TESTIMONY BEFORE
THE
U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON COAST GUARD AND MARITIME TRANSPORTATION

Primary and Secondary Maritime Education in America
"Onboard to a Future Career"

October 17, 2007

Captain Arthur H. Sulzer USN-Ret

Board Member
Maritime Academy Charter High School
Philadelphia, PA

2 Peter Gamble Lane
Glen Mills, PA 19342
484-459-7726
Sulzmarine@aol.com

Mr. Chairman and distinguished members: it is a great pleasure to appear before this committee. As a second generation mariner, whose father served in World War II and who has worked in the marine industry his whole life, I have witnessed and felt first hand the effects of America's decline as a ship building and ship operating nation. As the focus of this hearing is the shortage of trained mariners, I must admit I find this heartening.

If the shortage of mariner's, and increasing wages are signs, then hopefully the decline of the maritime industry may be nearing an end and employment opportunities are on the upswing in this industry so critical to our nations security. The maritime higher education (collegiate) and professional (union/employer) system in the U.S. is the finest in the world and enrollment is up at all of the schools. As is the case with so many of our American enterprises, foreign nations have noticed and are copying our system of maritime education and are employing graduates of this system. As is the case with any successful endeavor, be it sports, business, entertainment or the military, the success of that enterprise ultimately comes down to attracting well trained, conscientious, talented individuals. The maritime industry is no different.

I am going to discuss maritime education at the entry and crew level where the greatest shortages exist and appear to be growing. The reasons for the shortages are complicated and as my time is brief I will try to summarize from my personal experience and results of my research. I will do this in five sections as follows:

- Maritime Secondary Education (Historical)
- Current Issues and Problems with Manpower
- Maritime Primary and Secondary Education (Current)
- Outcomes of Maritime Education
- Maritime Education Assistance

Maritime Secondary Education (Historical)

Most people are familiar with the image of the cabin boy serving tea to the Passengers on the "TITANIC" or the powder monkey passing shot to the gunners in movies such as "Master and Commander". These are accurate portrayals of how marine education had been conducted for hundreds of years. It was very much a hands on experience, learned aboard ship for all officers and crew.

The picture began to change in the late 1800's with the opening of the U.S. Naval Academy 1850's and opening of the first civilian maritime school in New York City. The New York Nautical School was open aboard the USS St. Mary in 1874, followed by school openings in Philadelphia in 1889 and Boston in 1891. During this period, ships were evolving from sail to steam and becoming more sophisticated. A number of accidents indicated a need for a better method of mariner training than the traditional on board apprentice approach provided. This is an important point to remember in that it is extremely relevant to the education of mariners today that also needs to evolve.

This system to educate the officers remains in place today with additional schools opening in the 20th century in California, Texas, and Michigan. The federal government opened the U.S. Merchant Marine Academy at Kings Point in 1941. The education of unlicensed

seamen (crew) was done on the job in the traditional manner of the ships apprentice up until the outbreak of World War II. The requirements for large numbers of trained mariners necessitated a quicker method than the apprentice model provided. As a result of the war a number of seaman training centers were open around the country. These centers were closed after the war.

In 1946, the War Shipping Administration transferred the Liberty Ship "SS John Brown" to the New York City Board of Education. The "Brown" served as a vocational high school until 1982. In a period of 36 years, over 5000 young men, in addition to receiving a high school education, acquired maritime training in the deck, engine and stewards departments. Many of these graduates went on to a career at sea, in the navy, shoreside maritime industry or attended a maritime academy.

In 1966, the Marine Engineers Beneficial Association (MEBA) opened a school in the Southern Hotel in Baltimore, MD. The program designed for high school graduates trained third assistant engineers in an apprentice program of formal classroom education and time as an apprentice at sea. This was a 3 year non-degree program in contrast to the 4 year degree programs offered at the state and federal academies. The school produced over 2,035 graduates from 1966 to 1986, the year it closed.

In the 1967's, the Seaman's International Union (SIU) created the Paul Hall Center for Maritime Training in Piney Point, MD. Attached to the center is the Seafarers Harry Lundeberg School of Seamanship that trains entry level seaman. The school enrolls high school graduates between the ages of 18 and 30 and puts them through an apprentice program to qualify as entry level seaman in the deck, engine and stewards department. The program consists of classroom training as well as shipboard training. The school has trained over 21,000 graduates and remains in operation today.

In addition to the Maritime Academies and Lundberg School, all of the maritime unions, MEBA, SIU, AMO and MM&P operate state of the art training facilities supported by their contracted shipping companies. These schools provide continuing education and upgrading courses for the union's members.

The preceding was a brief summary of Maritime Education in the United States at the secondary and post secondary level.

Current Issues and Problems with Manpower

The problem with a shortage of mariners has been increasing over the last few years. There are many reasons for this situation that many of my colleagues here today have covered in depth. I will restate them briefly since they will still remain issues for the foreseeable future to any individual considering a maritime career.

Ageing Workforce

Historically, the maritime industry has been cyclical; unfortunately conflicts are good for the merchant marine. During World War II, Korea and the Vietnam War there was a large influx of mariners and increased shipping with a small spike in the first Persian Gulf War in 1991. These mariners are gone or are rapidly leaving the industry. They were also primarily deep sea mariners versus brown water or coastal mariners where the shortages are now developing.

Compensation

The composition of the mariners has not kept pace with and has actually declined in comparison to many industries. As an example, in 1974 a seagoing marine engineer made 3 times the salary of a shore side engineer. Today these engineers may earn almost the same pay with a small premium being paid for going to sea of 10-20%. The seagoing engineer has less chance of upward promotion and compensation growth in addition to being away from home 6-7 months a year.

Another result of the years of depressed shipping of 1970 and 1980's is that many graduates from the maritime academies had to seek employment in shoreside industries. Employers were quick to recognize the outstanding education and abilities of these young men and women with this unique education. These same employers went back to the source of talent and as a result, these schools have a near 100% employment record for their students by graduation. The many shore side opportunities, has made seagoing employment less attractive.

Documentation & Renewal Requirements

The International Standards of Training and Watch Keeping (STCW 95) came into effect in 2000. In addition requirements for drug and alcohol testing, medical standards and the post 9/11 security requirements have all had their affect. While no one is arguing that better training, drug and alcohol testing, medical standards and security are not important, they have all placed additional financial and administrative burdens on the mariner. I have heard time and again the same reply from mariners when asked if they are going to renew their documents; "No" that they are not because of too much paper work and high costs.

Maritime Heritage

This issue is the least talked about and the most overlooked. This is one area I believe we can address and correct through public awareness. The American public has largely forgotten that we are an "Island Nation" dependent on waterborne commerce for our daily needs. Most people are unaware of how far that camera, bottle of wine or pair of pants had to travel to arrive on their store shelf.

Traditionally, America's seafarers came from countries or families with a seafaring tradition. These area's typically included Europe, the Caribbean or certain regions of Africa, Asia or the Pacific. At the entry mariner level, they were often 1st generation immigrants.

Immigration policies of the 1990's and security concerns and requirements for mariners to have citizenship have all reduced this supply of individuals.

The cyclical nature of shipping, declining wages and separation from home has not stimulated mariners to pass the "Sea-going Tradition" on to their children. Attend a maritime academy alumni or union meeting and ask by show of hands how many attending have children following in their career path the number is low.

I believe we need to create a new generation of mariners, if not from immigrants or the children of mariners then from a new source of individuals through education and awareness. That group is the underserved urban students from our cities. A maritime education can provide the gateway to career that offers steady employment, excellent pay, further education and a solid future.

Primary and Secondary Maritime Education (Current)

In 2001, the Maritime Administration recognized that a shortage of mariners was starting to develop. A conference was sponsored by MARAD and the U.S. Coast Guard entitled "Maritime Careers Creating an Action Plan for Recruiting and Retaining American Mariners". The conference was held at the U.S. Merchant Marine Academy. Among the topics examined was "Public Education and Awareness of the Maritime Industry". A follow up meeting on implementing action plans was held in 2002.

Since those meetings, unknown to many in the industry the seeds sown have taken root and are flourishing maritime institutions at the primary and secondary education level have begin to educate and graduate a new generation of mariners from our urban cities.

The process of maritime education has come full cycle and these programs have the look and feel of their predecessors, the New York Nautical School of 1874 aboard the St. MARY and the New York City High School of 1946 operating aboard the "SS JOHN BROWN".

Since 2003, I have been involved as a founding board member of a maritime charter school in Philadelphia. The school opened with 125 students and has expanded to over 700 students it will graduate the first seniors in 2008. In addition to this experience, I am completing my Ed D at the University of Pennsylvania Graduate School of Education. My research and dissertation is on and titled "Maritime Tactile Education for Underserved Urban Students in America", "Sailing to Success". The result from both of these projects is that I have had the opportunity to both participate and conduct research on the various maritime programs that are developing across the United States.

At the present time, there are approximately 16 marine or maritime themed, elementary, middle and high school open or opening in the United States. The average size of the schools is around 350 students. These schools are located around the country in major U.S. ports on the Atlantic, Gulf and Pacific Coasts as well as on the Great Lakes.

There is a difference between marine and maritime which is often confused. The marine schools have programs that deal with oceanography, biology and marine sciences. These schools have generally been in operation since the 1990's.

The maritime schools deal with subjects, training and skills required to work as a crew member on a documented vessel. In addition, there are several that offer training to work in the maritime industry ashore such as a marina, shipyard or at a port facility. In addition to these high schools, several community college and industry sponsored vocational schools have opened with programs for high school graduates. The schools all vary greatly in structure. I have grouped them together by several distinct classifications as follows:

Program Style: This deals with the manner in which marine or maritime material is presented to the students.

1) Integrated: This is what I call the "Song of the Sea". The material is integrated into all state required courses where possible. As an example, in 5th grade, the arrival of the pilgrims is covered in the American Government curriculum. The Pilgrim's vessel "MAYFLOWER" is mentioned and that is usually the last the students hear of her. In an integrated curriculum such topics as navigation how they found their way here, how did they live aboard ship, etc are expanded upon. Another example is in American Literature a novel such as Dana's "Two Years before the Mast" or Melville's "Moby Dick" may be substituted for a more traditional novel. In math classes navigation examples can be used to illustrate basic mathematic principals. The purpose of integration is to make students aware of the maritime history of our country and to get them familiar with nautical terms and customs, bearing in mind these are mostly urban students with little or no previous marine exposure. This approach will serve to open their minds and make them receptive toward considering a maritime course of study in the higher grades.

2) Vocational: The employment in various maritime industries requires specific USCG documentation that of itself requires specific training or sea service. The training must be Coast Guard approved as must be the instructors. The schools that offer this type of training to their students will prepare them to obtain the proper documentation prior to graduation, and to go to work upon graduation on a vessel or for a marine employer ashore.

3) Apprentice: These programs are similar to the vocational but they require in addition to course work, a period of time be spent at sea or working with a maritime employer. These programs exist at both the high school and post secondary education levels.

4) Academic: These programs are the most similar to traditional high school programs they provide a strong academic base in math and science required by the maritime colleges or service academies. In addition students take electives in navigation, seamanship or engineering. This program will give the students a leg up at college on classmates who are only being introduced to these maritime subjects at the collegiate level. This approach will provide urban students breathing room to concentrate on math and science courses, areas that they often struggle with.

Program Type: There are several specific program types that are in use in various parts of the country, schools may use a mix depending on the interest and employment opportunities available in their region or city.

1) General Maritime Studies: Provides a broad overview of the various marine, maritime and intermodal careers. These programs are designed to spark an interest in the students to prepare themselves for entry to a specialized academic program upon graduation at a community college, vocational school or maritime college.

2) Industry Specific: A particular industry i.e.: fishing, marina, or tug-barge operator may become involved with a school and sponsor/conduct specific training required for employment with that industry.

3) Company Specific: A particular company, as an example; Northrop Grumman which has a program with their Newport News Shipyard. The company may set up an apprentice program in the region or with a specific high school. The program will usually qualify students for entry to the shipyards apprentice program after graduation or for employment with that company.

4) Regional: A program may be set up by a local university, state or federal agency the offers material to all regional schools to use. This material would provide information about maritime history, the environment and transportation. An excellent example of this is the program developed by the Great Lakes Maritime Research Institute www.glmri.org

There are a variety of marine and maritime schools that have opened in many cities around the country these schools follow one or more of the program styles or types that I have identified, a detailed list is provided as Appendix (1).
The following schools offer examples of some of the various styles and types of programs I am researching.

***New York Harbor School** (Grades 9-12) Brooklyn New York*

Started in 2003 the school is a part of the N.Y. Department of Education. The school was initially funded by "New Visions for Public Schools" this non profit group attracts foundation money to start small theme based schools. There are currently 96 new vision schools in New York City. The school is one of four theme schools housed in an existing city high school in north central Brooklyn an economically depressed area. The school demographics are 50% African American and 50% Hispanic. The school has a relationship with South Street Seaport Museum located on the Manhattan waterfront and uses their facility for on water training as well as the museums sail training vessel. The school has also developed a partnership/mentoring program with SUNY Maritime College in the Bronx. The college provides maritime course material, visiting instructors, and various academic and leadership opportunities to the school. This year two of the first graduating students of the Harbor School are attending maritime college. Plans are being developed by the school to move to vacated USCG facilities on

Governors Island in the future. Additional information on the school can be found at www.nyharborschool.org

Palm Beach Maritime Academy *(Grades K-8) West Palm Beach Florida*

Started in 1999 the school is a primary school grades K-8 with 400 students. It is a charter school that is tuition free and operated by the Palm Beach Maritime Museum, under a performance contract with the local school district. The schools focus is on maritime studies, science and technology. Character education and life skills are also an integral part of the curriculum. The former USCG facility on Peanut Island is used for training along with various historical facilities operated by the museum. The school has a uniform policy and a unique requirement that parents of students attending invest a minimum of 20 volunteer hours with the school. In 2006 the school was one of only 28% of state schools to earn an "A" for achieving Annual Yearly Progress (AYP) under "No Child Left Behind" legislation. Additional information on the school can be found at www.pbmm.org

Maritime Academy Charter High School *(Grades 5-12) Philadelphia Pennsylvania*

This school opened in 2003 with 125 students grades 5-7 in temporary facilities; in 2006 it moved to a permanent location at the Army's former Frankfort Arsenal site. The school presently has over 700 students' grades 5-12 with the first class graduating in 2008. Its demographic mix is 70% African American and the balance a mix of Latino, Caucasian and Asian students. The school operates as a traditional middle and high school, in 2007 the school made AYP for the first time. Currently the middle and high school the programs under development are both themed for the lower grades and general maritime studies for the upper grades. The school is developing a model apprentice program with K-Sea Shipping a national tug and barge operator, and a partnering/mentor program with SUNY Maritime College. The long term plans include a program of maritime studies that offer vocational, apprentice and academic tracts as an option for students. Additional information on the school can be found at www.maritimecharter.org

Bayfront Center for Maritime Studies (Grades K-12) Erie Pennsylvania

This is a non profit community based organization opened in 1998 whose mission is to design and deliver hands on maritime related educational, vocational and recreational opportunities to members of the community. The center has provided these experiences to over 10,000 students from the surrounding township school districts. The center works with school districts or individual teachers to provide a maritime learning experience that fits into whatever curriculum they are using. Programs include environmental studies, maritime history, boat building, sailing, and navigation. The center operates a 41' sail training vessel. Additional information on the center can be found at www.bayfrontcenter.org

Maritime Industries Academy *(Grades 9-12) Baltimore Maryland*

The school is a private school located inner city Baltimore with 300 students, it opened in 2003. The school is funded by the Baltimore Public School District under a special program and

is under central administration control. The school operates a Navy Jr ROTC unit and has had a navy career focus option for students. In 2007 it started to develop an industry partnering curriculum with local maritime companies such as Vane Brothers and Moran Towing, as well as the Maryland Port Authority and others. The school has been working with faculty at the Maritime Institute of Technology and Graduate Studies (MITAGS) the Master Mates and Pilots union training school to utilize the school facilities for their students. Additional information may be found by calling 443-324-0790

Mar Vista High School *(Grades 9-12) Imperial Beach California*

The high school in partnership with Navy's Military Sealift Command (MSC) started a program in 2002. The program is funded under California's Regional Occupation Program (ROP) which provides funds to schools for vocational training and funds from the Navy. Since opening over 250 students have completed training and many have gone into the maritime industry. The program is designed to have students secure entry level USCG documents as wiper for the enginroom or ordinary seaman for the deck department. The students in 11th and 12 th grade follow a regular high school course of study they use their elective courses to take the US Coast Guard mandated training. The training is provided to the school by an outside contractor Training Resources Ltd that has the necessary course approvals. The training is done at the school or at the TRL facility. The partnership with MSC under its Cadet Shipping Program Coordinator is designed to provide prospective MSC employees the required sea service and is the same program utilized by the Maritime Academy's for their shipping program. The school sends groups of 10 students with a school instructor to a MSC ship in the summer of their senior year for several weeks. Students that complete the MSC program become eligible for hire by MSC upon graduation, and several are currently working for MSC. Additional information the school can be found at www.suhsd.k12.ca.us/mvh or contact MSFSC Cadet Shipping Coordinator at 757-417-4223.

Since the MARAD 2001 Conference several post secondary education programs have developed around the country. These programs are of the apprentice (classroom on the job training) or purely vocational (classroom only) type. The programs are run in conjunction with a community college, maritime employer, vocational school or at a union/employer school. The specifics of these programs while covered in my research have been or will be discussed by my colleagues today. As a point of information the following is a partial list of these programs and their web sites.

Community Colleges

Marshall Community and Technical College www.marshall.edu/ctc
Huntington West Virginia

Tidewater Community College www.tcc.edu
Norfolk VA

Seattle Community College www.seattlecentral.org/maritime
Seattle WA

Clatsop Community College www.clatsopcollege.com
Astoria Oregon

Kingsborough Community College www.kingsborough.edu
Brooklyn NY

Cape Fear Community College www.cfcc.edu/programs/ma_tech
Wilmington NC

Union/Employer Schools

Paul Hal Center for Maritime Education www.seafarers.org
Piney Point MD

Pacific Maritime Institute www.mates.org
Seattle WA

Employer

Global Maritime and Transportation School "TUG U Program"
www.gmats.usmma.edu
Kings Point NY

Maritime College www.sunymaritime.edu
Bronx NY

Massachusetts Maritime Academy www.maritime.edu/cmt
Buzzards Bay MA

Maine Maritime Academy http://conted.mainemaritime.edu
Castine Maine

Vocational

Northeast Maritime Institute www.northeastmaritime.com
Fairhaven MA

Fremont Maritime Services www.sea_safety.com
Seattle WA

Chapman School of Seamanship www.chapman.org
Stuart FLA

Training Resources Ltd www.maritimetraining.cc
San Diego CA

Outcomes of Maritime Education

My early research has shown a number of positive outcomes from the primary and secondary maritime education programs that are in operation around the country.

Student/Parent Interest: While Americans may take waterborne commerce and the maritime industry for granted, but when presented with information about maritime education and its benefits there is strong interest in the programs and all the schools have full enrollment and a long waiting list.

Graduation from School: While the data is not large at this point, since the programs are all fairly new, it appears that students who enroll in the maritime programs are tending to stick with them.

Comportment: The quasi military nature of the maritime industry with its requirements of command, responsibility, accountability, scheduling, uniforms, and required training is being transferred to the students. It has had a positive effect in the manner in which they behave and carry themselves across their entire school program.

Academic Grades: There are strict requirements set by the USCG on attendance and grades for the required maritime training, merely showing up in class will not earn a passing grade. Once the students realize this, they attend classes, study the material and earning passing or high grades. For many this is a new experience. The wonderful result of this is that when they attend their other academic classes during the day they are not switching their brains off and their grades in the other classes are also coming up

Employment upon Graduation: Since most of the schools are fairly new and only starting to graduate seniors recently and in small numbers, the data is limited, and more work needs to be done. It would appear from the data available and requests from employers for the school graduates and offers of summer internship programs that employment will be strong and wages and benefits are raising.

Maritime Education Assistance

At meetings I attend when I mention maritime education for primary and secondary students there is always a positive and overwhelming response with a slew of questions on how is it working, how can we get a maritime school in our city, how can my son or daughter get a maritime education?. Those of us who are products of the system know it's the best kept secret in America, which is a shame.

I believe that every city in America that has a connection to water be it ocean, lake or river, whether it's a commercial interest or recreational interest could support a maritime school or offer maritime programs in their public schools. There is certainly room for growth and no shortage of interested students.

I would hope that by my invitation to your committee hearing and my testimony today that I have excited the members of the committee about this unique opportunity to

assist America's urban students to a better education and future. I offer the following as some suggestions for what the committee might do to increase maritime awareness, and assist those maritime schools that are operating.

Support and promote conferences on maritime careers and education for primary and secondary schools, such as the conference being sponsored by the Ship Operations Cooperative Program (SOCP) and its industry partners on April 1-2 2008 at the Maritime Institute of Technology and Graduate Studies (MITAGS). Further information may be found at www.socp.us

Fund a grant to develop programs for other maritime regions around the country Atlantic, Gulf, Pacific Coasts and Inland Waterways like the program developed by the Great Lakes Maritime Research Institute in conjunction with University of Wisconsin (Superior) and University of Duluth for the Great Lakes Region. Further information on the program may be found at http://wupcenter.mtu.edu/education/great_lakes_maritime/index.htm

Encourage development and availability of video material that highlights the various maritime careers, such as tug-barge or shipbuilding industries. A single source point of contact for this material would be helpful to schools.

Review age restrictions for working on marine vessels that impact the development of apprentice programs.

Continue or increase funding for maritime vocational training programs at the federal level and encourage states to develop or continue such programs as California's "Regional Occupation Program" (ROP)

Support and encourage federal agencies such as the Maritime Administration, U.S. Coast Guard and others to continue to work with local existing maritime schools. And to work with local municipalities, port authorities and maritime enterprises to develop partnerships to assist in opening a maritime high school in their port.

Create and fund a National Cooperative Research Program to coordinate current and planned Marine Transportation System (MTS) related research by government agencies, educational institutions, and the private sector.

Foster research and development in the area of primary and secondary maritime education.

Encourage development of public awareness programs about our maritime transportation system and maritime education programs.

Closing

I see a very positive future for maritime education in the county's primary and secondary schools. Its form may be a fully developed career path program or just the inclusion of maritime history, navigation, logistics and transportation in the standard curriculum subject areas such as math, history and social studies. My early research has shown that these maritime programs are having very positive affects on the underserved school children in our cities.

I believe those students participating in these programs will come away with in addition to a bright employment and economic future an awareness of our maritime heritage, and the global world we live in.

Arthur H. Sulzer
Mariner

Appendix 1 Primary and Secondary Maritime Schools

East Coast

1) Maritime Academy Charter High School Philadelphia PA 215-535-4555
2) Maritime Industries Academy Baltimore MD 443-324-0790
3) East End Maritime Institute Green Port NY 631-477-2930
4) Marine Science and Technology High School Miami FL 305-365-6278
5) New York Harbor School Brooklyn NY 212-748-8727
6) Annapolis High School Annapolis MD 410-266-5240
7) Maritime Academy of Science and Technology Sandy Hook NJ 732-291-0995
8) Palm Beach Maritime Academy West Palm Beach FL 561-547-3775
9) South Broward High School Dania FL 754-323-1811

Great Lakes

1) Maritime Academy of Toledo Toledo OH 419-244-9999
2) Western New York Maritime Charter School Buffalo NY 716-842-6289
3) Bayfront Center for Maritime Studies Erie PA 814-456-4077

Gulf Coast

1) 1)New Orleans Maritime High School New Orleans LA 504-827-6829

West Coast

1) Mar Vista High School Imperial Beach CA 619-628-5700
2) Grant Maritime Technologies High School Sacramento CA 916-286-4976
3) Port of Los Angeles High School San Pedro CA 310-832-9201