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STCW water survival training needs basic swim evaluation

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Abstract: The study reveals the current supplemental water survival training best practices of American, Spanish and Japanese maritime universities. This research reviews ongoing institutional training above the required STCW practical assessments, Table A-VI/1 and NVIC 08-14. The purpose of this paper is to highlight and share the best practices of participating schools. This vital supplemental training showcased in this study is meant to promote this accessory training throughout all maritime universities. Additionally, the study encourages further discussion on how much supplemental training is needed for today's mariners. This research will give administrators and instructors valuable insight into their counterparts training methods. The analysis reveals each participating school's rationale involving the supplemental training. Moreover, the level of importance given to this training in their curriculum and academic schedules. The study reviews training methods, equipment and whether there is an emphasis on swim instruction. The paper intends to be a water survival reference guide, imparting training policies and procedures wherever possible.

Key words: Swim instruction, water survival, and STCW

Introduction

In 2010, the IMO approval of the Manila Amendments to the STCW Convention, provided a detailed description of requirements for in-service physical abilities of seafarers. The requirements are: maintain balance and move with agility; step over high sills; strength; dexterity and stamina to manipulate mechanical devices; lift; pull and carry a load; reach upwards; stand; walk and remain alert for an extended period. Table A-VI/1-4 also requires seafarers to have, "swimming ability in suits and floating ability without suits". (IMO, 2010) These standards established uniformity and a basis for mariner fitness, but are woefully incomplete in swimming assessment and training. As an example, the STCW minimum standards erroneously assume all trainees can swim by requiring them to already know how to float.

This conjecture leads to safety issues when conducting STCW in-water survival training. Additionally, the study probes data on non-swimmer populations and their likely effect on the maritime industry, military, and maritime academies. The research reviews how these groups vary in their training methodologies, but points to their embrace of basic swim instruction and training procedures. Finally the study compiles a list of water survival best practices advocating the use of some or all of these modifications to the next amendments in the STCW water survival standards.

Why swim evaluations and training is necessary

The STCW minimum standards do not include swim evaluations or a water acclamation before conducting training. This causes costly time consuming interruptions in the dissemination of valuable group and individual STCW training. While certifying institutions cope with non-swimmer distractions, these entries also grapple with the decision making dilemma of whether to expand their curriculums to include basic swimming training or terminate potential employees if they cannot swim.

A broader understanding of global non-swimming populations allows for some clarity in this issue. The latest World Health Organization data shockingly indicates half of the global population does not know how to swim, or about 4 billion people, and drowning is the third leading cause of unintentional deaths. (WHO, 2020).

The American Red Cross stipulates over half of all American adults cannot actually do all of the skills needed to potentially save their own life including: floating or treading for 1 minute; jumping into deep water and coming up for air; spinning around in the water; getting out of a pool without a ladder and swimming one pool length without stopping. (Kyung, 2018).
These statistics inevitably morph to seafarers and those who work in dangerous conditions. For example, the British Royal Navy reports that 20 percent of its recruits fail their swimming test and further reports, some recruits are petrified of water and cannot even find the courage to jump into a swimming pool. (The Journal of Commerce Online, 1998).

Maritime academies such as the State University of New York Maritime College also report a relatively high percentage of non-swimming freshmen, about 18%. (Downey, 2017).To address this issue, swim training has been implemented in some organizations. This paper discusses examples from the offshore wind industry, military, and maritime institutions which are forced to devise supplemental swim training on top of the STCW minimums or scrap the minimum standards altogether, and develop separate water survival, and swim training.

Off-shore wind industry water survival training

As the need for sustainable wind energy grows, opportunities abound offshore, wind companies see the ocean surface becoming a viable option. For example, large wind farms projects are in place or being planned in many areas of the globe. Such projects require transporting of huge amounts of equipment and personnel to large staging areas off-shore in all weather conditions. The offshore wind industry recognizes the necessity for swim training in its safety preparation. Acknowledgment of STCW limitations has led to the Global Wind Organization (GWO) development of water survival instructional methodologies going beyond the minimum standards. In the most recent, *Global Wind Organization Safety Manual,* employees are required to receive water survival training in: controlled entry into the water from a height; Heat Escape Lessening Posture or (H.E.L.P.); individual swimming techniques; collective or group swimming, and techniques to prevent hypothermia. (GWO, 2019)

Military water survival training

The British Royal Navy members train using life rafts and in-water personal survival techniques that form the central part of its sea survival course. Participants are taught how to launch rafts and subsequent actions in a raft. They receive training on survival swimming, and study the design and use of lifejackets, survival suits and medical emergencies such as hypothermia. (Royal Navy, 2020).

The U.S. Navy and Marine Corps take similar approaches to water survival training. Both services require a basic swimming competency for all recruits at entry-level training. For Marine recruits, the minimum requirement is called water survival basic. It requires Marines, clad in battle dress uniforms (BDU) and boots, to strip off protective gear, including body armor and a rifle, while in the water under 10 seconds; jump into the pool from a 15-foot tower and swim 25 meters in deep water; employ a floatation device made from a pack; tread water for 4 minutes, and complete another 25-meter pack swim. This qualification is valid for two years and must be renewed. (Military.com, 2020).

The Coast Guard has similar training philosophies, but requires a jump from a platform of 1.5 meters, a 100 meters swim (or just under 100 yards) unassisted. (USCG, 2020). This rigorous, and demanding water survival and swim training demonstrates the military's philosophy on how important it is to be a proficient swimmer.

The Tokyo University of Maritime Science and Technology's (TUMSAT) instruction is extensive in all areas. However, for survival training, the institution follows STCW Code A-VI/1 minimum standards to fulfill the requirements. In addition, cadets are required to have swim training that involves swimming for over 3 hours in the ocean at one time. Cadets are not required to have additional training to obtain the Certificate of Proficiency" (Mori Yusuke, personal communication, Aug 11, 2018).

Maine Maritime Academy has a unique approach to its water survival supplemental training. The school does not offer a standalone water survival course; instead, it offers training for incoming freshmen during August indoctrination. The school's supplemental activities include the *TS State of Main,* ship jump, and making a Personal Flotation Device, or (PFD) out of mariner work clothing. The ship jump is a time-honored tradition as each new cadet is required to don a lifejacket and jump off the ship's stern, about 25 feet high; once in the water, cadets must swim back to shore.

In addition, students must make a personal flotation device or (PFD) from clothing. The activity requires the student to tread water while making a PFD from clothing. (Gardner, D. personal communication, Feb 12, 2019). Maine's supplemental activities clearly enhance students' water survival training above the minimum standard.

Like Maine Maritime Academy, Massachusetts Maritime does not offer a standalone water survival course. Instead, its water survival training is done during indoctrination. The school's STCW water survival instruction takes about 7 hours during the August orientation period. Where one company or about 70 students at a time. (Bosanquet, B, Personal communication, Jan 30, 2018)

One activity done during their indoctrination that stands out is called, "Unconscious Victim Relay Race," Bosanquet (2018) explains, "The orientation population is broken into even groups of 10 with about six groups per class. Each group starts with two swimmers, one as a victim the other as a rescuer. They swim to the end of the pool. Then, they switch roles and swim back. Then they tag in the next pair of students, and it goes about five times". This activity reinforces teamwork during a catastrophic situation at sea and the need to work together to survive. Water rescue training enhances student learning outcomes utilizing a hands-on application and analysis of emergency rescue procedures.

SUNY Maritime College water survival training begins during the school's Indoctrination period. Part of the training is a day-long introduction to water survival done at the college swimming pool. The water survival section starts with a swim evaluation. If the student's swimming is inadequate to pass the water survival course, the student must take a remedial swim class before undertaking the more vigorous water survival course. Also included in indoctrination is the Unconscious Victim Relay Race. (Downey, 2017)
The water survival course is offered in both fall and spring semesters, swim training along with the STCW minimum water survival requirements. However, because the minimum standards lack rigor, additional supplemental training has been included: the boiler suit challenge and the 500-yard swim.

The boiler suit challenge requires the cadet to jump into the deep end of the pool wearing his/her boiler suit or coveralls. He is then required to take the suit off in the water, wearing only his/her bathing suit. He/she then needs to tie off the sleeves, zip up the garment, tie the legs together and inflate using various procedures, creating a PFD. There is no time limit for this activity. (Downey, 2017)

The 500-yard swim requires students to swim the distance in 12 minutes or less using a combination of, front and back crawl, or side stroke and breast strokes. Failure to complete either activity requires the student to retake the course at a later date. (Downey, 2017)

The Study findings

The study's findings listed in Table 1 highlight industry, military, and maritime educational institutions' additional water survival training and swimming methodologies. The findings suggest that all of these entities understand the value of swimming even in the basic sense. Their training philosophies may vary but the research clearly indicates that swim assessment and training are beneficial. Whether the additional swim activities are essential for insurance or employment safety obligations or just common sense is undetermined.

Study recommendations:
The supplemental activities listed above have one thing in common, swimming and the acclamation to the aquatic environment is important in water survival training. Moreover, the ability to swim even in the most basic sense develops aquatic awareness, physical fitness, self-confidence, and teaches teamwork.
As mentioned earlier, the American Red Cross suggests the basic swim skills are: floating or treading, jumping from a height, spinning around in the water, getting out of the water without assistance and swimming one pool length without stopping. (IMO, 2010)

Displayed in Table 2 is the non-swimmer basic swimming lesson plan. The plan will take about five half-hour lessons to achieve proficiency. Key aspects of this abbreviated training should include the HELP or Heat Escape Lessening Posture, elementary breaststroke, and front crawl stroke. Floatation devices are encouraged. (Downey, 2018)

The study compiled a list of water survival best practices advocating the deployment of these modifications to the next amendments in the STCW water survival standards. Moreover, other maritime industry players should consider updating their water survival curriculums and add some, or all, of these supplemental practices to strengthen their water survival training programs.

Table 1

Additional Water Training and Swimming Methodologies

ACTIVITY	US NAVY/ MARINES	ROYAL NAVY	TUMSAT	WIND/ SOLAR	MAINE	MASS	SUNY
1	Swim eval & training	Swim eval & training	Swim eval	Swim eval & training	Swim eval & training	Swim eval & training	Swim eval & training
2	Make a PFD				Make a PFD	Make a PFD	Make a PFD
3	Water entry from a height	Water entry from a height		Water entry from a height	Ship jump	Water entry from a height	Water entry from a height
4	Victim rescue					Victim rescue	Victim rescue
5	Distance swim		Distance swim		Distance swim		Distance swim
6	H.E.L.P			H.E.L.P	H.E.L.P	H.E.L.P	H.E.L.P

Table 2

Non-swimmer Basic Swimming Lesson Plan

Lesson 1 ***(buoyancy)***	Lesson 2 **(swimming)**	Lesson 3 **(swimming)**	Lesson 4 **(treading)**	Lesson 5 **(putting it all together)**
Basic Floating, front and back	Review of flouting and gliding	Review of beginner breaststroke w/& without float	Review of breaststroke & front crawl w/& without float	Review of all topics and practice, practice, practice
Prone glide face in the water	Basics of beginner breaststroke w/float	doggy paddle	Basics of treading water w/float	
HELP position	HELP position	Basics of front crawl stroke w/float	Basics of treading water w/float continued	

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