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IMPACT OF STCW ON US MARITIME ACADEMIES
HISTORY OF STCW AND IMO
SEAFARER'S TRAINING, CERTIFICATION AND WATCHKEEPING CODE

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Shipping is perhaps the most international of all the world's industries, and one of the most dangerous. In 1948 an international conference in Geneva adopted a convention establishing International Maritime Organization (IMO). The first task of IMO was to adopt a new version of the International convention for the Safety of Life at Sea (SOLAS). This was achieved in 1960 and then IMO turned its attention to such matters as the facilitation of international maritime traffic, load lines and the carriage of dangerous goods.

While safety was and remains IMO's most important responsibility, a new problem of pollution emerged. During the next few years IMO introduced a series of measures designed to prevent accidents and to minimize their consequences. IMO tackled the environmental threat by the introduction of a treaty known as MARPOL 73/78. This treaty covers not only accidental and operational oil pollution but also pollution be chemicals, goods in packaged form, sewage and garbage.

In 1969 and 1971 IMO adopted treaties which enabled victims who suffered financially from oil pollution to obtain compensation much more simply than had been possible before.

In 1970 IMO was instrumental in the establishment of the International Mobile Satellite Organization (INMARSAT) which greatly improved the provision of radio and other messages to ships.

IMO is best known for being responsible for the adoption of maritime legislation with special attention crew standards. Approximately 40 conventions and protocols have been adopted by the Organization and most of them have been amended on several occasions to ensure that they are kept up with changes taking place in the world shipping.

IMO is one of the smallest of the United Nations agencies with a staff of approximately 300 people. The objective of IMO is simple, "safer shipping and cleaner oceans". The annual budget for IMO for 2000-2001 is 36,612,200 pounds sterling. The amount paid by each member state depends primarily on the tonnage of its merchant fleet.

IMO consists of an Assembly, a Council with five main Committees: the Maritime Safety Committee; Marine Environment Protection Committee; Legal Committee; Technical Cooperation committee; and the Facilitation Committee. The Assembly is the Governing body of the Organization and consists of all Member States which meets once every two years in regular session. The Assembly is responsible for approving the work program, voting the budget and determining the financial arrangements of the

Organization. The Assemble also elects the Council.

The Council is composed of 32 Member States elected by the Assembly for two-year terms. The Assembly is responsible for supervising the work of the Organization and, coordinating of activities of the organs of the Organizations; consider the draft works and budget estimates; receiving of reports and proposals and forwarding to Assembly with appropriate comments and recommendations; appoint the General Secretary; and enter into agreements or arrangements concerning the relationship of the Organizations with other organizations. The Members of the council for 2000-2001 are as follows: China, Greece, Italy, Norway, Russian Federation, United Kingdom, United States, Argentina, Brazil, Canada, France, Germany, India, Netherlands, Sweden, Australia, Bahamas, Cyprus, Egypt, Finland, Indonesia, Malta, Mexico, Morocco, Panama, Philippines, Republic of Korea, Singapore, South Africa, Spain and Turkey. Mr. William A. O'Neil of Canada is the present Secretariat and has held this position since 1990.

In 1978 an international conference was held in London, England which was hosted by the International Maritime Organization (IMO). The 1978 STCW Convention entered into force on 28 April 1984. Since then three amendments were adopted, 1991, 1994, and 1995. The 1995 amendments were adopted by resolution to the International Convention on Standards of Training, Certification and Watch keeping for Seafarers, which was convened by the International Maritime Organization (IMO) from 26 June to 7 July 1995 at IMO headquarters in London, England. It was the intention of STCW to clarify the standards of competence required, introduce qualification requirements for trainers and assessors, provide effective mechanism for enforcement of its provisions and allow greater flexibility in the assignment of functions on board ship thus broaden the career opportunities of seafarers. Many countries were represented at 1978 conference. Establishing a universal set of standards governing the qualifications of mariners would level the playing field by preventing developing countries from employing poorly qualified officers and crew. A set of uniform minimum standards would improve safety and the competitive position of companies that were obligated to meet their country's higher standards.

Under the STCW Code, mariners are required to perform proficiency demonstrations in addition to passing written exams. The present US system combines sea service along with written examination to determine eligibility for rank and grade. Under the STCW Code the candidate will have to display the ability to do the job prior to being issued a license.

Proficiency demonstrations sounds idealistic but has the potential to become extremely troublesome due to the subjectivity of the demonstrations. Practical demonstration can be extremely labor intensive as well as subjective. Time and money must now be allocated for something that did not previously exist, at least top the degree which the new standards are requiring of an individual. The new concept requires more of the Mariners than were previously required and many would say there was nothing wrong with the system to begin with so why fix it if it is not broke.

Each country that is party to the STCW convention was required to submit a detailed report to IMO detailing the process that each country was going thorough to provide "full and complete" effect of the STCW document. Countries had to build their own assessment system to ensure complete compliance. The US submission has not been responded to as of this date. The US submission is not accessible through the "Freedom of Information Act" due to the fact that the US submission was considered a "draft" document. Draft documents are not accessible through FIA. Reports were due by 1 August 1998 and are subject to review by panels of maritime experts to determine whether a country's national regulations, training schemes, and quality standards are good-faith efforts.

The United States Coast Guard, National Maritime Center, (NMC) is the authorized regulatory body for the United States which is tasked with full mandating compliance to the Code. The United States Maritime Administration (MARAD) is tasked with interpretation of the Code and assists NMC with determining acceptance standards. Both NMC and MARAD fall under the Department of Transportation within the federal government. The United States representative to the convention an is an civilian attorney who is employed by USCG .

Standards varied greatly from country to country as to what level of proficiency must an individual possess in order to serve as an entry level officer and through all the ranks to Master or Chief engineer. Some countries such as the Philippines had as many as 115 maritime schools which had no overseeing body which insured that some degree of consistency was being maintained in training seafarers.

It was determined at the 1978 convention that in order to develop standards where consistency was to be maintained globally, much data would be necessary in order to develop guidelines for all countries to comply. Between 1978 and 1995 international annual meetings continued to take place and discussion and guidelines were adopted to establish an international standard for the training of seafarers. Little dialogue took place between the U.S. representative to the convention and the schools offering training to seafarers. What dialogue took place, included that the STCW code would have little implication as to how the schools in the U.S. presently conduct their training. As a result of all communications regarding implementation of STCW having negligible impact on training, little effort was given nor was there much monitoring of discussion during the convention.

In 1995 a Resolution to the 1978 Code was put forward for full implementation globally as of 1 February 2002. The schools involved in training of seafarers in the U.S. continued to hear from the US Regulators between 1995 and 1997, that the 1995 STCW would have little implication on how the schools conducted their training programs. It was the intention of the Code to bring third world countries up in standards. For any four year college which incorporated training for seafarers such as maritime academies, it meant that the incoming freshman class as of the Fall 1998 was to be taught in accordance with the 1995 Code.

The STCW Code is divided into Deck and Engine as well as licensed and unlicensed. The part of the Code which has greatest impact on the U.S. Maritime Academies is the part which addresses Deck and Engine are "Watch keeping arrangement and principles to be observed, Article VIII".

Until the Fall of 1998, the maritime academies provided training under approved programs of MARAD. At the conclusion of four years of training and 180 days of sea service, the student was require to be examined over three to four days depending on which discipline they were enrolled. Upon successful completion of the U.S. coast Guard examination, the student received a entry level license of unrestricted horsepower and tonnage to sail vessels anywhere in the world very general terms, the STCW Code requires that a Training Record Book (TRB) be kept for each individual which shows what type of training has been administered, who administered the training, on what date the training was conducted. In another document, the school must have detailed description of all training evolution's which description of how the level of proficiency was measured and what system was used to access the proficiency.

While the U.S. representative committed the U.S. to comply with this treaty, no resources have ever been identified for implementation of STCW. The regulatory bodies of the U.S. felt the U.S. should set standards which are second to none with no resources available. There is a large degree of conflict between the regulatory bodies and the maritime academy representatives for STCW.

And while there is conflict between the regulatory bodies and the maritime academies there is also conflict internally with each of the maritime academies as to how to interpret and build a plan of action for implementation of STCW. One department would like to see the U.S. standards lowered to be consistent with global standards while the other department agrees with maintaining nothing but the highest standards globally.

US Maritime Academies

There are presently six state funded and one federally funded maritime academy in the United States. All of the academies offer Bachelor of Science degrees and are accredited by either a regional accreditation board or a national accreditation board such as ABET (Accreditation Board of Engineering and Technology).

The Six state academies are:
California Maritime*
Vallajo, California
Texas Maritime**
Galveston, Texas
Great Lakes Maritime***
Travese City, Michigan
Maine Maritime
Castine, Maine
Massachusetts Maritime
Buzzards Bay, Mass.
New York Maritime
Fort Schyler, New York

The following maritime academy is federally funded and requires congressional appointment similar to U.S. Military, the U.S. Naval, and U.S. Air Force Academies:
U.S. Merchant Marine Academy
Kings Point, N.Y.

* California Maritime is part of the State University system of California.

** Texas Maritime is part of the Texas AM University in Galveston.

*** Great Lakes Maritime is part of the University of Michigan located at Traverse City.

Maine, Massachusetts, and New York Maritime are part of the state college system for that state. All state funded maritime academies receive predominately state funds for offsetting operating costs. All state academies have training vessels funded by the federal government with the exception of Great Lakes Maritime. At Great lakes Maritime, sea service must be obtained by sailing of commercial vessels.

The US. Merchant Marine Academy at Kings Point, New York receives all funding from the US. Government. All cadets are required to procure sea service on commercial vessels. Total sea service, due to the fact that the cadets are not part of a structured at sea educational program, is 300 days. All state schools are required to have 180 days of sea service with the exception of Great Lakes Maritime which must have 270 days of sea service. Kings Point is considered a federal military academy similar to Annapolis and West Point. The graduates from Kings Point do not have active duty commitments upon graduation but do have reserve commitments due to the federal funding support received to operate Kings Point.

When attempting to compare the federal military academies you may take a close look at USCG or Annapolis and find that the graduates upon graduation do not step aboard vessels as officers in charge of a watch. The academies send their graduate to additional schooling and training which may last up to one year. The graduates which now have additional training are sent to vessels where they are placed in watch situation in an "Under Instruction Mode" until the pass a level of proficiency that is acceptable to the standards set forth by that branch of service and the Captain of the vessel. The USCG Academy recently sent representation to Massachusetts Maritime Academy to see if implementation of STCW standards could be included into it's curriculum. After spending one day on campus, the Coast Guard Academy Representative found that what was been required under STCW was covered in post graduation in the practical training aspect of

prepare an officer to be "In-Charge" of a watch. There was no probability that time could be found in the existing curriculum to accommodate STCW requirements.

According to Mr. Greg Szczurek who serves as a private advisor to the U.S. delegation STCW subcommittee at IMO for the past two years, a recent graduate of a maritime academy is "not well prepared to stand a watch after receiving their license". He also states that "all would say that the system needs to be improved to make sure that a person can do the job he or she is authorized and paid to do after receiving their license". Mr. Szczurek clarifies his position by saying "as long as it doesn't cost more money or take more time or put the person in a position where he or she might be responsible for training and evaluating the candidates for advancement". This statement is particularly important to the maritime academies due to the fact the guidance and direction from MARAD and USCG on how to implement STCW is requiring all the facets identified above.

There are many similarities in academic programs between all the maritime academies. There is one exception, Great Lakes Maritime who offers an associate degree which can be linked to Ferris State University for an optional Bachelor Degree. The four year maritime academies vary in total number of credits for the degree. The average number of credits awarded is 160. 160 credits can be equated to an equivalent of a five year program wrapped into a four year program.

They all offer accredited four year B.S. degrees. They all require their cadet to take the equivalent of years of academic credits in a four year time frame. All of the maritime academies are accredited. All the maritime academies require the cadets to have no less than 180 days of sea service above their conventional academic program. All cadets must take and pass a three to four day examination administered by the U.S. Coast Guard in order to receive their degrees.

The examination measures a person's proficiency as a sea going entry level officer in the U.S. Merchant Marine. This examination combined with the cadet's academic and character endorsement has been the means of determining whether an individual is proficient to serve as an entry level officer. An individual many not take the examination unless they satisfy graduation requirements and the individual will not receive his or her degree unless the examination has been successfully completed. None of the federal academies require third party testing (U.S. Coast Guard examination) in order to obtain their degree. As a matter of fact, the U.S. Coast Guard Academy does not administer this exam to it's graduates.

It is important to note that there are other methods of procuring an entry level U.S. Coast Guard license. This process in called "License via the Hawspipe". This process allows a person to be eligible for a license by either having at least three years sailing in an unlicensed capacity and taking the exam or having the equivalency sea service and training by way of the Armed Services (Navy or Coast Guard). Both these methods require a detailed assessment of the candidates eligibility requirements and must take the same examination as the cadets from the maritime academies. Presently approximately 90% of the entry level licenses come from the maritime academies while the remaining comes from the "Hawspipe". A recent pole showed that as much as 30% of the officers sailing in one of the national unions were "Hawspipe" officers with only 10% of the original licenses being issued annually were "Hawspipe" licenses. This signifies that the "Hawspipe" individuals have a greater tendency to stay at sea for a longer career than the maritime academy graduates. There is no educational requirements for an individual procuring a license by way of the "Hawspipe" track.

Under STCW (Chapter III, Regulation III/1) it states that all "officers in charge of an engineering watch in a manned engine-room or designated duty engineer officer in a

periodically unmanned engine-room on a ship powered by main propulsion machinery of 750 kW propulsion power or more shall hold an appropriate certificate.

Each candidate for certification shall:

1. be not less than 18 years of age;

2. have completed not less than six months seagoing service in the engine department in accordance with section A-III/1 of the STCW code; and

3. have completed approved educational training of at least 30 months which includes on-board training documented in an approved training record book and meet the s tandards of competence specified in section A-III/1 of the STCW Code.

If it is the intention of STCW to be worldwide standard for determining eligibility for entry level officer positions, then there is a large problem with how the U.S. determines eligibility foe entry level licenses. I recently asked a representative from the National Maritime Center how a "Hawspipe" candidate would be reviewed for meeting eligibility for licensing and the response was something close to the effect of, "I believe that I have the ability to interpret prior military educational training and apply the training against STCW requirements". If this is the case there is a great deal of subjectivity to meeting eligibility requirements for the entry level position.

Third party testing has become an accepted means of outcome assessment of what an individual has retained, at that given moment, for a level of proficiency in a given subject area. The state of Massachusetts is incorporating outcome assessments examination for college graduates entering the teaching profession and for students in grade school. Third party and outcome assessment testing is growing in acceptance and recognition in the U.S. The down side of the outcome assessment testing is that there is a tendency to teach towards what is necessary to pass the examination as well as the test only measures what an individual comprehends at that given moment. But, the testing is a consistent measure of what one knows at that given moment and can be used as an excellent resource to help the instructional institutions to alter their academic programs to better prepare the individuals for the future.

STCW Audit Process

The STCW Code requires that each country have a Quality Standards System (QSS) in order to ensure consistency and compliance with the code. On-site audits will be conducted as an important part of the procedures established by the Maritime Administration and the US Coast Guard for meeting the oversight (QSS) requirements of STCW regulation I/8. The purpose of the visit is to verify that the objectives of the professional core maritime training programs which has been approved by the joint Maritime Administration and Coast Guard STCW Review Committee (RC) continues to be achieved, and that a plan is in place for correcting any deficiencies.

The scope of the audit process will be sufficient to ascertain that the competencies identified are being taught and assesses in accordance with the approved program and to assure compliance with STCW-95 and 46 CFR. The Audit Team will attempt to help the academy assess it's strong and it's weak points. Areas of particular importance to the engineering program at the maritime academies include:

<u>Under the STCW Code</u>

III/1 Officers in Charge of an Engineering Watch

V/1 Familiarization and Basic Safety Training

<u>Under 46 CFR</u>

10.205(g) Basic and Advanced Fire Fighting

10.205(p) Practical Demonstration of Skills

10.304(p) Training Record Book

While the items listed above are designated for the engineering curriculums at each of the maritime academies, the list of

areas which are subject to review during the audit for the Marine Transportation Departments (Deck) is considerably more in depth and intensive. All the areas identified above have an equivalent designation in the deck programs. Additional areas to be reviewed include; Proficiency in Survival Craft and Rescue Boats, Competence in ARPA, GMDSS Training, and Bridge Teamwork. The Audit team will examine all physical facilities including training vessels, laboratories, and simulators.

Audit team composition will be comprised of one MARAD and One Coast Guard representative with at least one of which will be a member of the Review Committee (RC). There will be two members from other academies, preferably one Deck and one Engine. The maritime academy representatives should be senior instructors who have substantial experience sailing on US Merchant vessels. Experience in accreditation audits or other audits is desirable. All travel costs and arrangements are the responsibilities of the maritime academies. The Audit Team may have one optional representative who may be invited to observe the process. The maritime academies shall provide lists to the Audit Team of potential maritime academy representatives to be part of the Audit Team.

The Audit Team will arrive on a Sunday afternoon and depart he following Wednesday. The Audit Team will employ the use of an "Audit Report Form". This form allows for consistency between visits and academies. The form provides the opportunity to allow the Audit Team member to state whether he/she feels that a given area has been satisfied by a yes/no and provides the opportunity to write comments on each of the areas be evaluated and at the conclusion of the report.

The Audit team will :

A. Review Course Files and Training Record Books

B. Meet with Senior administrative personnel responsible for organizing and administering the sea going training program.

C. Interview of deck and engineering students of all four classes.

D. Interviews of instructors and ascertain teaching loads

E. Tour Facilities, labs, simulators, training ship, Etc.

F. Observe practical demonstration skills

G. Hold daily organizational meeting for Audit Team

H. Notify Academy of any deficiencies for possible "on-the-spot" correction

I. Submit brief evaluation prior to departure

All the Maritime Academies will be subject to the audit process and must provide a three month advance notice to requesting a visit. This audit process has strong similarities to the accreditation process that each of the maritime academies must now be subject to in order to satisfy the degree requirements

Impact on Recruitment due to STCW Implementation

The maritime academies are confronted with problems which are noticed when potential students are considering a maritime academy or a conventional college or university. A student looks at the maritime academy catalog and sees five years worth of academic credits crammed into a four year time frame. The prospective students see a calendar year which averages more than 10 months in duration. This means less time to make the necessary funding to go to school. The average number of credits in any given semester is more than what is found in a conventional program. An example of the problem is when a prospective students looks at the fall freshman semester and observes 19.5 credit hours. This does not include time spent on shipboard maintenance or watch standing over the course of the week. A freshman may have 30 hours accounted for between the hours of 0800-1600 Monday through Friday. Some of the prospective students only see that they have very limited free time but the work that is required of them is considerably more than

what may be found in a conventional college or university.

The maritime academies relied heavily on what is know as the "Legacy Factor" for recruitment of students. This meant that students were brought to a school be parents, friends or relatives who were alumni or tied to the school through association. As years have passed and the number of sea going positions have diminished, graduates have found employment in areas other than sea going positions. This has in turn reduced the "Legacy Factor" due to the fact that fewer alumni are seeking career long employment in the sea going positions.

In an incoming freshman class there is considerable credit given to the athletic program in recruitment of students. The athletic department sells a concept to a prospective student that they may be able to start on a varsity team in Division III athletic program due to the size of the school. As much as 40% of the incoming class has an interest in participating varsity athletics. The sales pitch to a moderately good high school athlete that "you may be able to play varsity ball as a freshman" means something to the prospective student. Moderate athletes will not be given the opportunity to make a team at Division II never mind make the starting squad.

A student will not be allowed to enter a maritime academy on athletic prowess by itself. The maritime academies weigh the time management potential of an individual. A student who has time management skills and may not even know it. The prospective student who can participate in athletics, hold down a part time job while keeping a car on the road and doing C+ or B- work in high school has great potential at the maritime academies.

With the implementation of STCW, time management plays a more important role in selecting a prospective student. There are few undergraduate academic programs which require the time management skills which are necessary at the maritime academies. STCW only makes the time management skills more necessary.

Knowing the importance of time management is emphasized at Massachusetts Maritime Academy where student have mandatory study hours Sunday through Thursday evenings. Not all students have the same study habits and due to the rigorous schedule the freshman are faced with and the need to improve their study habits, the mandatory study hours are necessary. The time management skills which are finely honed while attending any of the maritime academies are part of the reason that they are so employable in so many fields. Employers see that they have been christened with time management skills already. The employers can provide the necessary training but do not have to emphasize time management because they have a proven track record of time management.

The schools advertise the challenge of going to sea and the opportunity to sea various parts of the world while being a student. Some schools use the concept of "Learn-Do-Learn" where the "Do" takes place in an at sea environment. The schools promote the growth of an individual and maturity of an 18-19 year old student. The typical profile of a student at any of the maritime academies is an individual who has not left their parents for any lengthy period of time and has done very limited, if any, travel outside of the US.

The schools should not see any results of reduced enrollment due to STCW due to the fact that STCW is not included within the advertising aspect of the schools. The schools state that they are compliant with US and International standards. The schools do not define in detail what is necessary in order to meet the standards. Prospective high school students are more concerned with the immediate work loads and academic requirements and are not likely to pay much attention to something that is abstract in nature.

The recruitment includes the description of the USCG licensing process which is stated nothing more than "An individual must pass the USCG license exam in order to satisfy degree requirements". This simple statement has impact in it's own significance. There are very few academic programs in the country where successful completion of a third party test which last four days in length is a prerequisite for issuance of the degree. None of the US Military academies with the exception of the US Merchant Marine Academy at Kings Point has to satisfy these standards.

The concept of third party testing is consistent with accreditation standard and requirements which look for means of determining "Outcome Assessments". The USCG examinations provide a sound and establish method of determining proficiency of a candidate for USCG license. There is consistency with academic standing and the performance on the USCG license exam. The consistency serves value to the accreditation board as validating the academic system. While there may be some inconsistencies in performance on the USCG License exam and academic standing, they are few and far between.

Each of the schools must submit to the USCG a detailed license application. The process of completing the application includes drug testing, physicals, eye examinations, character references, validation of sea service and satisfaction of all academic requirements. STCW now requires and additional load to the maritime academies that a TRB (Training Record Book) be maintained and completed satisfactorily prior to be eligible for the USCG License. The TRB includes the particulars as described in the STCW Code which must be satisfied in order to have a valid international STCW Certificate Issue. The 1995 STCW Certificate is what an individual must have in their possession effective 1 February 2002 in order to sail a vessel in international waters.

We have a "Catch 22" in that he USCG License is required by US Laws under the CFRs and the STCW Certificate is required under the STCW Code. The USCG will not allow an individual to upgrade or sit for a USCG license unless the STCW Code requirements have been satisfied. Presently the maritime academies have processed a student for USCG licensing without an STCW factor. The check-off list for USCG licensing is intensive and lengthy. Now a candidate for USCG licensing must completely satisfy the TRB as well.

The TRB closely describes the activities that a student participated in during their academic career. Events including Basic Safety Training to Bridge Resource Management are included in the book. The STCW Code now requires the schools to maintain accurate record of the candidates accomplishments while attending the school. A student may satisfy the entire course with an overall passing grade but may have been absent for one lab which is listed in the TRB. That absence now prevents that individual from being eligible for USCG licensing.

Administration of TRB requires close monitoring in inputting of data in order to validate a candidates TRB. The TRB becomes an official document which the graduate will take with them when they go to sea as a licensed officer. This document can be required to be inspected at any port any where in the world.

All maritime academies are competing for a few good men and women to steal a phase from the Marine Corps advertising slogan. With the exception of Kings Point, the US Merchant Marine Academy, a student is expected to pay to attend a maritime academy. All the state maritime academies have tuition, room and board, and a fee structure associated with a traditional state college or university. States which have maritime academies are Maine, Massachusetts, Michigan, New York, Texas and California. In an attempt to increase the residential status the New England states were divided where students applying to Maine Maritime from New Hampshire and Vermont would be allowed in-state tuition status. Massachusetts has a reciprocal

agreement with Rhode Island and Connecticut. There are other states which also given residential status based on the fact that the state does not have a sate maritime academy. States such as Florida are given residential status by all the maritime academies. Florida is heavily into the passenger vessel and Gulf Coast trade. Massachusetts Maritime uses port visits to Florida as a means of recruiting students from Florida.

The state maritime academies have a non residential tuition differential which may be as much as $5,000. For those who have residential status the annual cost vary between $8,000 and $10,000. There is no cost associated with attending Kings Point.

Each of the maritime academies provide open houses during the spring and fall to allow prospective students the opportunity to view the surroundings. Spring open houses are for juniors and fall open houses are directed at seniors. My observations at open house is that the prospective students would rather listen to enrolled students than professors or administrators. Massachusetts Maritime Academy separates parents from sons and daughters after friendly welcome. The parents are allowed to attend a forum discussion with faculty and administrators. The questions that the parents ask are typically different than the questions asked by the prospective students. The prospective students may be intimidated to ask questions to faculty or administrators but have no reservations of asking the question to someone they would consider to be a peer. The parents do not have to worry about their son or daughter being embarrassed by the questions they may ask.

The profile of the prospective students at the maritime academies is similar in that they average 1050 on the SATs. They fall between the 30 and 50 percentile high school class standing. All the maritime academies have had to great creative to recruit the higher academic standing high school students. Massachusetts Maritime Academy has developed scholarship programs for incoming freshman where any where from 25-60 percent of the annual costs can be absorbed through annually awarded scholarships. Students must maintain grade point average for each year in order to receive the scholarship for each successive year. This concept has attracted some very good caliber students who shine. The approach of being a "big fish in a little pond" gives them a resume at the end of their academic program which makes them highly attractive to employers. The competition between employers to obtain these students has gotten to a point where job offers are being made early into the fall semester of their senior year. In some cases five or more job offers are had by some of the top of the class.

Even in the worst of economic trends the maritime academies consistently places their graduates with complete placement of a class with three months of graduation. Employers know the value of those who have good motivational and time management skills. The maritime academies use the high placement heavily in recruitment. I have noticed while talking with prospective students that as much as they are concerned about getting a job after graduation they are even more concerned with the academic load while being a full time student. The prospective student has concerns about the immediate responsibilities associated with being a full time student. The prospective student also does not want to set themselves up for failure. The immediate load expected of a full time student is intimidating to the majority of high school students. Add STCW to what is already intimidating to most high school students and the formula that results is even a harder sell to prospective students. The maritime academies to not have much choice but to say as little as possible regarding STCW. Attempting to educate a prospective student on what STCW means may turn away those who have a strong desire to sail the globe.

Whether it may be enchantment with the ocean, the fact that a relative went to a maritime academy or just the challenge of what a student will face in a military environment, it is a unique and not a common thread that is shared among typical high school graduates. With a generation which is

becoming known as the "WHY" generation having a computer literacy factor higher than the average worker in the US, there has to be a different thought process in recruitment. Using high technology based simulation as a recruiting tool will be more likely to attract an individual's attention than a glossy brochure.

Marketing 101 says that "you must know who is the ultimate consumer" only then can you develop a marketing strategy to sell your product. If the maritime academies look at the academic program as the product and the prospective students as the ultimate consumer, then a marketing plan can be developed for sales of your product (academic program) to the ultimate consumer (prospective student). STCW becomes a factor which must be addressed in order to be allowed to have an academic program. Without STCW compliance there is no program to sell. So STCW must be satisfied and put forward as a necessary component of the whole product which is the degree and sea going credentials necessary for sailing vessels all over the globe.

A simple analogy may be that toy which is advertised on TV. The toy is marketed to the ultimate consumer which may be a child. The toy is advertised as a complete ready to use product. When you go to buy the toy at the described price you see that assembly is required. If assembly being required was openly known and advertised the toy may have reduce sales potential due to the whole and complete truth. The maritime academies have to take the "assembly required" approach in marketing it's program to prospective students. The ultimate consumers do not have to know that STCW is part of the program but that will find out once they have bought the product.

Management of STCW

All parties who must deal with STCW are going to be challenged in managing STCW. STCW brings with it no financial, human or physical resources to the training of entry level officers. Therefore, STCW must be managed with what is available. This means that the existing faculty and administration must work together to become STCW compliant. A TQM approach would be wise in managing STCW, but does TQM work at college or university where the faculty work under a collective bargaining agreement which is in place only 60% of the time? This chapter will address how to cope with managing STCW given the restraints that a college or university may encounter.

"Becoming a Master Manager" references using models as references and learning experiences. Unfortunately, there are few references where a similar situation has occurred which means there is no ideal model to learn from. But, if we take a close look at STCW we will find small amounts of different models wrapped up in STCW, then we may be able to learn from these experiences. STCW requires a balanced approach between the "rational goal model" , the "human relations model", the "open systems model" and the "internal process model". The rational goal model is based on organization effectiveness on dollars and internal process model references professional bureaucracy. Both of theses models compose the management concerns of STCW. There is one very common denominator in STCW and that is the human factor which applies to the "human relations model". It is the human factor which must interpret, implement and comply with the regulations as set forth under the STCW code.

This chapter will attempt to reference the eight roles necessary for becoming an effective manager and cite how these roles apply to managing STCW. There have been many descriptive words attached to STCW. "Moving Target" has been referenced in how to you take aim on something that is continually moving? How can it be managed if is does no have "true shape"? How can STCW be managed if there is not a high degree of "consistency" world-wide?

The basic concept of STCW is to provide a set of standards which can be implemented and enforced globally even though people outcomes are achieved by different methods. All of these factors will be taken into

consideration when discussing the eight roles. The US Maritime academies see STCW as unclear with counteractive values and this places STCW clearly in the Negative Zone. We must remember that no one ever said that the US was improperly training seafarers nor was the US Coast Guard licensing system a poor means of determining proficiency. In order for STCW to be managed it must come out from the Negative zone.

Under the "Open Systems Model" there is the Broker and Innovator. I chose these first because it seems to be where some of greatest concerns exist in dealing with STCW. STCW is factual and not going away. The US Maritime academies may have been mislead in thinking that STCW would not have impact on how they educate men and women for the sea going profession, but the reality is that STCW is here to stay.

While many of the roles could be considered key in managing STCW, I believe that perhaps the greatest role to deal with is that of the innovator. This person must facilitate change and adaptation. The reason that this role is so crucial is that STCW is all about change. Unfortunately, the innovator needs some conceptualization of what needs to be done and it is hard anyone to clearly visualize STCW.

Many people are trying to paint a STCW canvas and some people are using a four inch paint brush while others are using a single human hair. Those who are attempting to paint the STCW canvas are senior experienced marine education professionals who spend much time convincing others that there painting better describes what STCW is all about. In the US, there is no single person who assumes the role of innovator. Many people are attempting to fill that role but no one has clearly been identified as the innovator for this initiative.

The broker role is very evident presently and will become a more significant role as time progresses. Mobilizing people is a task for the broker given restricted resources and be creative is a cumbersome task. Each of the Maritime Academies must have a designee who play this role. The person who plays this role must be able to convince that the position that the administration has taken regarding STCW is the right position and the remainder of the school will march to the beat of this drum. The broker role is a most powerful one, where it may be easy to make mistakes but they will not be mistakes due to omission. The broker role is one of ownership and true commitment. Only by taking ownership of this initiative will others follow. The broker role in STCW can be powerful as long as you have a team to work with you and not against you. The five sources of power; legitimate power, personal power, expert power. opportunity power, and information power all come into STCW. Due to the complexity of this issue, a true broker must display a balance of all these powers in order to have a positive team environment while accomplishing a given goal. "A good broker knows where to find the answers" is a quote from "Becoming a Master Manager" and is ever so true in dealing with STCW. Only those individuals who have answers will be seen as brokers. Who are the brokers in dealing with STCW?

The broker must have a good network and in the case of STCW this means networks between the US Regulators, the maritime academies, the shipping companies, and IMO. The broker role then starts leading towards the role of the facilitator where the role leans towards the Human Relations Model. Teams must be built and decision making plays an all important role. If it takes a team approach for compliance of STCW then a team must be built and lead by someone that the team has true confidence in. The team leaders must allow the team to express their opinions while keeping the team pointed in the right direction. This facilitator must build cohesion and trust while keeping interpersonal conflict to a minimum. This role is particularly hard due to the differences of interpretation found internally as well as externally within a maritime academy. Each maritime academy has individuals internally who have fostered their own opinions on STCW as a result of

communications between these individuals and US Regulators and representatives from other maritime academies. Each individual who has willfully taken on a role where self initiative has made them more aware of STCW issues feels that they are the facilitator for their respective school. he facilitator role then leans towards the role of the mentor.

While the mentor role falls under the human relations model, it has less significance in dealing with STCW. If the role of the mentor is to manage with openness and sensitivity, then the monitor role plays less importance in the STCW issue. In order for management to accomplish the given task of compliance with STCW, then an assertive approach must be taken by management. All the maritime academies have faculty who are experienced professionals with a vast amount of sea going experience. These faculty train their peers from the private sector and must have a high degree of confidence in themselves in order to earn the trust and respect of their peers. The trust and respect which they have earned is obtained only through strong personalities and commitment to the profession. These faculty are mentors to undergraduates where need to communicate effectively as part of the educational process. The faculty who play the role of assessor and examiner under STCW become mentors more so than those responsible for managing STCW. A key factor is that the mentors must believe in the position which management has taken regarding STCW is order to have the confidence necessary to be a good mentor.

The faculty become monitors due to the efforts required to instruct and access the students. Management becomes monitors due to the role that they play in preparing for the STCW audit. Management must collect the necessary data which satisfies STCW. A student will graduate and must have in their possession the proper documentation for stepping aboard a vessel. This means all information required under STCW must be closely monitored by management to insure that a graduate can work as a seafarer. Management must monitor the STCW program internally to prepare for audits and ensure compliance under the STCW code. The STCW audit procedure will take place every two years to provide guidance to the maritime academies to ensure that the graduates will be properly documented to step aboard a vessel anywhere in the world.

The monitor role leans towards the coordinator role where individual signatures for tasks required by STCW are properly recorded and maintained. This process requires having the necessary resources to record and maintain this information. An individual who is designated by the administration, must be responsible for the maintaining of STCW records.

Massachusetts Maritime Academy has designated the registrar who must keep all academic record at our school. The registrar has an assistant who becomes clerk-of-the-works for the record keeping aspect of STCW. This same person becomes the liaison between the local US Coast Guard Regional Exam Center (REC) for documentation processing. All information and record keeping is processed through this one individual. This person plays a key role in the effectiveness and record keeping for STCW. The system that we are incorporating includes an electronic record keeping system where a faculty member turns in a grade sheet to the registrar at the end of a course. As long as the student passes this course the record keeper will electronically record the signature in the Training Record Book for each individual who has successfully completed this course. We have been for fortunate for one faculty member to take the necessary initiative to custom build the software to make electronic record keeping possible. He has worked many hours in support of building a program so this maritime academy will be STCW compliant. He has done so, looking for little monetary compensation, and has truly displayed the necessary drive required by a school in order to build a program which will make the school in compliance with STCW.

The Rational Goal Model combines the role of the director and producer. These two roles are linked very closely together and the roles are taken on by management. Management has been attempting to foster a productive work environment while building and designing a system which will make the school compliant with STCW. The academic dean plays both these roles at our maritime academy. The registrar reports to the dean and all academic come under the jurisdiction of the dean. Where STCW compliance is based on training received either in a classroom, laboratory, simulator, small training craft or aboard an ocean going vessel the course structure is the responsibility of the academic dean. We are fortunate that the academic dean understands the issues associated with STCW implementation. The dean has been given full confidence from the president who also has a sound grasp of all issues that deal with STCW. I believe that we are fortunate in that the leaders within the management structure want to be informed as to what is transpiring internally and externally with STCW. My conversations with other maritime academies indicate that leadership does not want to take on the role of producer and director and leaves these roles to the faculty.

In providing a synopsis of the eight roles that a maritime academy must play in support of STCW it is imperative that the following occur. Upper level management must play the roles of producer and director with firm conviction and commitment to this initiative. Only of the true commitment is made by upper level management can an entire institution be expected to support the STCW compliance initiative. The monitor and coordinator roles need to be shared between management and faculty. A good working relation ship needs to be fostered so a confidence and support of each parties effort yields a good Training Record Book. Both faculty and management need to play the roles of facilitator and mentor. Perhaps the word which plays the greatest role is flexibility of management, faculty and the regulators. Without flexibility there can only be conflict. STCW is going to evolve over a five year period. Maritime academies cannot be expected to have all issues cleanly resolved instantaneously. Conflicts will occur but conflict need resolutions so the team can meet the objective in satisfying STCW. No maritime academy should expect to have all the wrinkles worked out prior to 1 February 2002. Through cooperative efforts where information in shared openly and flexibility in any discussion process STCW can be meet, but, this pertains to all parties including the regulators, schools shipping companies and IMO.

Anticipated Outcomes

This chapter will focus on points made in this document and come to a conclusion as to how STCW will impact the US Maritime Academies. First a brief review of the facts:

- STCW is a reality.
- STCW goes into full implementation as 1 February 2002.

- The US Regulators have interpreted the STCW Code and made the decision the US will become a yard stick for other countries to measure their STCW programs against.

- No funding at any level is available for implementation of STCW

- The US seafarer pool is diminishing with little hope to regain the necessary seafarers necessary to staff the US vessels, both in peacetime and in time of national emergency.

- STCW does and will always have a high degree of subjectivity.

- STCW does not have any allowance for a degree granting marine educational process.

It must be clearly stated that each US Maritime Academy recognizes STCW and the US Regulators which govern STCW. Each maritime academy does intend to comply with

STCW given the existing resources the school has to work with. The position and interpretation of STCW by the US Regulators has a high degree of subjectivity and the decisions made by the US Regulators will determine the future well being for the US Maritime Academies.

The national defense of the United States of America is in great jeopardy based on position that US Regulators have taken regarding STCW. The position of the US Regulators regarding STCW must be carefully analyzed. It is only with close dialogue between the US Regulators and those who are impacted by STCW that better understanding of STCW will occur. Failure to maintain this type of dialogue will have grave results for the national defense of the United States.

In looking at the present indicators such as statements and positions being made by those who are impacted by STCW the picture being told is grim. The US Regulators have sent a clear message that there will be little if any recognition for the degree granting aspect presently mandated by MARAD. MARAD has taken a position that funding for replacement school training vessels must be acquired by the school as presently observed in the acquisition of the replacement training vessel for Massachusetts Maritime Academy.

Globally there is a 4% shortage of seagoing officers according to the Bimco-International Shipping Federation manpower update recently released. This shortage will allow for seagoing officers to advance more quickly to a degree where the senior staff onboard a vessel has an average of ten years of sea service. This paper could easily be written as "STCW Impact on World Wide Shipping" and the conclusion would be the same.

In conclusion, this paper has proven to me, as a result of the research required, that there is good probability that STCW will be taken to the congressional level. The present position of the US Regulators on STCW will be the equivalent of noose being slowly tightened around the necks of the US Maritime Academies and the present pool of seafarers.

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