamics of the shipping industry. The development of the Convention is impressive and it goes ahead in line with such great IMO instruments for regulation safety at sea and environment protection, as SOLAS 74 and MARPOL 73/78. This encourages maritime institutions providing education and training of seafarers to reflect all the changes in IMO tools. It is quite obvious that the questions relating to training of seafarers should not be

considered only within the framework of the STCW and the work of the HTW sub-committee. Let's try to expand the analysis of the data to functions of other IMO instruments, which impact on STCW 78 Convention and Code.

Almost in parallel with the development of the Manila amendments to STCW the IMO launched the development of two important issues which had substantive contribution to the STCW 78. These are amendments to Chapter V of SOLAS 74 for mandatory installation of ECDIS on ships operating under the SOLAS Convention (scheduled within 2012-2018) and the Polar Code (effective from 01.01.2017).

2 ELECTRONIC CHART DISPLAY AND INFORMATION SYSTEMS (ECDIS)

The period of mandatory installation of ECDIS as per SOLAS Convention practically coincides with the transitional period of the STCW Manila amendments. The absence of clear provisions of the synchronization between these two conventions on ECDIS installation (SOLAS 74) and training requirements on ECDIS (STCW 78) stimulated the IMO to adopt the explanatory circular STCW.7/Circ.18 in May 2012.

The identification by industry of various types of anomalies when using ECDIS encouraged IMO to develop the recommendations to collect and disseminate this information [1]. It can be considered as hazard identification procedure, i.e. the first step of risk assessment, when using ECDIS.

There is no doubt that ECDIS is a major navigational equipment to ensure the safety of navigation that is why the training of seafarers should be arranged with a great attention and high quality. A large number of papers on ECDIS developed by IMO stimulated NCSR sub-committee to merge all documents on ECDIS in the consolidated publication of "MSC circular on ECDIS - Guidance for good practice", which contributes to a better perception of all the IMO tools on ECDIS [2].

It should also be noted that the NCSR subcommittee within e-navigation agenda item develops important issues on software quality and, so called, S-mode (*Standardized mode*, that means the creation of uniform approach to development of interface for navigation and communication equipment), which should greatly improve the efficiency and usability of navigation and communication equipment, including ECDIS.

By the way, the development of S-mode, in principle, can seriously facilitate the familiarization training on the use of all navigation and communication equipment.

3 INTERNATIONAL CODE FOR SHIPS OPERATING IN POLAR WATERS

The Polar Code (PC) and amendments to SOLAS Convention were adopted during the 94th session of IMO's Maritime Safety Committee (MSC) in November 2014. The IMO's Marine Environment Protection Committee (MEPC) during 68th session in May 2015 has adopted the environment-related provisions of the Polar Code and also the appropriate amendments to MARPOL Annexes I, II, IV and V to make use of the environment-related provisions of the Polar Code mandatory. PC will take effect on 1 January 2017 upon entry into force of the new chapter XIV (Safety Measures for Ships operating in Polar Waters) of the SOLAS 74 Convention and appropriate amendments to MARPOL 73/78.

Fig. 1 illustrates the Polar waters, as defined in SOLAS regulations. In order to meet the framework functional requirements of PC Chapter 12, masters and deck officers, serving onboard the ships operating in polar waters, shall be qualified in accordance with amendments to chapter V of the STCW Convention and Code.

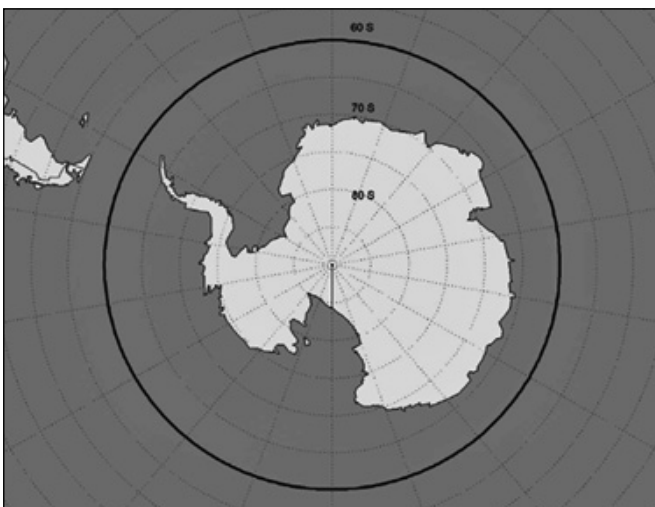
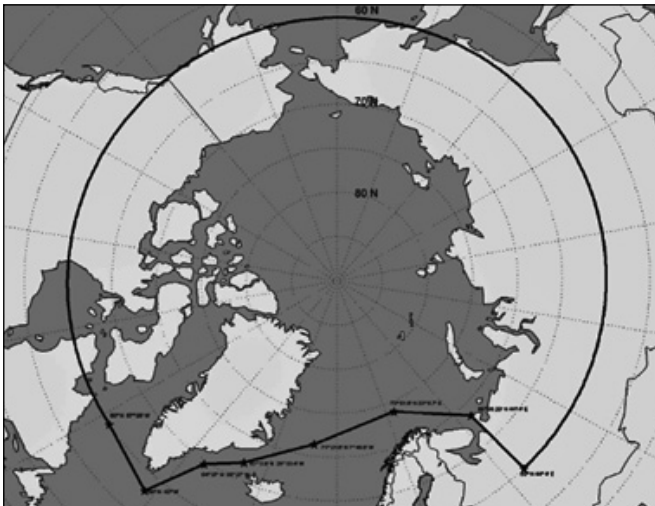


Fig. 1 Arctic and Antarctic polar waters as per Polar Code

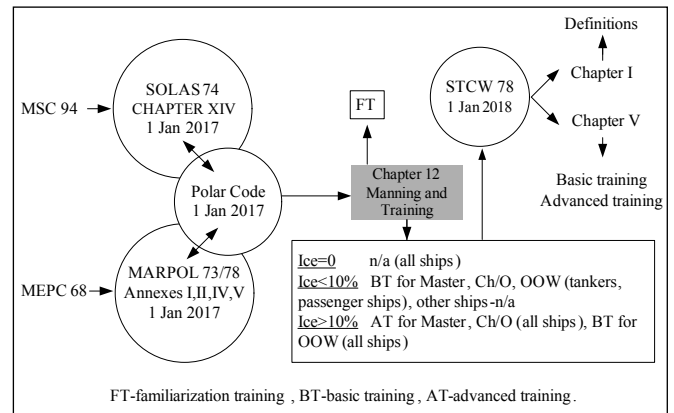


Fig. 2 Development the amendments to STCW as a result of the PC Chapter 12 provisions

The whole procedure of development the amendments to STCW can be seen on Fig. 2, where dates indicate the entering of instruments into force.

4 IMO INSTRUMENTS IMPLEMENTATION CODE (III CODE)

The Assembly of the International Maritime Organization, meeting for its 28th session in London, has adopted key resolutions and amendments relating to the Organization's mandatory audit scheme, paving the way for the scheme to come into effect by 2016 once amendments to mandatory instruments have entered into force¹.

The mandatory audit scheme is seen as a key tool for assessing Member States' performance in meeting their obligations and responsibilities as flag, port and coastal States under the relevant IMO treaties and then offering the necessary assistance, where required, for them to meet their obligations fully and effectively. III Code provides a global standard to enable States to meet their obligations as flag, port and/or coastal States. It is effective for from 1st of January 2016 for all the IMO instruments listed below (see Fig. 3), including STCW 78.

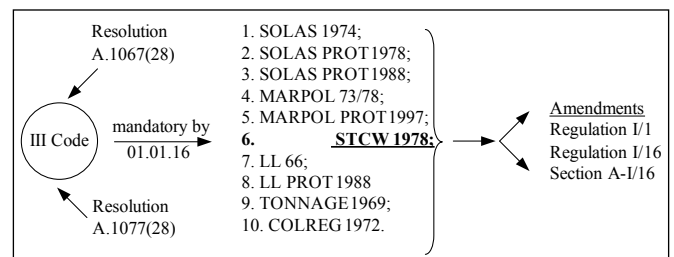


Fig. 3 Mandatory audit of IMO Instruments Implementation using III Code

¹ http://www.imo.org/MediaCentre/PressBriefings/Pages/A-28-ends-asp#x.VV_q3-9nUuM

Assembly resolutions, adopted on December 2013, particularly A.1067 (28): “Framework and procedures for the IMO member state audit scheme” and A.1077 (28): “2013 Non-exhaustive list of obligations under instruments relevant to the IMO III Code”, support the functions of the Code.

5 INTERNATIONAL CODE OF SAFETY FOR SHIPS USING GASES OR OTHER LOW FLASHPOINT FUELS (IGF CODE)

The rising interest in using LNG as a fuel was also covered by the MSC through the approval, in principle, of the draft IGF Code, as well as draft SOLAS amendments to make the code mandatory. It plans to adopt both in 2015.

The IGF Code will provide mandatory provisions for the arrangement, installation, control and monitoring of machinery, equipment and systems using low-flashpoint fuels, focusing initially on LNG, to minimize the risk to the ship, its crew and the environment.

Fig. 4 shows the algorithm of developing the amendments to appropriate chapters of the STCW Convention to reflect the possible training and certification requirements related to IGF Code. The dates of taking effect is not yet set out at the end of May 2015 that is why square brackets are used for possible modification the dates of entry in force.

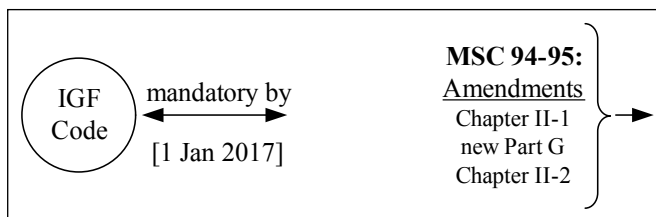


Fig. 4 The procedure of development the amendments to STCW using IGF Code Section 17

MSC 94 approved for HTW sub-committee the extension of target completion year on IGF Code agenda item to 2016 and changed the description of the output from “Development of IGF Code” to “Amendments to the IGF Code and development of guidelines for low-flashpoint fuels” following the expected adoption of the IGF Code by MSC 95, to more accurately reflect the next phase of work. MSC 94 approved draft amendments related to the IGF Code, to the STCW Convention and the associated draft MSC resolutions and the STCW Circular, prepared by HTW 1 with a view to adoption at MSC 95 in June 2015 [3].

6 E-NAVIGATION

In 2006 almost in parallel with the development of Manila amendments to the STCW Convention and Code, the IMO launched to carry out new very important issue, which was named as “e-navigation”.

The definition of e-navigation used by IMO is as follows: “*E-navigation is the harmonized collection, integration, exchange, presentation and analysis of marine information on board and ashore by electronic means to enhance berth to berth navigation and related services for safety and security at sea and protection of the marine environment.*”². In principle, the meaning of the term “e-navigation” can be interpreted as professional electronic network, similar to Internet, with common standards and protocols for information exchange to enhance the safety and security at sea and protection of the marine environment.

The MSC 94 in 2014 approved the e-navigation Strategy Implementation Plan (SIP), as set out in document NCSR 1/28, annex 7 [3]. During the development of SIP a lot of issues were discussed, some of which may relate to future progress of STCW Convention in terms of MET.

If to predict the possible Regulatory impact of e-navigation to STCW Convention, one can refer to Report of NCSR 1, where the following text is included³: *The provision and further development of e-navigation should consider relevant international conventions, regulations and guidelines, national legislation and standards. The development and implementation of e-navigation should build upon the work of IMO, including, but not limited to, the requirements prescribed in FAL, SOLAS, MARPOL and STCW conventions.*

Despite of HTW 1 had agreed[4] that it was premature to consider any training requirements, pending the finalization of the e-navigation Strategy Implementation Plan (SIP), the following tasks set out in SIP can’t be avoided by MET process and might be reflected in future provisions of STCW Convention (original wordings as per NCSR 1/28): T1: Development of draft Guidelines on Human Centered Design (HCD) for e-navigation systems; T2: Development of draft Guidelines on Usability Testing, Evaluation and Assessment (UTEA) of e-navigation systems; T3: Develop the concept of electronic manuals and harmonize the layout to provide mariner with an easy way of familiarization for relevant equipment; T4: Formulate the concept of standardized modes of operation, including store and recall for various situations, as well as S-mode functionality on relevant equipment;

² Report of MSC 85, MSC 85/26/Add.1, annex 20: Strategy for the development and implementation of E-navigation, 6 January 2009.

³ Report to MSC, NCSR 1/28, 16 July 2014.

T5: Investigate whether and extension of existing Bridge Alert Management Performance Standards (PS) is necessary. Adapt all other alert relevant PSs to the to Bridge Alert Management PS; T6: Develop a methodology of how accuracy and reliability of navigation equipment may be displayed. This includes a harmonized display system; T7: Investigate if an INS, as defined by resolution MSC. 252(83), is the right integrator and display of navigation information for e-navigation and identify the modifications it will need, including a communications port and a PNT module. If necessary, prepare a draft revised performance standard. Refer to resolution MSC.191(79) and SN/Circ.243; T8: Member States to agree on standardized format guideline for ship reporting so as to enable “single window” worldwide (SOLAS regulation V/28, resolution A.851(20) and SN.1/Circ.289); T14: Develop a Common Maritime Data Structure and include parameters for priority, source, and ownership of information based on the IHO S-100 data model. Harmonization will be required for both use on shore and use on the ship and the two must be coordinated.

Develop further the standardized interfaces for data exchange used on board (IEC 61162 series) to support transfer of information from communication equipment to navigational systems (INS) including appropriate firewalls (IEC 61162- 450 and 460).

Taking into account the outcomes presented in COMSAR 16/11 (annex 1), on gap analysis made by correspondence group on e-navigation one can come to conclusion that the following issues also have a trend be reflected in STCW Convention as *Proposed practical e-navigation solutions to address identified gaps (column “Training”, original wordings as per annex 1): (a) Develop training course for automated procedure of ship reporting; (b) develop training course for procedure of data entry using harmonized data format and related equipment; (c) Mariner to be trained for proper filtering of information; (d) Familiarization to status information of each equipment; (e) Training to respond the equipment status if necessary; (f) Consideration should be given to the revision of training/education for affected equipment and impact on Bridge Resource Management Training reflecting operational changes and how it is incorporated into practice of navigation; (g) Develop the training course to be familiarized new symbolic presentation environment; (h) Operator must be trained for operation of data systems; (i) Revise the training course of current GMDSS for integrated GMDSS system; (j) Training course of GMDSS should be revised based on the standard operational procedure; (k) A basic level of relevant language competency should be required ahead of being able to use SMCP; (l) Users need to be made aware of the vulnerability of GNSS and the lack of integrity; users also need to*

be trained in procedures to be followed if GNSS is disrupted, or in the use of alternative systems; (m) Revise the training course to understand the system’s automatic action and report to use; (n) Revise the training course to be familiarized with the new feature of maneuvering data presentation; (o) Revise the training course of ECDIS to be familiarized electronic procedure related passage plan; (p) different ships with different equipments, user must not need to spend more time to be educated for operation of same function; (q) Familiarization for using digital publication on user’s computer; (r) Revise the training course on INS; (s) Training for a system should be focused to standardized operational procedure of e-navigation; (t) Revise the training course for simple and standardized procedure for priority message; (u) V 103 model training courses for VTS operators and STCW need to include training in this regard.

7 TRAINING REQUIREMENTS RELATING TO PASSENGER SHIPS

Any industry responsible for lives must follow stringent safety measures and the passenger shipping sector is no exception. After the loss of the *Costa Concordia* in January 2012, last year was another watershed year for passenger shipping with the sinking of the 1994-built South Korean ferry, *Sewol* on April 16, 2014. More than 300 people died in the disaster, which was the result of a combination of factors including overloading, poor securing of cargo, and lower than recommended ballast⁴.

Passenger shipping was then hit by a second high-profile incident towards the end of the year with a fire onboard the 2009-built *Norman Atlantic* in Greek territorial waters on December 28. These two incidents underline a worrying gap in crew training when it comes to emergency operations on ro-ro/passenger ships. This gap is partly of STCW Convention matter and HTW sub-committee is involved in development of amendments to STCW Chapter V on passenger ships safety. The main issues are on Fig. 5.

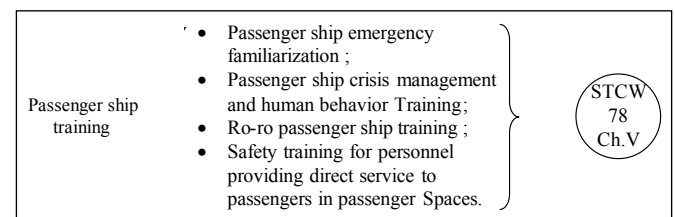


Fig. 5 Main topics on passenger ship safety discussed for inclusion into STCW Chapter V

⁴ <http://www.agcs.allianz.com/assets/PDFs/Reports/Ship-ping-Review-2015.pdf>

HTW 2 Subcommittee also discussed the issue of *enhanced damage stability training* for officers and crew, but found this issue as premature to develop for STCW Convention for the time being.

8 BALLAST WATER MANAGEMENT CONVENTION (BWM CONVENTION)

The MEPC 68 has reviewed the status of the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention), 2004, which is close to receiving sufficient ratifications to meet the remaining entry into force criterion (tonnage). The number of Contracting Governments is currently 44, representing 32.86 % of the world's merchant fleet tonnage. The BWM Convention will enter into force 12 months after the date on which not fewer than 30 States, the combined merchant fleets of which constitute not less than 35% of the world's gross tonnage, have ratified it⁵.

One of the significant issue of BWM Convention is the Ballast Water Sampling and Analysis requirements, that might need to have adequately trained personnel onboard ships on use the additional knowledge in applied fundamentals of organic chemistry, inorganic chemistry, bacteriology, virology; i.e. it might also

require to develop the appropriate provisions related to STCW 78 Convention and Code.

9 CONCLUSION

It is common knowledge that MET is rather conservative sphere. In principle it is truth, but the shipping industry and supporting technologies, particularly information technologies, are continuously in progress. The dynamics of industry development is impressive, especially last decades and MET is obligated to keep the pace to be in line with this progress. Modern ships and new equipment require highly qualified personnel for serving onboard ships. The basic standards of MET, elaborated by experience of generations, and prescribed in STCW 78 Convention and Code, adequately reflect all these challenges and changes. During the time of development the Manila amendments more than 300 papers were submitted to STW sub-committee for consideration on different issues of maritime education, training, certification and watch keeping. From 2011 to 2015 the STW/HTW sub-committee has considered also about 300 papers on similar subjects. So, if the maritime universities can follow the rhythm of industry? They should do it, because life proves that MET should be as conservative, as well as dynamic.

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⁵ <http://www.imo.org/MediaCentre/PressBriefings/Pages/19-MEPC-ends.aspx#.VWlmqe9nUuM>