MARITIME LOGISTICS PROFESSIONAL

Q3 2016 | *Volume 6, Issue 3*
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Q3 2016
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Shell; Photographer: Judy Patrick

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Shell

ON THE COVER

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Image: Shell

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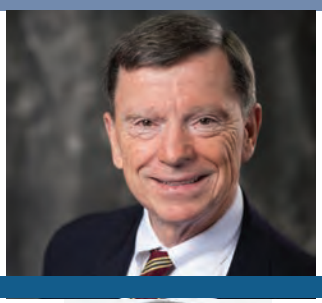

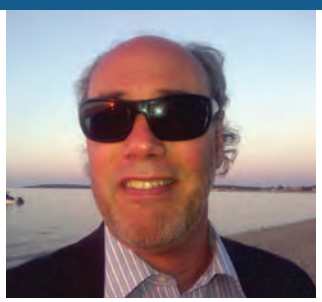

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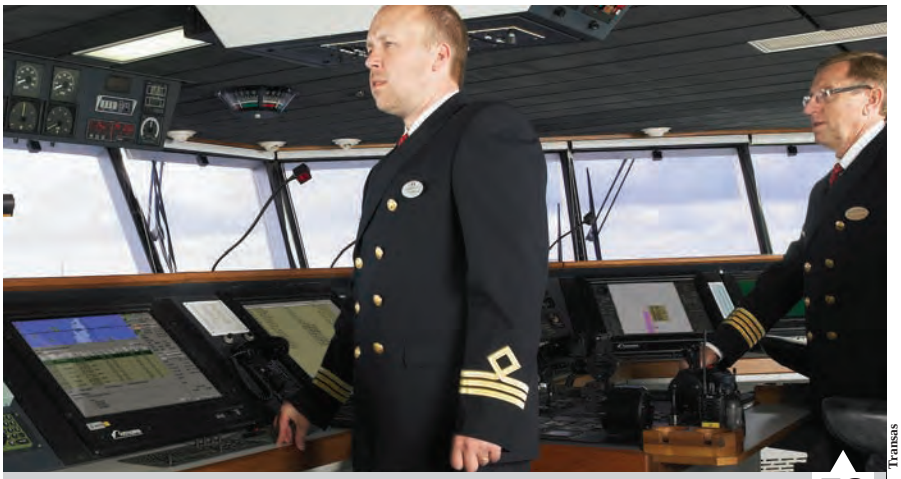

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Editor's Note

Maritime Logistics Matter

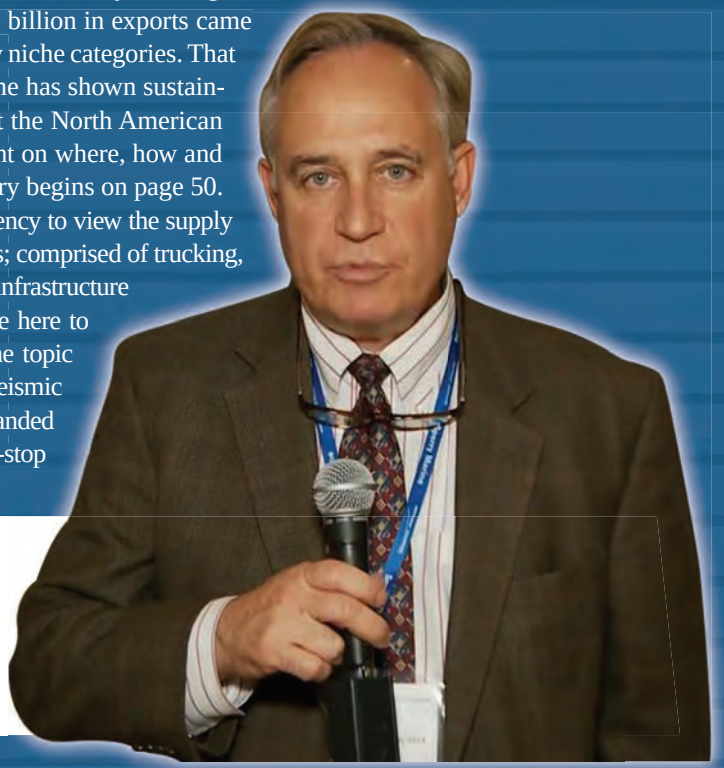
It is only appropriate that *Maritime Logistics Professional* magazine makes its debut at SMM, the world's largest and most diverse maritime trade exposition. The change in name reflects shifting industry variables and represents an exciting course alteration that keeps us firmly in the maritime space. That's because we – along with you – recognize that the role of logistics, for ocean commerce and the intermodal equation that connects it to the supply chain, simply cannot be understated. At the same time, and as we expand our publishing frequency to six editions annually, *Maritime Logistics Professional* will tightly focus on what has become the most fascinating and equally important aspect of waterborne commerce.

Six years after rolling out this unique publication, and as we ramp up to provide you with two additional print editions annually, our folio immediately captures the logistics of ocean shippers in an increasingly complicated regulatory climate. U.S. Federal Maritime Commissioner William Doyle leads that discussion with a primer on the delicate logistics of regulating the supply chain. Arguably one of the least well-understood, perhaps most obscure regulatory bodies, the FMC is also one Washington's most important. That story begins on page 34.

The arrival of September also typically signals that the 'dog days' of summer are almost over. As we look ahead to cooler temperatures, shipbuilders also hope that better times are just over the horizon. Sadly, and with idled containership capacity approaching one million twenty foot equivalent units, a similar situation for bulk carriers and an offshore energy support sector just now showing signs of life, that kind of reality may be a tough sell to shipyard financiers and those who might contemplate investments in the logistics of shipping. Nevertheless, there is good news, if you look hard enough to find it.

Drilling deeper, we found that some common assumptions about U.S. yards might not hold water. For example, and in 2014 alone, a whopping $2.5 billion in exports came from U.S. shipyards. That performance is spread out over many niche categories. That trend, to be sure, has its peaks and valleys, but at the same time has shown sustainability; in good times, and bad. Hence, Barry Parker's look at the North American trend to diversify both output and target clients sheds new light on where, how and why domestic yards are competing on a global stage. That story begins on page 50.

There is – both on the waterfront and in the heartland – a tendency to view the supply chain in standalone, competitive silos. On the contrary, these silos; comprised of trucking, rail, ocean commerce, inland waterways and the technology and infrastructure that ties it all together add up to just one thing: Logistics. We're here to provide analysis and insights in the expanded frequency that the topic demands. As the supply chain adjusts to, among other things, seismic changes in Ocean Carrier Alliances and the advent of the expanded Panama Canal, *Maritime Logistics Professional* will be your one-stop shop for industry Intel, emerging trends and much more.



Joseph Keefe, Editor | **keefe@marinelink.com**

U.S. COAST GUARD DRUG AND ALCOHOL REGULATIONS

PITFALLS FOR FOREIGN AND U.S. CARRIERS

BY LEE SEHAM

In the aftermath of a serious marine incident, Coast Guard regulations effectively reverse the presumption of innocence by creating a legal obligation for mariners to prove that they were not under the influence of drugs or alcohol at the time of the mishap.

Applicability of 46 CFR Part 4 to International Flag Vessels

The consequences of non-compliance with SMI testing requirements are severe and administrative fines are arguably the least of it. Officers who are unable to establish their sobriety become, perhaps unfairly, the focus of post-accident investigations. Insurers may dispute coverage where operators cannot satisfy their legal obligation to prove that damages were not causally linked to the gross negligence inherent in navigating under the influence.

Frequently unrecognized is the fact that the testing requirements of 46 CFR Part 4 extend to international flag vessels that suffer an SMI event in U.S. territorial waters (12-mile limit). 66 Fed. Reg. 42964, 42965 (August 16, 2001). Moreover, since Part 4 drug testing must be conducted in compliance with the protocols mandated by 49 CFR Part 40, international operators are also required to have the training and materials necessary to obtain urine specimens in a forensically acceptable manner as determined by U.S. law.

Companies with international flag vessels operating in U.S. territorial waters should consider conducting the following summary self-audit to determine if they are compliance-ready:

- ***Are the senior officers knowledgeable of the eight-part legal definition of a serious marine incident and summarized in Section II of USCG Form 2692B?***
- ***Does the vessel carry USCG-approved alcohol testing devices?***
- ***Does your vessel carry Part 40-compliant split sample testing materials and chain-of-custody documents?***
- ***Is your vessel staffed with several officers certified as Part 40 specimen collectors and alcohol testing technicians?***
- ***Does the vessel carry a calibration logbook reflecting monthly accuracy checks of any Evidential Breath Testing devices in use?***
- ***Does your company have a contract with a SAMHSA-certified laboratory and qualified Medical Review Officer?***

If the answer to any of the questions is "no," then there is work to be done. The testing requirements are daunting – two hours from the time of the incident to complete required alcohol testing and 32 hours to collect urine specimens – and extend to all crew members who "cannot be ruled out" as causally linked to the incident.

Local law enforcement, prejudiced by the staggeringly high percentage of traffic and work place accidents attributable to substance abuse, often enter an investigation with the mindset that it is as likely as not that the crew members were drunk or drugged. In fact, American Maritime Safety's industry-wide statistics reflect a post-SMI positive rate of approximately 0.3%. Thus, the principal concern is not whether the crew members will test positive, but whether they will get their tests done in a timely fashion.

Vessel operators should encourage their crew members to think of the post-SMI process as defensive testing; the maritime employer's goal is to prove his employees' sobriety not establish their impairment. Moreover, the ability to prove sobriety through post-accident substance abuse testing constitutes a rapidly closing window of opportunity as dictated by the body's rapid metabolization of these substances. Crew members need to be encouraged to leap through that closing window before they forever lose the ability to prove their sobriety.

Renewed Focus on Random Testing Requirements

The Coast Guard has been stung by recent losses in license revocation cases where the agency was unable to prove, to the satisfaction of the presiding administrative law judge (ALJ), that the employer has properly initiated a random drug test. Evidence of the improper initiation of such tests has effectively led to the suppression of the test results.

The initiation requirements of reasonable cause are generally well understood. The tests should be initiated based on the direct observation of specific, contemporaneous, behavioral cues indicating substance abuse. Whenever practicable, reasonable cause should be based on the observations of two persons in supervisory positions. Supervisors who engage in

the initiation of reasonable cause testing should receive 60 minutes of training in the detection of behavioral cues indicating substance abuse.

With respect to random testing, however, well-intentioned maritime employers have been found to violate regulatory requirements. The concept of randomness requires the absence of a human intervention in the selection process. Thus, a marine employer utilizing a computer program that selected individual mariners for testing also violated Coast Guard regulations when decided to test the remaining crew members on a vessel, for good measure. Similarly, a marine employer who determined that there was a drug problem on a particular vessel and, therefore, handpicked that vessel for "random" testing would violate Coast Guard requirements. The mandate that random selection be conducted using a "scientifically valid method" may also the availability of an appropriate witness to testify with respect to concept of scientific suitability.

In the context of license revocation proceedings based on an alleged "refusal" to submit to a random test, the Coast Guard has confronted the defense that the mariner did not receive proper notification that he/she had been selected for testing. In an attempt to neutralize this defense, USCG Marine Safety Advisory 06-16, issued on June 29, 2016, now specifies that a marine employer notify the merchant marine selected for random testing "discreetly and in writing."

Safety Advisory 06-16 provides a useful summary of USCG random testing requirements, which concludes with the dire warning that non-compliance may result in civil penalties of up to $7,500 per day, per violation. The Coast Guard is trying to get your attention.

Lee Seham is a partner in the labor/employment law firm of Seham, Seham, Meltz & Petersen and General Counsel of the non-profit drug testing consortium American Maritime Safety, Inc. Mr. Seham has counseled numerous clients in the transportation industries concerning employment-related drug and alcohol testing issues. Seham graduated from Amherst College and received his law degree from New York University School of Law.

A Primer:

By Walter J. Brudzinski

To promote safety at sea, Congress authorized the U.S. Coast Guard to suspend or revoke Merchant Mariner Credentials for acts of incompetence, misconduct, negligence, violations of law or regulation, and use of dangerous drugs. The Coast Guard initiates 400-600 suspension and revocation (S&R) cases each year. Full understanding of the suspension and revocation (S&R) process should therefore be more than a casual requirement for the working professional mariner.

Suspending or revoking Credentials is a formal, administrative process concerning a mariner's Credential, the right to hold that Credential, and the right to serve under that Credential. Because a mariner's Credential is a property right, the Constitution, the Administrative Procedure Act, and Coast Guard regulations provide due process protections when the government proposes suspending or revoking that Credential.

To that end, the S&R hearing process is very similar to a civil trial in state or federal court without a jury but with streamlined discovery rules to ensure a just, speedy, and inexpensive determination. The hearing is not a criminal trial and the Administrative Law Judge (ALJ) cannot sentence a mariner to incarceration or impose a fine. Rather, these administrative proceedings are remedial in nature and are intended to help maintain standards for competence and conduct essential to the promotion of safety at sea.

Administrative Law Judges

The Coast Guard is one of 30 federal agencies administering laws requiring adjudication be conducted by Administrative Law Judges appointed under 5 U.S.C. § 3105, which is part of the Administrative Procedure Act. This is called formal adjudication. There are approximately 1,700 Administrative Law Judges in the federal government with most being in the Social Security Administration, Medicare Appeals, and the Department of Labor. The Coast Guard is currently authorized 6 ALJs and one Chief Judge. The ALJs are located in New York, Baltimore, New Orleans, Galveston, Alameda, and Seattle. The Chief Judge is located at Coast Guard Headquarters in Washington, DC.

ALJs are required to follow the law and case precedent as well as their own agency's regulations and appeal decisions. Within that framework, ALJs have decisional independence which enables t hem to review the evidence, find facts, and issue decisions free from pressures of the parties or officials within the agency. To ensure decisional independence, the Office of Personnel Management's regulations prohibit agencies, including the Coast Guard, from controlling ALJ's salaries, conducting performance evaluations on them, or providing monetary/honorary awards to ALJ's.

Pursuant to Memorandum of Agreement, Coast Guard ALJs also adjudicate cases for agency components of the Department of Homeland Security such as the Transportation Security Administration. As time and availability permit, Coast Guard ALJs also adjudicate cases for other agencies on a reimbursable basis in support of the Office of Personnel Management's ALJ Loan Program. For example, Coast Guard Judges assisted the Special Master of the 9/11 Victim Compensation Fund in adjudicating claims arising from the September 11, 2001 terrorist attacks.

The Complaint

A Coast Guard Investigating Officer initiates S&R proceedings by filing a Complaint with the ALJ Docketing Center and serving it on the mariner who is the subject of the Complaint. That mariner is referred to as the Respondent. The Complaint will allege the type of case, the statute or regulation claimed to be violated, the pertinent alleged facts, and the proposed order of suspension or revocation; that is, the proposed sanction. The Complaint will also propose a place and date for hearing and advise Respondent of the right to be represented. Once a Complaint is filed and docketed, an ALJ is assigned to the case.

Right to Counsel

The Respondent has a right to be represented by an attorney or a duly authorized representative. The Respondent may also self-represent. Because these proceedings are administrative and not criminal in nature, the Coast Guard does not provide the Respondent with representation. A Respondent may retain an attorney at his or her own expense or look into obtaining

U.S. Coast Guard Suspension and Revocation of Merchant Mariner Credentials

representation from a legal services clinic. A Respondent may also seek assistance from a non-attorney who has some expertise in S&R proceedings.

If the Respondent is without means to retain an attorney, free legal representation may be available. The Coast Guard's Office of the Chief Administrative Law Judge website at http://www.uscg.mil/alj contains a list of attorneys that may be available to represent respondents at no cost or at reduced cost if the mariner cannot afford an attorney. Respondents unable to afford attorney representation are urged to consult that website.

The Answer

After the Investigating Officer files the Complaint, the Respondent must file a written Answer within 20 days of being served. In the Answer, the Respondent must admit or deny each numbered paragraph in the Complaint. If the Answer states the Respondent lacks sufficient knowledge or information to admit or deny a particular numbered paragraph, it denies that paragraph. If the Answer does not otherwise specifically deny a particular numbered paragraph, it admits that paragraph. If the Respondent fails to file an Answer within 20 days the Respondent risks being found in Default.

Being found in default constitutes an admission of all facts alleged in the Complaint and a waiver of the right to a hearing. In other words, if the Respondent does not file an Answer, he or she risks having the proposed sanction implemented upon application of the Investigating Officer and Order of the Administrative Law Judge.

The Hearing

If the Respondent does not admit to the allegations and proposed sanction the case will proceed to hearing. In anticipation of the hearing, parties will routinely participate in a prehearing teleconference with the Administrative Law Judge. During the teleconference, the ALJ will set the date and place of hearing as well as dates for the exchange of exhibit and witness lists, additional discovery, motions, and other matters that may arise. The ALJ will ordinarily issue orders deciding motions prior to the hearing and the case will then proceed to hearing unless the parties reach a settlement.

Hearings typically last for one day or less and some can last for several days. Present at the hearing is a court reporter who records and transcribes all testimony and statements. At the beginning of the hearing, the parties may give an opening statement. Opening statements are an opportunity for the parties to tell the ALJ what the evidence will show. The Coast Guard's representative, who ordinarily is an attorney will then call witnesses and introduce exhibits.

The Coast Guard presents its evidence first because it has the burden to prove the allegations in the Complaint by the preponderance of the evidence; that is, it is more likely than not that the allegations in the Complaint are true. The Respondent or the Respondent's representative will have an opportunity to question the Coast Guard's witnesses. The ALJ will rule on any questions whether evidence ought to be admitted for consideration.

Once the Coast Guard has called all of its witnesses and introduced all of its exhibits, the Respondent or the Respondent's attorney will have the opportunity to call witnesses and introduce exhibits. The Coast Guard representative will have the opportunity to cross-examine and will also have the opportunity to rebut Respondent's evidence in response to any new matters the Respondent's evidence raises.

The Decision & the Appeal Process

The Coast Guard and Respondent have the right to submit closing briefs as well as proposed findings of fact and conclusions of law after the court reporter has transcribed the proceedings and the transcript is made available to them. If the parties choose to waive their rights to submit proposed findings and conclusions the ALJ may, under appropriate circumstances, render the decision orally from the bench. Otherwise, once closing briefs and proposed findings and conclusions are submitted to the ALJ, the record is closed. The ALJ will then carefully review the evidence presented by both parties and prepare the decision and order with findings of fact, analysis, and conclusions of law.

If the Coast Guard proves its case, the ALJ will prepare an order imposing an appropriate sanction; that is, admonition, suspension with or without probation, or revocation. If the Coast Guard does not prove its case, the ALJ will issue an order dismissing the proceeding with or without prejudice to re-file.

Assuming the case against the mariner is not otherwise settled and eventually proceeds to a full evidentiary hearing, the ALJ will hear the evidence and issue a decision and order. The mariner can appeal that decision and order to the Commandant of the Coast Guard. The Commandant's decision may be appealed to the National Transportation Safety Board. The Board's decision can be appealed to the appropriate U.S. Circuit Court of Appeals and ultimately to the Supreme Court of the United States.

Conclusion

Congress established S&R proceedings to promote safety at sea. These proceedings are not penal in nature; that is, they do not constitute punishment. Rather, they are remedial to help maintain standards for competence and conduct essential to the promotion of safety at sea. Because a Merchant Mariner's Credential is a property right, a mariner cannot be deprived of that property without due process of law as guaranteed by the Constitution, the Administrative Procedure Act, and Coast Guard regulations.

Editor's Note

The statutory authority for S&R proceedings is found at 46 U.S.C. §§ 7701-7705. S&R procedural regulations are found at 33 C.F.R. Part 20. Substantive S&R regulations are found at 46 C.F.R. Part 5 and Part 16 (drug testing requirements). National Transportation Safety Board Rules are found at 49 C.F.R. Part 825. These regulations may be accessed at http://www.ecfr.gov. General information on S&R as well as ALJ decisions, Commandant Decisions on Appeal, and NTSB decisions, among other things, can be found at **http://www.uscg.mil/alj**.

The Author

Walter J. Brudzinski is the Chief Administrative Law Judge, U S. Coast Guard, BA, Univ. of Maryland, JD, Geo. Mason Univ. School of Law, MJS and Ph.D., Univ. of Nevada. The opinions in this article are those of the author and do not necessarily reflect the official policy of the Commandant of the Coast Guard.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Maritime Logistics Professional *Profile*

Laura Sherman

Director, Marketing & Communications, IRI Group

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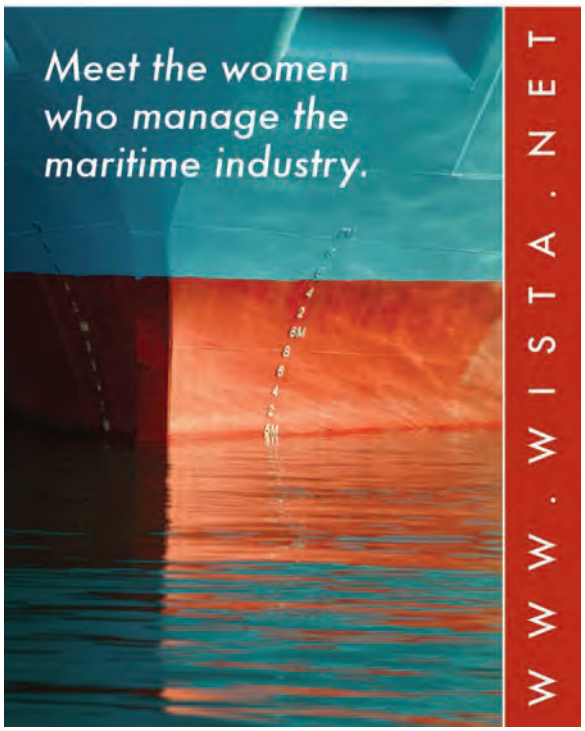


WISTA members all over the globe wear many and varied hats on the waterfront. Laura Sherman of the IRI group of companies, on the other hand, wears more than one, every day. She joined IRI in 2001 as a Marketing Coordinator, and was promoted to Director, Marketing and Communications in 2007. More recently, she has also been tasked with the role of Operations Technology Officer, working with the different offices and departments to ensure that all aspects of the implementation of information technology services were considered across the company. The two concurrent roles keep her busy, but they also complement one another nicely when it comes to putting out the good word for IRI, as well as making sure that message is conveyed safely; and in the most effective manner possible.

Early Exposure

A 1985 family visit to Caracas, Venezuela provided Sherman's first look at the maritime industry. A luncheon on board a Panama-flagged and Greek manned vessel opened her eyes to another part of the world that most people never get to see. Fifteen years later, while working towards an MBA, she began to look for employment that would allow her to continue her studies. Responding to an advertisement for a position with International Registries, Inc. (IRI), her research also found that IRI provided administrative and technical support to the Republic of the Marshall Islands Maritime and Corporate Registries. She's been on the waterfront ever since.

It has been said that very few people ever get to do exactly what makes them happy and fulfilled, every day at work. If that's true, Sherman is one of the lucky ones. She told ***MarPro*** in July, "The maritime industry is very dynamic and an international business in the truest sense. After nearly 15 years with IRI, I can honestly say that I have always been interested in my work and in fact, I am constantly engaged and chal-

lenged by this industry on a daily basis. Even though the maritime industry is an international business, it is a surprisingly small community and those that I have met are truly remarkable people."

IT, International Comms and IRI

Fast forward to 2016 and it is clear that Sherman stays busy. The cum laude graduate of James Madison University is responsible for overseeing the budgeting, marketing, and press activities in coordination with 27 IRI worldwide offices. And, because this includes coordinating event participation, advertisements, press releases, marketing trips and marketing collateral, she is required to be familiar with all aspects of the business. Leveraging her credentials as a certified Quality System Auditor and her position as Assistant Quality Management Administrator, assuming the additional position of Operations Technology Officer was a logical move for the registry. In this role, Sherman oversees the Information Technology (IT) Department as it serves regional offices and other departments to ensure that all aspects of the implementation of IT services are being considered across the company.

Without a doubt – and in today's wired world – IT and comms go hand in hand. Within IRI, Sherman weaves the two together on a daily basis. That's easier said than done. She explains, "The RMI Registry has grown on average 13% annually on a consistent basis since 2001. Like many organizations, the technology is not always able to keep up with this type of growth. We now have more than 360 employees worldwide that all need to be connected in the same way,

...We now have more than 360 employees worldwide that all need to be connected in the same way, utilizing the same security protocols, etc.

Laura Sherman,
IRI Group

The maritime industry is very dynamic and an international business in the truest sense. After nearly 15 years with IRI, I can honestly say that I have always been interested in my work and in fact, I am constantly engaged and challenged by this industry on a daily basis. Even though the maritime industry is an international business, it is a surprisingly small community and those that I have met are truly remarkable people.

utilizing the same security protocols, etc." To that end, she says, "We are in the process of upgrading our core infrastructure, baselining all offices in terms of office infrastructure hardware and are in the process of completing a migration to Office 365. We are also in the process of identifying the steps we need to take to better leverage social media and how we should manage this."

It's a delicate balancing act, and it is a work in progress, says Sherman. For example, the various worldwide offices no longer need to wait for day-to-day business decisions to be made from headquarters; however, how IRI communicates news is still typically managed from headquarters. She adds, "Because of this, we do not yet have all the parts in place to leverage something like Twitter, but we do utilize platforms like LinkedIn to publish our press releases."

WISTA & the Waterfront

In her previous role as a Director of Communications for an estate planning law firm, Sherman was not typically engaged with the press or the internal communications within the organization. At a global maritime concern like IRI, however, that's all changed. Sherman insists, "The shipping industry is very personal and face-to-face contact is important to developing relationships." Indeed, and within IRI Registries itself, Sherman interacts on a daily basis with myriad nationalities in terms of crew, officers and ship managers. As far as she is concerned, that reality also makes her job a little easier. "We are fortunate to have 27 worldwide offices located in major shipping and financial centers worldwide. We are able to leverage the close relationships personnel in these offices have for our communication needs, including translating press releases, articles or marketing collateral."

By her own reckoning, one of the things Sherman is very good at is connecting the dots and recognizing when things are related and how things may be impacted. That goes for IRI business, as well as her outreach outside of the Registry. A big part of that outreach involves WISTA – the *Women's International Shipping & Trading Association.* Sherman has been a member since 2004, and recounts the benefits that WISTA brings, especially in contrast to her early days on the waterfront. "I recall being at a number of shipping events and feeling uncomfortable because not only was I new to a very interesting and dynamic industry, but I was one of the few women at those early events that I attended. I found the WISTA network provided an ice breaker during these situations. Once you speak with one person, you suddenly are connected to another ten." She adds, "Looking back, I can say that there have been a number of women in the industry that have informally mentored me over the years and provided valuable advice. There

are many organizations in the maritime industry that offer these same attributes, but WISTA, for me, has provided an easy and open forum to not only better understand all aspects of the industry but to also develop lasting friendships."

For Sherman, those relationships constitute a two-way street. Today, she serves on the WISTA USA board, working on and organizing, among other things, the 2016 WISTA International Annual General Meeting which is to take place in November of this year aboard the cruise ship M/S KONINGSDAM.

Looking back and also ahead, Sherman's efforts and that of her WISTA sisters have made unquestionable inroads over time. Sherman explains why, saying, "The awareness of the shipping industry that exists today in comparison to when I began my career at IRI is vastly different. Industry stakeholders have been very supportive of programs that exist to provide awareness to young adults about life at sea. I know IRI, like other organizations in the industry, has provided presentations to students at all levels." Likewise, those opportunities are expanding for women, as well.

Thinking as a Communications Manager and IT specialist, Sherman adds simply, "I think, first and foremost, women need to know what opportunities exist and they need to have a desire to work in the maritime industry." That's because, she insists, "Most folks I come in contact with have a real passion for this industry and it is present during conversations." That attitude pays dividends and over the years, it has also attracted a similar mindset from the WISTA crowd. "As far as I have seen, nearly all the organizations we interact with have leadership positions held by women. I would say they stack up favorably."

All of that adds up to progress. And, who better to broadcast the good news than the Director of Marketing and communications for the IRI Group?

Future Leaders

Maritime Logistic Professional's now popular feature involves highlighting the profiles of today's future maritime professionals. Taken from maritime academies and schools focused on maritime disciplines, these cadets from around the country – some International – represent a large subset of the future professionals who will one day provide the leadership, innovation and technical expertise for the greater waterfront – here and abroad. Working with those schools and students that chose to participate, these profiles will let readers and employers know who is coming up; it lets the students themselves shine a bit and gives the academies a chance to showcase their best and brightest. The profiles center around five questions for each student – we call it "five questions in five minutes."

This edition's selections are all impressive, but this month, we begin with Alexander Dzinbal from the Webb Institute, who is majoring in Naval Architecture and Marine Engineering. Three more profiles round out this solid quartet, taken from four different maritime campuses around the country.

Alexander Dzinbal

Webb Institute

Major: Naval Architecture and Marine Engineering
Graduation Year: 2017

Webb Institute

Why this school?

I grew up sailing in the Pacific Northwest, and fell in love with boats and the water at a young age. I've always enjoyed math and science, the idea of creating something new, and engineering, fascinated me. My mother actually found Webb Institute my freshman year of high school after I told her I wanted to design boats. I visited a few other schools with competing Naval Architecture/Marine Engineering programs and was really impressed with everything Webb had to offer.

What keeps you here?

The extremely supportive and non-competitive atmosphere of Webb is incredible. Double majoring in two very intense engineering degrees would be nearly impossible without the innately collaborative nature of the class and the school as a whole. Because we all take classes together, we all work on the same projects and homework at roughly the same time, and we all help each when we need it. Everyone is naturally inclined towards different subjects and disciplines and by working together the entire class benefits. Making it through a semester is always a team effort. You hear about other prestigious engineering colleges and the inter-student relationships seem almost hostile. They're constantly competing with everyone else in the program for the best classes, the best opportunities, and the best rankings. That simply doesn't occur at Webb. There's a joke we lifted from medical school – "do

you know what they call the person who graduated last in their class at Webb? A Webbie." And chances are that person is still in the top 25 of their class. That's better than most other engineering grads can say.

What is your major and what career do you intend to pursue?

I am double majoring in Naval Architecture and Marine Engineering, which is the field I plan on following. I would like to focus on overall ship efficiency and environmental regulation compliance when I graduate, with a focus on research and development. Environmental regulations are not going away, nor should they, and neither will shipping – it is the most environmentally friendly way to move goods and cargo. The need for improved efficiency in the maritime industry is always growing and will likely never cease. Improvements in design in both the Marine Engineering and the Naval Architecture side will have to be made, and I would like to get my name on a few of them.

What one thing should prospective employers know about you?

Webb's curriculum and style of teaching means that by the time I graduate I will be able to do almost every job in an engineering office. As a whole, Webbies are extremely versatile and can easily adapt to the changing needs of a modern design firm. I can work very well under high stress and impending deadlines without the quality of the project being impacted. If this sounds like a good sales pitch for myself, please hire me.

Tell us about your sea training or internships – who did you work for or sail with?

I have been through three internships thus far. During my freshman year I went down to middle-of-nowhere Louisiana, where I worked in the Metal Shark fabrication yard, learning first-hand about everything from pipe bending to military grade electrical work to yard management to how incredibly delicious Cajun food is. The winter of my sophomore year was spent on the Matson Lines container ship, Mahimahi, sailing between Oakland, Long Beach, and Honolulu. I spent half my time in the engine room assisting the first and second engineer, and half on deck with the chief mate. This winter I spent in the lovely San Francisco Bay area at Herbert Engineering Corp. I assisted with validation of a proprietary hydrostatics program and helped with their work for the Jeremiah O'Brien, one of the last remaining Liberty Ships. The excellent thing about internships at Webb—aside from missing the New York winters— is the progression we go through. Before any of us work in an actual firm, we have spent time both building and operating commercial ships; thus, we have a perspective that few other graduates have before they enter the work force.

Andrew McGonagle

Maine Maritime Academy

Major: Marine Engineering Operations
Graduation Year: 2016

MAINE MARITIME ACADEMY

Why this school?

Maine Maritime Academy is an investment in the future for my family. The campus is located in downeast Maine, allowing me to chase my dreams and pursue a meaningful career while raising a family in one of the most down-to-earth, family friendly regions that America has to offer. In addition, the school consistently provides graduates with excellent careers offering a high rate of return on investments of both time and money.

What keeps you here?

One of the best things that this country has accomplished recently is passing legislation for the Post 9/11 GI Bill. It allows veterans like me to realistically pursue an education full-time. Without it, attending a 4-year program would not have been economically feasible. The school also has a VA coordinator on campus that is an unsung hero at expertly navigating the VA system and the challenges that it presents.

What is your major and what career do you intend to pursue?

My major is Marine Engineering Operations and I will initially pursue a career at sea as an engineer. I hope to find employment in a fast-paced, technically challenging environment that keeps me growing personally and professionally. Nothing is off limits and I'm excited to begin my job search.

What one thing should prospective employers know about you?

My phone number ... feel free to give it to them. I also maintain an outstanding GPA, have a diverse background that includes military service, small business ownership, and a previous career as a marine technician. My combined skill-sets should be valuable to any prospective employer that is looking for someone with technical business experience, strong technical communication skills, and leadership skills from military service.

Tell us about your at sea training or internships – who did you work for or sail with?

Last summer I completed a cadet shipping internship with Hornbeck Offshore Services in the Gulf of Mexico. I worked aboard a 320 class HosMax OSV, supporting Shell Oil's offshore oil and gas production. Most recently, however, I completed a winter cruise aboard the school's training ship, the State of Maine, sailing from Castine, Maine to St. Croix. The experiences were vastly different, but equally valuable. I look forward to sailing again this summer on the T/S *State of Maine* with the freshman class as we bring her to Europe and points to be determined.

Alessandra Kahl

SUNY Maritime College

Major: Marine engineering
Graduation Year: 2016

Why this school?

I've always been mechanically inclined. I come from a long line of blacksmiths and machinists. I've always been good at tools so I wanted to do something with my hands. It helped me decide to go here because I got a scholarship and because I had a ship to work on during the year and there are a lot of job opportunities. I like the idea of engineering at SUNY Maritime better than at another college, because it physically trains you for the job rather than just telling you about it.

What keeps you here?

Definitely the people and the hands-on nature of the college are my favorite things. I have the best friends here. It takes really good people to do these programs. Having our own ship is the best part. It gives you a better opportunity for a real education, rather than hypotheticals.

What is your major and what career do you intend to pursue?

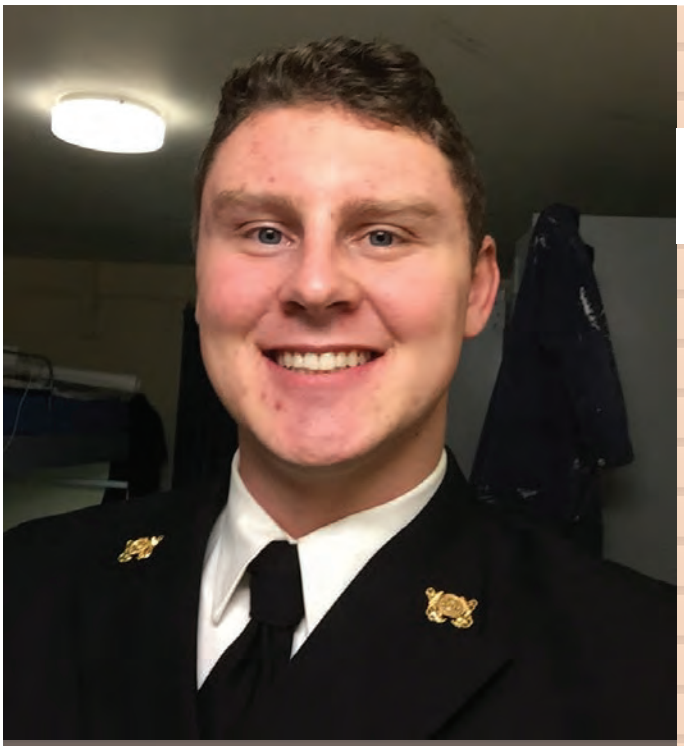
I'm studying marine engineering, which I love because it focuses on ship systems engineering – how the whole plant works together. I want to sail out, at least until I get my first engineer license. After that, I think I want to be a port engineer.

What one thing should prospective employers know about you?

I'm a really eager, hard worker. I've never stepped away from a challenge. This whole school is a challenge, so you can't. When I come out of here, I won't know everything but I'm excited to go out and continue learning on the ships. For an engineer to say I love working with people is weird, but it's true.

Tell us about your at sea training or internships.

Before I came here, I'd heard about the cadet-shipping program. I knew it was something I needed to do because it would give me experience in the real world. I did it last summer, where I shipped out with TE Subcom, a cable-laying company. It was the best experience I could have had. We spent a month in Portland, Oregon, which gave me time to take apart everything in the engine room with the second engineer. They were really good at showing me and helping me to develop my skills and knowledge. Then we spent a month at sea, checking cables down the California coast.



John Schmitt

Massachusetts Maritime Academy

Major: Marine Transportation
(*) Schmitt recently graduated from MMA

Why this school?

I grew up in the town of Bourne where MMA is located. I went to football games as young boy so the regiment and life at sea I was exposed to on campus made a significant impression on me, even back then. MMA is academically challenging and life in the regiment is strict, but the decision to attend was very natural and clear. The academic reputation and excellence in maritime tradition as well as the success of our alumnae is what influenced me to come here. MMA is no doubt a challenge, but it's the best place to be for a career in the marine industry.

What keeps you here?

Completing the goal of graduating and becoming a professional mariner is what keeps me here. My family has a motto: When you put your hand on the plow, you don't let go until the job is done. Complete the objective, there is no alternative. A professional mariner isn't made overnight and as cadets, we are in this together. Over past four years, I've made lasting friendships and have had experiences that no other schools can offer. Playing four years of football for the BUCS was particularly rewarding and gratifying as well. The cadets at MMA are exemplary people of character and integrity that form our unique band of brothers.

What is your major and what career do you intend to pursue?

My major is Marine Transportation. After successfully completing USCG licensing exams, I am interested in sailing with Military Sealift Command or another commercial shipping company as a 3rd Mate Deck Officer. I am also interested in obtaining a Marshall Island Endorsement, LNG transport and PIC. In addition, I would also be interested in Safety Officer and rescue swimmer.

What one thing should prospective employers know about you?

I have a relentless work ethic and I am extremely determined. I exhibit this in the classroom as well on the football field. This trait will also be conveyed in my future workplace. I absolutely will do what it takes to accomplish an objective and get the job done right. Cutting corners is not allowed, and the sense of satisfaction comes from doing the job correctly.

Tell us about your at sea training or internships – who did you work for or sail with?

My junior year Commercial Shipping Internship was with Military Sealift Command. I sailed on the USNS Watkins from Charleston, SC to Diego Garcia in the Indian Ocean. The USNS Watkins is a RORO (roll on, roll off) cargo vessel carrying large equipment and vehicles to be prepositioned for the U.S. military efforts in the middle east. The non-stop passage to Diego was long and really gave me excellent perspective and actual working experience. The crew of the Watkins was professional and helpful as it is a working-teaching environment and I felt highly valued as an intern. I can definitely see myself shipping out long term and can't wait to get started.

THE NEW VOICE OF THE BULK TERMINAL OPERATOR

THE SETTING UP OF A MUCH NEEDED TRADE ASSOCIATION FOR THE BULK TERMINAL OPERATOR COULD SEE ABTO BECOME A KEY OPINION FORMER AT THE HIGHEST LEVEL.

BY JOSEPH KEEFE

The glut of regulations that have or are due to enter into force inevitably impact the bulk carrier operator but while there are various organizations that provide this sector with a voice that is heard throughout the corridors of maritime power, the global bulk terminal operators' voice is rarely heard at such a high level. "ABTO serves to deliver that voice," says Ian Adams, the Chief Executive of the newly established Association of Bulk Terminal Operators.

Created to fulfill a need within the bulk industry for representation at national and international level, ABTO will focus on events at the International Maritime Organization (IMO) which will have an effect on the operations of terminals.

Adams looks to be the right person for the job. He has over a decade of experience working at IMO, having been the Head of Delegation for the International Bunker Industry Association (IBIA) and International Bulk Terminals Association (IBTA). He was also a member of the IMO Secretary General's Industry and Scientific Expert Panel for the revision of MARPOL Annex VI and the environmental consultant of the national delegation of St Kitts and Nevis.

"As a regular attendee at IMO meetings I know the value of a consistent and regular attendance, we need to be seen to be attending and participating in order to gain credibility. I have also worked with the European Commission and will continue to do so," he says.

"Communications between the various parties is key to not only ABTO's success but also its membership. There are areas which can be improved both by different parties talking

Photo: Vale do Rio Doce

to each other and by the introduction of relevant legislation. Whilst most will agree that there is more than enough red tape already, considered, well written regulation can help to avoid accidents and fatalities which can only be a good thing for the industry," says Adams.

"We will also be providing the opportunity for ABTO members to discuss issues affecting their business. This will be achieved by conferences and using technology such as webinars and conference calls. We recognize that it is not always possible for members to travel to a major annual conference and so we will look at various ways to facilitate the exchange of ideas. This may take the form of local events where there are significant clusters of members as well as technological solutions. We will also be holding at least one major event per annum which will be in a city which has good access from all over the world.

Commenting on the relationship between MARPOL Annex V and the IMSBC Code, which Adams believes is becoming increasingly complex, he says the decision by IMO to classify cargo residues as garbage is the cause of much consternation across the industry.

"The issue of cargoes which are deemed harmful to the marine environment has further complicated the situation and has led to major concerns among the world's bulk terminal operators. ABTO has a role in monitoring these developments as well as explaining to its membership the requirements. It is particularly important for terminals to understand where the demarcation zone of responsibility actually lies."

Adams says it is understandable that a terminal operator would wish to aid shippers, given they are ultimately their customers, but they have to understand where their responsibilities end. "ABTO fully appreciates that these lines will, during commercial discussions, become blurred, but it is important that both parties are fully aware of their obligations," he says.

The issue of reception facilities continues to be an area of concern. "Again ABTO has a role here to explain the issues to both the terminal operators and other stakeholders. This role will include mediating between parties who have misinterpreted the rules, misunderstood them or been misled as to the specific requirements of the regulations.

"The dissemination of information will also be a significant part of our value added proposition. When papers of significance are submitted to IMO or any other legislative body we will seek member's opinions regarding them. I also believe it a fundamental aspect of ABTO to explain those papers clearly and to guide its membership through the legislative procedures so that a measured and proportionate response is expressed about the proposal. This will also help ABTO members to fully prepare for any regulatory outcome."

COMMUNICATIONS BETWEEN THE VARIOUS PARTIES IS KEY TO NOT ONLY ABTO'S SUCCESS BUT ALSO ITS MEMBERSHIP. THERE ARE AREAS WHICH CAN BE IMPROVED BOTH BY DIFFERENT PARTIES TALKING TO EACH OTHER AND BY THE INTRODUCTION OF RELEVANT LEGISLATION. WHILST MOST WILL AGREE THAT THERE IS MORE THAN ENOUGH RED TAPE ALREADY, CONSIDERED, WELL WRITTEN REGULATION CAN HELP TO AVOID ACCIDENTS AND FATALITIES WHICH CAN ONLY BE A GOOD THING FOR THE INDUSTRY.

- Ian Adams, Chief Executive, Bulk Terminal Operators

He further adds that liquid bulk terminals have been at the center of regulations for longer than dry bulk terminals but that does not lessen the need for this sector to be represented and supported. Indeed, under the auspices of ABTO both the liquid and dry bulk terminal operators will be able to discuss areas of common interest such as the International Ship and Port Facility Security (ISPS) Code, as well as draw on each other's experience to address issues which at first may not appear related, such as pollution prevention.

Climate change is another topic which is currently widely discussed and ABTO will be seeking to work alongside stakeholder representatives to ensure that the very best practices are brought to the attention of its members.

"Following on from the United Nation Framework Convention for Climate Change (UNFCCC), Conference of Parties (COP 21) in Paris in December 2015 transport is coming under more scrutiny. Terminals, as part of the transport infrastructure, have an important role in the debate and ABTO will be there to support, advise and represent members over the coming years."

While the fledgling association has so far had a positive response from industry, with a number of terminal operators joining as full members, a comment posted on the ABTO website in response to a news release, is indicative of the wider industry feeling: "An organization like this is very much needed to represent the issues at the highest level. And also using this platform, members can share their best practices (which helped them in improving their operational efficiency) with other members."

Adams couldn't agree more. "Whether members are wet or dry bulk terminal operators, suppliers of equipment and services to those terminals, or relevant associations and institutions, we will be able to ensure that regulators and Administrations fully understand the implications of any decision that impacts their business."

The ABTO Secretariat is be guided by a Members Advisory Panel (MAP) on the current and relevant issues influencing the technical, commercial, environmental and market conditions affecting bulk terminal operations and the transportation of commodities. This panel is supported by Maritime Association Management Company (Maritime AMC Limited), a company set up to carry out all administrative and management functions on the Association's behalf.

"This structure recognizes that in these modern times, trade association members do not have the time to devote hours or even days to raise issues at a higher level or to influence decision making. We hope to cooperate more fully with all industry organizations, including those representing ship owners/operators, specialist terminal operators and other groups with an interest in the bulk trades to ensure that our members' voices are heard at national and inter-governmental level," says Adams.

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IS OCEMA'S TERMINAL WEIGHING APPROACH SOLAS VGM COMPLIANT?

THE OCEAN CARRIER EQUIPMENT MANAGEMENT ASSOCIATION RECENTLY DECLARED THE TERMINAL WEIGHING APPROACH (TWA) AN INDUSTRY BEST PRACTICE.

BY BRYN HEIMBECK

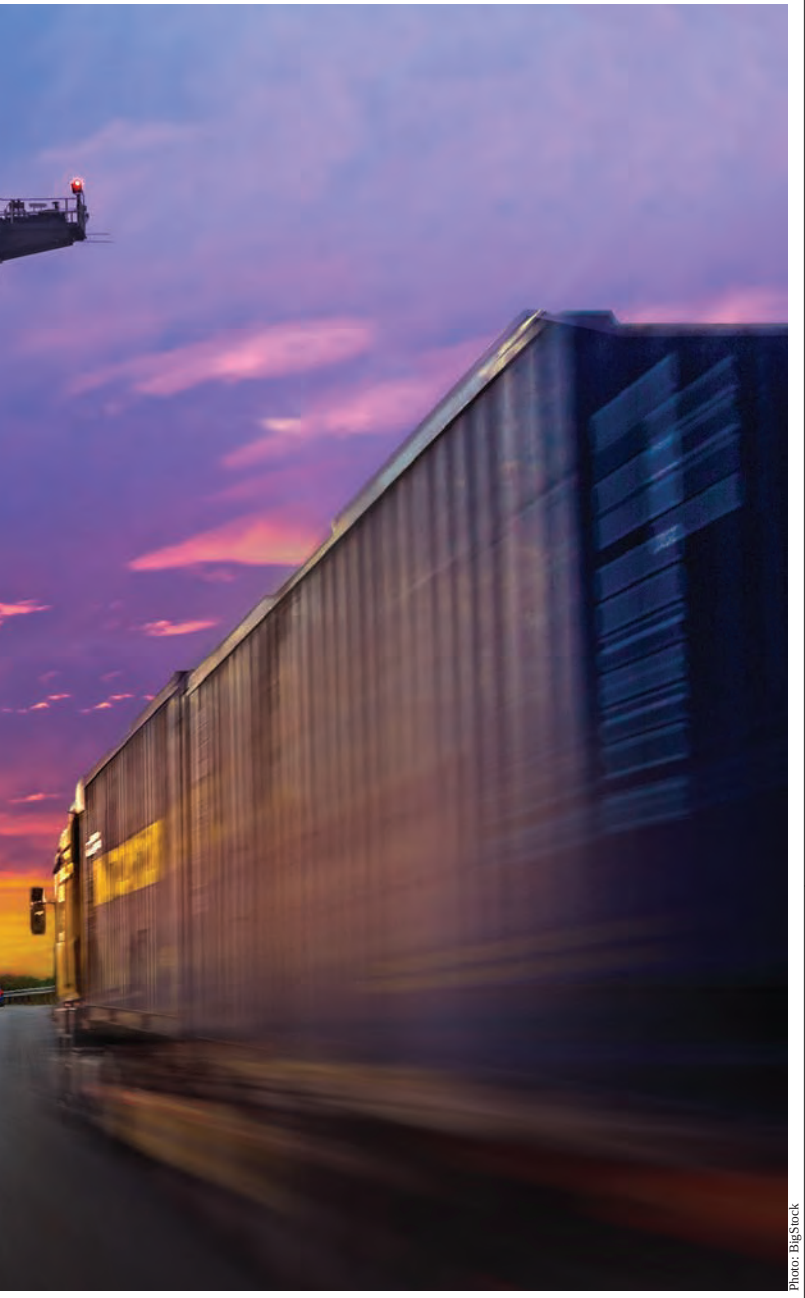


Photo: BigStock

The lack of guidelines for shippers about how to comply with the SOLAS Verified Gross Mass (VGM) regulation that went into effect on July 1, 2016, has also led to a number of questions throughout the industry. Where should containers be weighed? How do shippers provide their signatures for these weights without slowing down the supply chain? Still, as of today, many of the 170 countries that have adopted the regulation have not published guidelines.

Clarity amidst Chaos

In an effort to provide clarity, the Agriculture Transportation Coalition (AgTC) discussed a new proposal at their Conference

in June. The primary point of the proposal was to establish a unified practice of weighing cargo containers at the terminal during the in-gate process. Since the Intracoastal Agreement Loss rule (which has been in place for 30 years) already requires terminals to weigh containers as they enter terminals for worker safety, the U.S. Coast Guard agreed that this process adhered to the weighing requirements in the SOLAS VGM regulation. In addition, the Ocean Carrier Equipment Management Association (OCEMA) recently declared the Terminal Weighing Approach (TWA) is an industry best practice.

There is no doubt that weighing containers at the terminal provides the most accurate container weight because the entire container is being weighed at the closest point to being loaded aboard ships. In addition, this is far more accurate than weighing the cargo components separately and adding the parts plus the container to arrive at a combined weight. Weighing the entire container at the terminal greatly reduces the chance of human error.

It just makes sense to support OCEMA's TWA as an industry best practice. However, simply providing a container's gross mass does not fully comply with the SOLAS VGM requirement. The SOLAS VGM regulation clearly states that the shipper, or a person duly authorized by the shipper, must provide a signature, either physical or electronic, with the container's gross mass to the carrier – thus verifying that the gross mass is accurate, as well as assuming accountability for that weight. The signature verifying the gross mass is the key difference between the new VGM requirement and the 1994 SOLAS requirement that shippers were to provide the gross mass of containerized cargo.

Who Is Accountable?

Since the announcement of OCEMA's TWA, there have been various opinions within the ocean shipping industry about who is ultimately responsible if a discrepancy in container weights is discovered. Some shippers assume that by using OCEMA's TWA, terminals will be liable in case of a weight discrepancy. And, of course, the terminals do not want to assume this liability. Who would? Another cause of confusion is that some industry "experts" assert that a signature is not required from a shipper when using this approach. However, this assertion is at direct odds with the SOLAS VGM regulation, and it also subjects terminals to liability issues.

In order to secure the signature from shippers, the South Carolina Ports proposed that the terminal and the shipper enter an agreement where the terminal will submit VGM on behalf of the shipper, thus taking the responsibility for misdeclared container weights.

Historically, shippers and terminals have never had business relationships. The difficulty and time spent setting up a contractual relationship could slow down the supply chain. Now the question is – how does the industry comply with the VGM requirement without slowing the movement of the cargo?

The Common Sense Approach: VGM Submission via a Secure Online Portal

Trade Tech recommends a "painless" VGM submission process as a best practice where shippers use a cloud-based portal in conjunction with OCEMA's TWA in order to file a complete VGM declaration. We see two approaches for capturing both the shipper signature and the terminal weight. In the first case, the portal "orders" a weighing from the terminal. After the in-gate process, the terminal transmits the weight back to the portal that automatically completes the VGM declaration and transmits it as a regular VGM declaration to the carrier.

In the second case, shippers create shipment instructions within the portal, including the usual VGM responsibility signature. This signature is automatically transmitted to the carrier, demonstrating that the shipper trusts that the stated weight coming from the terminal is true and accurate. The terminal

Why Should Containers be Weighed?

DENEB

On June 9, 2011, the container ship Deneb capsized at a terminal. After the incident, investigators found that 1 out of 10 containers aboard had actual weights that far exceeded the declared weights.

MSC NAPOLI

On January 18, 2007, during a storm in the English Channel, the container ship MSC Napoli developed cracks in its hull and took on water. In order to minimize the environmental damage caused by this accident, the ship was intentionally grounded. During the investigation it was discovered that approximately 20 percent of the containers were heavier than their declared weights.

P&O NEDLLOYD GENOA

On January 27, 2006, during a storm in the North Atlantic, the container ship P&O Nedlloyd Genoa lost 27 containers overboard and 28 others collapsed. During the investigation, it was discovered that the weight for two of the damaged containers was significantly over the declared weight.

What information should be included in the VGM submission?

Container Number	Ocean Carrier Booking Number
Verified Weight	Responsible Party (Shipper named on the carrier's BoL)
Unit of Measurement	Authorized Person (Signature: physical or electronic)

then weighs the container and sends the weight to the carrier through normal means. From there, carriers combine the weight received from the terminal and the electronic signature received from the shipper to form complete VGM declaration. The carrier transmits the terminal weight back to the shipper for record-keeping purposes.

With the addition of one of these simple approaches, the VGM requirement can be effectively met without shippers and terminals entering into any kind of legal contractual relation or terminals assuming liability.

While the main goal of this process is to meet the VGM requirement, there are additional benefits for both carriers and shippers. Using this type of online portal solution will lead to fewer booking exceptions for carriers, allowing them to know for certain which booked containers they will receive prior to their arrival at the terminal. As a result, carriers can plan accordingly. In addition, by using a cloud-based portal in combination with OCEMA's TWA, shippers do not have to be directly involved with weighing the cargo containers and the extra handshake to capture the container weight, which happens automatically in the background. This also gives shippers full visibility into cargo movement from the first mile, and information flow is streamlined and faster.

The best practice of using OCEMA's TWA, in conjunction with Trade Tech's recommended VGM submission process, provides the most accurate container weight and ensures the VGM requirements are met – all without slowing down the supply chain or adding extra manual steps. As the industry learns more about communication, liability and supply chain issues in the current process for VGM submission, it will become more important that this best practice is adopted throughout the industry to meet the VGM requirement.

Bryn Heimbeck
is co-founder and president of Trade Tech (www.tradetech.net). Bryn can be reached at: bryn.heimbeck@tradetech.net.

Photo: FMC

THE LOGISTICS OF REGULATING THE SUPPLY CHAIN

FMC COMMISSIONER WILLIAM P. DOYLE DEFINES THE MISSION, MACHINATIONS AND MANY TRIUMPHS OF THE FEDERAL MARITIME COMMISSION.

BY JOSEPH KEEFE

It would not be a stretch to say that the Federal Maritime Commission (FMC) is perhaps the least understood, possibly the most obscure, and at the very same time, one of the most important federal agencies on the commercial waterfront today. The independent federal agency is responsible for regulating the U.S. international ocean transportation system for the benefit of U.S. exporters, importers, and the U.S. consumer. Along the way, FMC says that its mission is to foster a fair, efficient and reliable international ocean transportation system and to protect the public from unfair and deceptive practices.

In a nutshell, says, FMC commissioner William P. Doyle, fairness and efficiency in the U.S. maritime commerce sectors is the primary focus of his organization. How that gets accomplished is a bit more complicated than one might think. Doyle, who has been a fixture on the Commission since President Obama appointed him in January of 2013, arrived there via an interesting career path. He is a 1992 graduate of the Massachusetts Maritime Academy, where he earned a Bachelor of Science in Marine Engineering.

Doyle, who served for over a decade as an officer in the U.S. Merchant Marine as a marine engineer aboard numerous classes of vessels, also boasts over 20 years of experience in the transportation industry, including both the maritime and energy sectors. While still serving in the U.S. Merchant Marine, he entered law school at Widener University School of Law in Harrisburg, Pennsylvania. All told; he probably has one of the broadest backgrounds in terms of maritime affairs of anyone on the FMC staff and his perspectives, because of it, are that much more valuable.

Even Bill Doyle will tell you that the FMC wasn't necessarily on his Radar when the opportunity presented itself. He explains, "I was not familiar with the FMC while in law school, let alone as a cadet. And, when I sailed, it was always on U.S.-Flag vessels which come under the jurisdiction of the U.S. Coast Guard and the Maritime Administration. Later, I had studied international law and become increasingly interested in the global movement of goods and the flow of energy. To this end, I was selected to serve in a few advisory roles under both the Bush and Obama Administrations. That eventually led to a call from the White House in 2011, asking if I was interested in being vetted and perhaps nominated by President Obama for the position of Commissioner to the FMC. I said yes. And now, I have been confirmed twice by the U.S. Senate." Nevertheless, Doyle was no stranger to contracts and

Doyle with Mass. Maritime Academy cadets

Photo: FMC

"The FMC has the authority to tell the U.S. Coast Guard to 'deny entry for the purpose of ocean-borne trade' and to detain vessels already in port. According to Doyle, such a scenario was actually set in motion in 1997. The shipping dispute involved rules set by the Japan Harbor Transportation Association."
– William P. Doyle, Federal Maritime Commissioner

regulations when he joined FMC.

In 2008, he was appointed under the Bush Administration as Director of Permits, Scheduling, and Compliance with the Office of the Federal Coordinator for Alaska Natural Gas Transportation Projects. There, he managed and directed the permitting and regulatory coordination of 24 federal agencies, numerous State of Alaska agencies, and both federal and provincial agencies of Canada. Beyond this, he acted as lead negotiator for the U.S. Government in securing cost recovery agreements with private sector national and multinational companies. On the advisory side, Doyle has previously been appointed to as many as five different boards and committees under both the Obama and Bush Administrations.

In Action: the long arm of FMC

Since its founding on August 12, 1961, the Federal Maritime Commission (FMC) has worked to ensure that neither the activities of liner shipping groups nor foreign government laws or regulations impose unfair costs on American exporters, or on American consumers of imported goods. The FMC list of responsibilities is long, but says Doyle, FMC's oversight of ocean carrier consolidations and the reshuffling of Ocean Carrier Alliances is one of the most important. That's because there is massive overcapacity in the liner trade, resulting freight rates which are plumbing historical lows.

As the industry consolidates, these potential mergers scramble the four major ocean carrier alliances that are in existence today – 2M, Ocean Three (O3), CKYHE, and G6. "The merger activity involves companies that are members of separate alliances. For instance, CMA CGM is a member of the O3 alliance, while NOL-APL is a member of the G6 alliance. Likewise, COSCO is a member of the CKYHE alliance and CSCL is a member of the Ocean 3. It's complicated," says Doyle, adding, "By the time this article is published there will most likely be an announcement on another formation of a new ocean carrier alliance."

For its part, the FMC looks at price and service, reviews alliance filings and determines to what extent costs increase and service decreases as a result of these alliance(s). The FMC can stop an alliance through an injunction or allow an alliance to move forward with conditions attached through robust monitoring of the alliance(s). In this way, Doyle says simply, "We're busy."

Principal statutes administered by FMC:
The Shipping Act of 1984 (amended by OSRA 1998)
The Foreign Shipping Practices Act of 1988
Section 19 of the Merchant Marine Act, 1920
Sections 2 and 3 of Pub. L. No. 89-777, 80 stat.1350

Separately, one of the more interesting (and important) tasks undertaken by Doyle and his staff in recent years involved the Value Added Tax (VAT) regime that the People's Republic of China (PRC) implemented over the past two years. Simply stated, China decided to change from a "business tax" to a VAT. Doyle explains, "This was delicate issue. U.S. business-

es including carriers and shippers were concerned about their tax treatment under China's new VAT. There was very little guidance coming out of China on implementation plans for the new tax regime." The FMC got to work.

U.S.-China Maritime Bilateral talks – where Doyle served as Co-chair for the United States – brought out questions as to the fair application of the tax with regard to international maritime transportation.

In the end, China issued a series of circulars on the VAT that modified the rules and further explained and alleviated the concerns of U.S. businesses. It worked out well for everyone, but Doyle insists that the key to this was persistence and patience on the part of FMC.

A good example of the regulatory reach of the FMC is the power vested under the Shipping Act to make sure U.S. carriers, shippers and businesses are not disadvantaged or treated differently by the regulations of foreign governments or entities. In such cases, Doyle explains, "The FMC has the authority to tell the U.S. Coast Guard to 'deny entry for the purpose of ocean-borne trade' and to detain vessels already in port. According to Doyle, such a scenario was actually set in motion in 1997. The shipping dispute involved rules set by the Japan Harbor Transportation Association. American shipping lines had complained for years that the association required all carriers to receive prior approval for even the most minor operational changes in handling cargo in Japanese ports. Those changes include alterations of schedules, substitutions of one ship for another and re-routing of ships.

The rules were believed to benefit Japanese interests at the expense of all other interests including U.S. businesses. As a result, the FMC issued an order to begin the process of detaining three Japanese companies, K-Line, Mitsui OSK Lines and Nippon Yusen Kaisha. In the end – but only after the Order was issued by the FMC – Japan and U.S. negotiators resolved the dispute amicably.

Collaboration

FMC's reach, although long and powerful, isn't necessarily a unilateral event. Collaboration with a wide range of players is necessary in order to get the job done. That collaboration also involves a necessary separation powers when it comes to maritime regulations. For example, and in 1950, the regulatory programs of the United States Maritime Commission were transferred to the Federal Maritime Board at the Department of Commerce, where they resided until the FMC's creation in 1961. Doyle sums up the beginnings of FMC neatly. "Post-World War II brought new thinking to maritime policy and regulation. One of those policy concepts included promotion of the U.S.-Flag maritime industry and regulating the rapidly expanding international maritime trade. The school of thought was how can the same agency promote its national maritime interests and regulate the international side of maritime trade? Basically, it was a perceived conflict of interest. This led to the 1961 JFK Presidential executive order that gave MARAD the promotional responsibility and FMC the regulatory role."

MARAD, often referred to as "America's Maritime Cheerleaders," is a direct US DOT executive branch agency under the exclusive jurisdiction of the President. Commissions like

FMC Mandates at a Glance:

- Review, Monitor ocean common carriers and marine terminal operator agreements.
- Ensure that foreign carrier agreements do not cause substantial increases in costs or decreases in services.
- Maintain, Review confidentially filed NVOCC Service Arrangements.
- Provide a forum for exporters, importers, shipping public to prevent impediments to ocean commerce.
- Ensure tariff rates, charges are published in private, automated tariff systems and electronically available.
- Monitor rates, charges, and rules of government-controlled carriers to ensure they are just & reasonable.
- Address unfavorable conditions caused by foreign government or business practices.
- Protect the public from financial harm.
- Resolve disputes involving shipment of cargo, personal or household goods
- Resolve disputes between cruise vessel operators and passengers.
- Investigate & rule on rates, charges, classifications complaints.
- License shipping companies with appropriate character & adequate financial responsibility.
- Identify and hold regulated entities accountable for mislabeling cargo.
- Ensuring that cruise lines maintain financial responsibility to pay various passenger claims.

Doyle with Elizabeth Warren

"Post-World War II brought new thinking to maritime policy and regulation. One of those policy concepts included promotion of the U.S.-Flag maritime industry and regulating the rapidly expanding international maritime trade. The school of thought was how can the same agency promote its national maritime interests and regulate the international side of maritime trade? Basically, it was a perceived conflict of interest. This led to the 1961 JFK Presidential executive order that gave MARAD the promotional responsibility and FMC the regulatory role."

– William P. Doyle, Federal Maritime Commissioner

the Federal Maritime Commission are independent federal agencies. The President nominates Commissioners who then must be confirmed by the Senate. The FMC comprises five Commissioners, who serve staggered 5 year terms. Doyle explains the process further, saying, "I have been confirmed twice, and my current term would expire in July 2018, 1-½ years past the upcoming Presidential election. With respect to policy positions and orders, the Commission is an independent agency governed by majority rule – we each cast one vote.

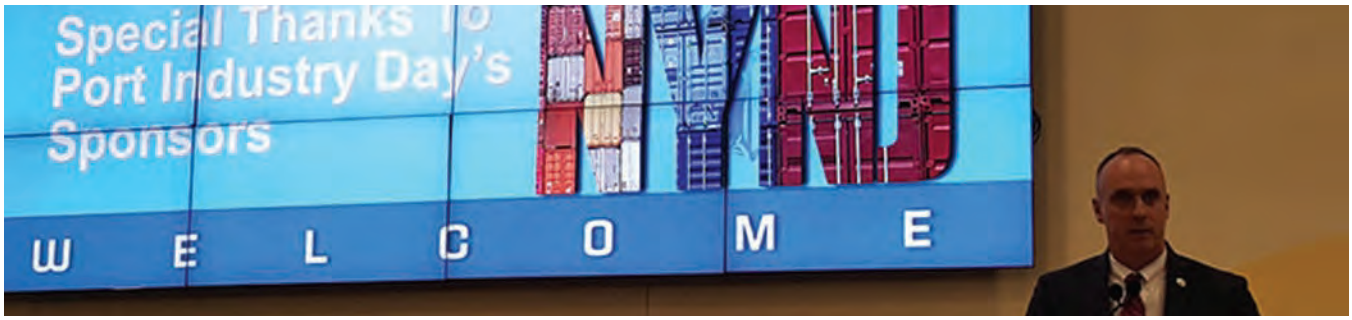
In practice, Marad and FMC work side by side in certain areas, especially where they relate to international shipping matters and trade negotiations. With respect to bilateral maritime consultations, FMC and MARAD co-chair the U.S.-side of the bilateral. In the recent past, for example, the United States has held bilateral maritime discussions with China, Vietnam and Japan.

On any given day, Doyle leverages the full breadth of his career experiences to provide value wherever necessary on the waterfront. Looking back, he explains, "With MEBA, I negotiated hundreds of contracts, grievance adjustments and prosecuted arbitrations. I was able to draw on this experience when the West Coast PMA-ILWU contract negotiations were in full swing (late 2014 / early 2015)." Working with the White House and Secretary of Labor Tom Perez, Doyle eventually helped to bring the negotiations to a successful conclusion.

FMC: always there, on the move

Commissioner Doyle and his colleagues get around. After managing the most recent update to the 2012 FMC Study of U.S. Inland Containerized Cargo Moving through Canadian and Mexican Seaports, Doyle also surveyed construction sites for the Panama Canal's third set of locks – a major transit point for FMC-regulated vessel operating common carriers and a critical component to international oceanborne commerce to and from the United States.

When not on the road, Doyle works with fellow Commissioners to adjudicate a backlog of cases filed with the Commission. He reports that the Commission now resolves over 90% of its cases within two years. Chances are, whether you know it or not, FMC decisions have impacted and probably benefited your maritime organization. In fact, wherever and whenever the fairness and efficiency of the U.S. international ocean transportation system comes into question and/or under pressure, the FMC typically steps in to sort it out. Quietly, efficiently and typically under the Radar – that's the one thing you can count on in the fast-paced, ever-changing world of maritime logistics.



JERRY CROOKS,

SHELL TRADING (U.S.) COMPANY

Earlier this year at the SUNY Maritime Towing Forum, we met up with Jerry Crooks, CSHM, Marine Technical Advisor, Shell Trading (U.S.) Company. Crooks provided insights on the training culture, systems and philosophy that drives Shell Trading (U.S.) Company to instill excellence in safety.

By Greg Trauthwein

> Each partner CEO has committed to a frequency of 12 visits per year, four of which are to be undertaken by the CEO. I have conducted some of these verification visits myself, and have personally seen and heard of the positive impact on crews. This visible leadership initiative has great potential to make a significant impact on safety.
>
> – Jerry Crooks, CSHM, Marine Technical Advisor, Shell Trading (U.S.) Company

A SHELL STAFF IN A GOAL ZERO HARDHAT LOOKING AT THE POLAR PIONEER DRILLING UNIT IN DUTCH HARBOR, ALASKA, JULY 2015.

Photo: Shell; Photographer: Judy Patrick

How did you find yourself with a career in the Maritime Industry?

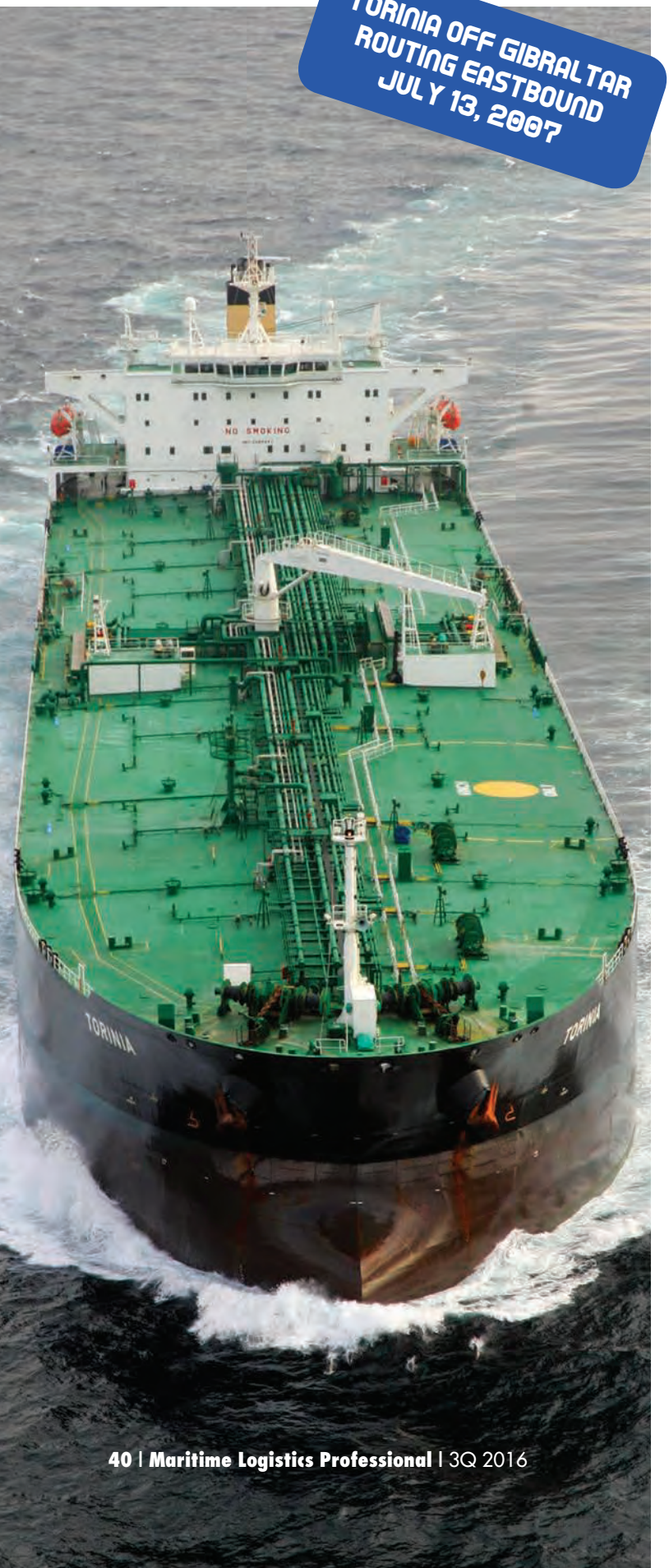
During my Coast Guard career I had the privilege of participating in the Merchant Marine Industry Training Program, spending several months with Shell in Houston, Texas. My Shell mentor was a Captain in the U.S. Coast Guard Reserve, and over the rest of my U.S. Coast Guard career he provided me with very sound advice about how to prepare for a career in the corporate world. My experience with Shell helped me understand the skills required to work in the maritime industry, and also provided insight into how government regulations and decisions affect business. When I decided to leave the U.S. Coast Guard, I applied at Shell because it was a company that shared the core values that I had learned in the U.S. Coast Guard, especially the ideals of respect for people, the environment and property.

Although Shell is a large and well-known company, can you please offer insight and data that will help give our reader a size and shape to the maritime dimension of Shell.

Shell has been in the business of shipping since the company's foundation in the late 1800's. Shell is one of the world's leading charterers of vessels globally and in the U.S. On an average day there are about 1,300 vessels carrying Shell cargo globally, and about 300 other floating assets, such as drilling rigs and support vessels, on charter to Shell. In addition to chartered tonnage, Shell manages one of the largest fleets of crude oil, oil products tankers and liquefied natural gas (LNG) carriers in the world, including 10 oil tankers and 44 LNG carriers. Shell Shipping and Maritime employs about 4,000 office staff and seafarers.

The movement of energy products around the globe comes with inherent risks. At the SUNY Towing forum you broached the "Goal Zero" culture initiative. Can you please describe in detail what exactly you mean by "Goal Zero?"

Goal Zero is the vision statement and foundation of Shell's HSSE programs. It provides a clear statement about the culture we aim to build and a simple phrase that provides a common language for use with our partners in safety. It also serves as a non-negotiable anchor point for powerful safety conversations and a standard against which we can measure performance and recognize and reward individuals and teams. Goal Zero shifts how we think and act, and means relentlessly pursuing no harm to people and no significant incidents. We measure Goal Zero by the number of "zero" days. We maintain two Goal Zero counters, one for "no harm" and the other for "no



leaks." It is critical that our employees, contractors and partners in safety embrace and believe that Goal Zero is possible. Anything less is unacceptable.

Is there one style, one mode of learning that Shell Shipping holds above all of the rest?

One of the greatest challenges for any global business that seeks to build a culture of safety is the penetration and effectiveness of learning, measured by whether it actually changes behavior. This is particularly true in the maritime realm, where crew rotation, shift work and distance from management makes it difficult to reach everyone. There is evidence that the traditional methods of delivering safety messages and learning from incidents – such as fleet notices, safety alerts, safety meetings and tool box talks – are not having the desired outcome in changing people's deep seated behavior and mindset in preventing similar future incidents from happening. For example, people continue to die or sustain serious injuries in mooring accidents or working in confined spaces. These incidents too often share common causal factors that are well documented in the lessons learned from previous incidents.

Shell has adopted reflective learning as a means of making a step change in learning from incidents (industry evidence indicated ~70% content retention compared to <10% retention when using existing communication tools). Reflective learning uses simple and engaging materials, such as video, in a facilitated, interactive group setting. The objective is to focus on the important themes, drawing out personal experiences from participants, in a way that creates behavioral change. This type of structured, face-to-face engagement has been shown to be more effective than lectures, reading or brief tool box talks or safety meetings.

The typical reflective learning session lasts about an hour and involves 20 to 30 participants. A trained facilitator starts the session with a discussion of barriers, and then uses a video that describes a scenario developed from one or more actual incidents. The video is paused at key points and the group divided into teams to consider questions posed by the video narrator. These discussions are the key to the success of reflective learning, and the facilitator plays an important part by keeping the teams focused, drawing out personal experiences for sharing, and helping them identify factors within their control that will make barriers on their own vessels more effective. The video is re-started after each pause and more information provided. Most important, the session concludes with the participants identifying and committing to actions to make barriers more effective on their vessels.

Shell is helping improve industry safety by providing facilitator training and producing reflective learning videos and written 'Learnings From Incidents,' which are shared through the Shell Partners in Safety program.

Quantify the importance of the extension of this safety culture throughout the entire organization, from the CEO to the newest hire?

The first step in establishing a strong safety culture in any organization is a statement of commitment from the highest levels. To embed this statement at all levels in the organizations requires that the statement be more than just a document posted to a bulkhead. Leadership must demonstrate every day, through actions and not words, that the policy statement is meaningful. This is very difficult in the maritime industry, where the vessels and people are for the most part out of sight of management.

Since 2012 Shell has taken a leading role in furthering industry safety by creating the "Maritime Partners in Safety" program. As a major operator and charterer of vessels, Shell cannot work in isolation to realize the goal of a zero incident industry. To support this aim we have created a network of 500 partners, engaging a collective dialogue & commitment at ship owner/operators/CEO level, who share the same aspiration of ensuring personal safety as a non-negotiable in the way that we work together. Together, we have reduced the number of significant incidents by a factor of three so far. Safety not only means people go home safe to their families, but it also is good business. Reducing incidents in the industry benefits everyone's bottom line.

At annual events in London, Rotterdam, Singapore and Houston, we invite the CEO's of our partners to make a "Zero Incident Industry." Through these conferences three actions were agreed:

- ***Visible Leadership – "I care, I want to know, I want to check for myself."***
- ***Activity Focus – "Doing things right, with thorough implementation."***
- ***Lessons Learned – "The front line staff need to know, understand it, and apply it."***

The objective of the visible leadership action is to engage and inspire crewmembers by getting CEOs and senior leaders on board vessels. These leaders are expected to thoroughly plan these visits and demonstrate a passion for safety and genuine interest in personal safety. The leaders solicit feedback on board, follow through on actions, and communicate the results of these visits to their fleets. Tools have been developed to ensure consistency, and a simple, online tool has been created to record visits. Shell is conducting follow-up visits to measure the penetration of the senior leader's key messages on board, which are also recorded using an online tool. Each partner CEO has committed to a frequency of 12 visits per year, four of which are to be undertaken by the CEO. I have conducted some of these verification visits myself, and have personally seen and heard of the positive impact on crews. This visible leadership initiative has great potential to make a significant impact on safety.

We have written many times over the years regarding the nature and cause of maritime casualties and the "Human Factor," and depending on who you speak to, the "Human Factor" may account for more than 80% of all maritime casualties (versus, for example, mechanical failure). With this as a backdrop, how do we (as a ship's crew, as a company, as an industry) best learn from our mistakes to reduce the risk of repeating in the future?

In my first role with Shell I was responsible for reviewing incident reports submitted by our U.S. and Canadian carriers for incidents that occurred while a vessel was on charter to Shell in North America. At first the quality of the root cause analysis was a major issue, in part because the reports are largely written by people with no investigations experience or

SHELL IS BUILDING THE WORLD'S FIRST FLOATING LIQUEFIED NATURAL GAS FACILITY (FLNG), WHICH HAS THE POTENTIAL TO REVOLUTIONIZE THE WAY NATURAL GAS RESOURCES ARE DEVELOPED AND TO UNLOCK VITAL ENERGY RESOURCES OFFSHORE.

training. Over the first year Shell established clear guidelines and expectations for incident reports, which allowed us to better analyze causes and trends.

Most reports do a terrific job of stating the facts: who, what, when and where. Analyzing these facts to determine the "why" and "how" is an area that needs improvement. For example, I recall receiving more than one report about a barge breakaway that identified the root cause as "the towline parted." This is a description of what happened, not why it happened.

Too often we cite the incorrect actions of a crewmember, or a failure to act or follow procedure, as the root cause, but fail to answer the question about why the error was made. If an investigation focuses on blame or fault the true root causes will not be identified. Root causes lie most often in failures of our management systems. As an investigator I was introduced to the work of Dr. James Reasons, an expert in human error, who famously said, "Human error is a consequence, not a cause." This is a very simple and powerful statement that the mistakes made by people are caused by some other factors, most often hidden in our management systems.

Let me illustrate with an example. There was a tank overfill from a chartered tug due to a tank overfill while refueling. The report blamed the Person-in-Charge (PIC) for not monitoring the tank levels – relying on the alarms – and for being distracted while helping another crewmember prepare for transferring slops. When the alarm sounded the PIC checked the sight gauges and noted the tanks were not full. He silenced the alarm, attributing it to a malfunction because false alarms were common. In fact the sight gauges were not reading correctly because the valves were not fully open, but the PIC chose to rely on the sight gauges over the alarm system because of the history of false alarms, (a history that was not known to management). In addition, the PIC had dutifully read the company procedures when hired about 18 months before, but had not read them since. When asked to read the portions of the procedures that applied, he could not explain what he read because the procedure was ambiguous. The procedure was also generic to the entire fleet, and some of the steps required by the procedure were not applicable to this vessel. For example, the procedure required the high level alarms be tested prior to the transfer, but this test was not possible on this vessel. This is a classic example of human error caused by weaknesses in that company's management systems. That said it is important to hold people accountable and recognize that they have a duty to do the right thing and follow procedures. It is equally important for leaders to be accountable for the systems that their people work under.

[SHELL] MARKED THE DELIVERY OF THE THIRD LNG POWERED OFFSHORE SUPPLY VESSEL (OSV) IN PORT FOURCHON, LA. HARVEY LIBERTY, CHARTERED FROM SPECIALIST COMPANY HARVEY GULF INTERNATIONAL MARINE, WILL JOIN HER SISTER SHIPS, THE HARVEY ENERGY AND HARVEY POWER, AND SUPPORT SHELL'S DEEP-WATER OPERATIONS IN THE GULF OF MEXICO. HARVEY LIBERTY RUNS ON 99% LNG FUEL AND CAN OPERATE FOR UP TO 15 DAYS BEFORE REFUELING. THE LNG POWERED VESSELS PROVIDE VESSEL OWNERS AN ALTERNATIVE FUEL TO MEET SULPHUR AND NITROGEN OXIDE EMISSIONS REGULATIONS IN THE NORTH AMERICAN EMISSION CONTROL AREA (ECA). HARVEY LIBERTY IS 302 FT. LONG AND OPERATES ON THREE DUAL-FUEL WARTSILA ENGINES.

In your career, if you could point to one technology that has best enabled the efficient, safe operation of ships at sea, what would that one technology be, and why?

So much has changed over the 41 years since I first joined the Coast Guard that I do not believe I can point to a single technology that has had the greatest impact on safety. Some might argue for double hulls, ARPA, Inert Gas Systems, AIS or ECDIS. Others might argue for non-technological solutions like international treaties such as STCW or the ISM Code, or laws such as OPA-90. I would personally argue for the rise of Port State Control regimes, which started in the mid-1990s with the U.S. Coast Guard's Port State Control Initiative, and later the various Port State Control MOUs. From that starting point there has been a sea change among all facets of the maritime safety nets, and we now operate in a world where a substandard vessel makes headlines because they are so rare.

GAS & POWER LIQUEFIED NATURAL GAS TANKER IN SAKHALIN, RUSSIA.

Who is Jerry Crooks

Jerry Crooks is a Marine Technical Advisor for Shell Trading (US) Company, based in Delaware, providing advice and assistance to Shell terminals in the northeast regarding the ship-to-shore interface. He also performs Baseline Criteria Assessments of third party terminals on the east coast and SIRE inspections of tugs and tank barges. Jerry enlisted in the U.S. Coast Guard in 1975 and started his career as a Boatswain's Mate on ice breaking tugs, becoming a Chief Petty Officer in 1984 and serving the next two years as Officer in Charge of a tug. Upon promotion to Chief Warrant Officer he became a marine inspector and investigator, serving five field tours at Marine Safety Offices in the northeast, Great Lakes and Western Rivers. During this time he was promoted to Lieutenant, and retired as a Lieutenant Commander in 1999. In the years leading up to retirement Jerry served as Senior Resident Inspector at a major U.S. shipyard and the first Chief of the U.S. Coast Guard Port State Control Center of Excellence. After retirement from active duty Jerry took a civilian position with the U.S. Coast Guard as Chief of Investigations and Pollution Prevention in Hampton Roads. Jerry has extensive investigations experience, including the 2004 explosion and sinking of the chemical tanker Bow Mariner off the coast of Virginia, with the loss of 21 lives, and the allision of the container ship Cosco Busan with the San Francisco Bay Bridge in 2007. He is a recipient of the Congressman James Sener Award for Excellence in Marine Investigations and numerous other military awards. He holds a BS and MS in business management and is a Certified Safety and Health Manager.

Workshop for Warriors

Transitioning Vets into Advanced Manufacturing Jobs

Shipyards are the key beneficiaries of 'Workshop for Warriors' talent pool.

By Patricia Keefe

The best solution to a problem is to prevent it from happening in the first place. That's true no matter what the issue, be it labor shortages, the high cost of education or the problems facing veterans transitioning back to civilian life. And if that solution can mutually benefit two nationally pressing issues, all the better.

While still on active duty in the U.S. Navy as a Surface Warfare Officer, Hernán Luis y Prado saw former colleagues and fellow service members struggling to adjust once they left the military. "They get four years of training to do military jobs, and less than a week of training to be a civilian again," he says.

Whether coping with post-traumatic stress disorder (PTSD), disabilities incurred while serving their country or just an inability to find a job - all can lead to a downward spiral into homelessness and or drug use. There are many organizations whose goal it is to help veterans who find themselves in those straits, but Luis y Prado was determined to find a way to nip those problems in the bud.

It struck him that the common thread was unemployment. Former military who failed to land a job could quickly lose their homes, their families and in short order, their confidence and sense of self-worth. Once that was gone, it wouldn't be long before the bottom fell out. That's because among Hernán's students, 68% receive disability benefits, 60% are unemployed or underemployed and 26% are in temporary/insecure housing situations.

Critical Labor Shortage

Luis y Prado, who trained as an engineer, came to realize that there was – and remains – a critical nationwide shortage of workers with advanced manufacturing skills. As many as 2.3 million vacancies out of the 3.5 million jobs that will need to be filled over the next 10 years, according to multiple industry and research sources. "We kept seeing older and older people building and repairing ships and maintaining equipment and saw this was not sustainable." Among U.S. shipbuilders, for example, welders and fabricators are in especially short supply.

Another brewing problem is that the average age of the current manufacturing workforce runs around 59 to 63, which means at the very moment when American manufacturing is resurging, it faces a huge retirement bubble opening up another estimated 2.7 million positions, which will both deepen the shortfall and wipe out decades of knowledge unless something is done to make sure it gets passed on.

"If we do not prepare a generation of people who can do what needs to be done and train others to do that, America is in peril. This [retirement bubble] is the perfect opportunity to get the million-plus veterans expected to transition over the next five years and get them certified and trained in advanced manufacturing," urges Luis y Prado. "Vet 2.0 – The next greatest generation!"

"The reality is we need the next generation of skilled craftsmen to come in. Usually 70%- to 90% of the new guys are completely green. Workshop for Warriors is a good thing. [Their graduates] are already ahead of the majority of folks going for similar jobs," says Matthew Paxton, president, Shipbuilders Council of America.

Coincidentally, veterans who held welding, machinist and fabrication jobs in the military found they lacked the ticket to civilian employment: nationally-recognized credentials. For those veterans whose skills lay in other areas, getting credentialed would be a quicker path to a well-paying job than four- or even two years of debt-inducing college study leading to uncertain employment.

Images above: WFW students in training

"We are building an army that will get America back on track as the world's advanced manufacturing superpower," promises Luis y Prado. "We're teaching a new way of manufacturing; our graduates can do what used to take three to four skilled tradesmen. The Secretary of the Navy calls us the 'Seal team of manufacturing."

– Hernán Luis y Prado,
Founder/President, Workshop For Warriors

Meanwhile, Luis y Prado, who served 15 years in the U.S. Navy, was shopping at a mall when he ran into a friend from his recent tour in Iraq. He was shocked to find the man had lost both legs, and the thought that all of his friend's aspirations might not come to pass due to his injuries so greatly affected him, that he says he literally fell to the ground and told his wife Rachel on the spot that they need to sell everything and get to work on helping veterans like his friend. She was in.

Seeing a perfect fit between two problems where each seemed to be the answer to the other, Luis y Prado hit upon the idea of "rebuilding American manufacturing one veteran at a time," through what became Workshops for Warriors (WFW), a program that funnels veterans desperate for a sustainable career path into an industry desperate for skilled workers.

"From Frontline to Production Line"

"We are building an army that will get America back on track as the world's advanced manufacturing superpower," promises Luis y Prado. "We're teaching a new way of manufacturing; our graduates can do what used to take three to four skilled tradesmen. The Secretary of the Navy calls us the 'Seal team of manufacturing.' "

WFW is today a state-licensed, board-governed, 501 (c) (3) nonprofit school, laser-focused on providing veterans, wounded warriors and transitioning military personnel with accelerated training in advanced manufacturing skills and the opportunity to earn up to 62 industry-recognized, portable, stackable credentials required for careers in welding, machining and fabrication - at no cost to the students. The school targets 18- to 24-year-olds.

The program offers two training tracks – welding/fabrication, accredited by the American Welding Association, and advanced machining, accredited by the National Institute for Metalworking Skills (NIMS). Unlike traditional apprentice programs, where participants might weld a few hours a day over the course of a year-long program, WFW students spent

Workshops for Warriors: at a Glance

Mission: To provide veterans with a lifelong career by providing free training, certification and placement in advanced manufacturing jobs.
Organization: Begun in 2008, Formally launched in 2011 in San Diego.
Annual Budget: $2.4 million.
Future Plans: Expand to 103 facilities located nationwide near areas of concentration of military treatment facilities, advanced manufacturing and veterans. 70 sites mapped out.
Student Demographics: 87% U.S Navy and Marine Corps veterans
By The Numbers: Wait list of 550, 55 students per 16-week semester, 288 graduates
Turnover: Over 1,000 credentials earned, 100% employment.
Costs: Free classes cost $12,000 per student.
Courses: Machining, Welding, Fabrication, CAD; 62 possible NIMS certifications.
Funding: 501 (c) (3) nonprofit. Corporate and private donations and grants
Federal Dollars: Not eligible for government monies until 2018.
Funding Spent on Training: 87%
Capital Funding Campaign: To raise $15 million to build a state-of-the-art, 45,000-square ft. advanced manufacturing training facility in San Diego.
Top Employers: SpaceX, U.S. Navy, UTC Aerospace Systems, Reliance Steel & Aluminum, Pacific Coast Iron and CUBIC.
For Profit Arm: WFW Industries, to be renamed Vet Powered, provides advanced manufacturing services – all profits go to the school.

most of their eight-hour day "welding, welding" using $6 million worth of donated, state-of-the-art equipment, says Todd Elden, West Coast manager for the Weapons Support Group, BAE Systems and a 26-year Navy veteran.

Students can take a four-, eight-, 12- or 16-month program. Four months of classes and a single credential will provide entry-level, full-time work at $15 an hour. At the other end of the spectrum, the full 16-month program opens up entry-level jobs at $25 an hour.

To date, WFW has graduated 288, who collectively have earned over 1,000 credentials, and have an average starting salary of $60,000. With 2500 job openings just in San Diego for every graduate, the program boasts 100% employment. It has a waiting list of 550 applicants. Its success has garnered a number of awards, and even attracted the attention of the White House, which in 2013, recognized Luis y Prado with its *Champion of Change* Award, to honor his dedication to helping fellow veterans.

Where the Boys Are

In 2013, Rachael, who is WFW's COO, told her husband that if he really wanted to make the then five-year-old program a success, he needed to devote full time to it. So he exited the navy, returning to civilian life with a clear idea of what he wanted to accomplish. He settled on San Diego as WFW's new home. It has not only the largest concentration of military bases, defense contractors and shipyards in the country, but also the largest number – 40,000 – of transitioning service personnel annually.

Next up was finding funding and donors to provide software and training equipment, and scholarships for his students. Although accredited, WFW receives no federal or state money, and students can't apply the GI Bill to the program until 2018. All funding comes from private donors, big organizations and WFW Industries, a for-profit advanced manufacturing sister facility launched in 2009 that does prototypes, parts fabrication and repair to help support WFW training financially.

"We need the maritime industry to come together and recognize the need to fund this training." says Luis y Prado. "The only thing constraining us is money." Industry support and partnerships are especially needed now that the White House has asked Luis y Prado to expand the program to 103 centers around the country over the next five years. But first, Workshops for Warriors is launching a $15 million capital campaign

WFW students in training

"The reality is we need the next generation of skilled craftsmen to come in. Usually 70%- to 90% of the new guys are completely green. Workshop for Warriors is a good thing. [Their graduates] are already ahead of the majority of folks going for similar jobs."

– Matthew Paxton,
President, Shipbuilders Council of America

to expand its current location and build a modern, 45,000-square ft. advanced manufacturing training facility in San Diego. The bigger facility with multiple training centers will support at least 750 graduates per year.

A Literal Life Saver

Veterans are lining up around the block to get into the school, which does not advertise or recruit. "It's all word of mouth," says Luis Y Prado. And the words being used are "hope," "future," and life-saving.

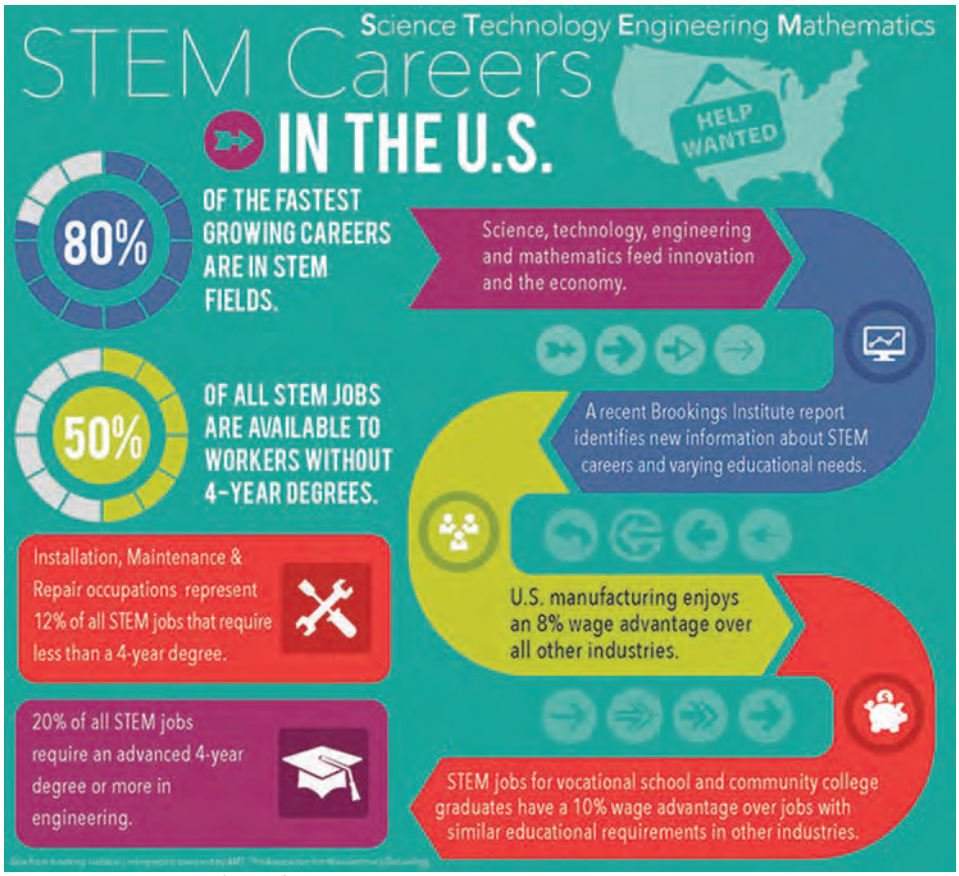
For students also struggling with post-traumatic stress, missing limbs and other debilitating injuries, family breakups and homelessness, the school is the lifeline Hernán envisioned it to be. That's because WFW provides a safe, familiar environment where instructors and classmates understand the stresses of transitioning, and the value of a military culture.

"Anyone can get certification from an instructor, but can they help you deal with personal stuff you are going through while going to school?," asks Elden.

"I truly mean it when I say Hernán and this program saved my life," says student Ryan Palmer, 25, a former Navy hospital corpsman. After anxiety, depression and PTSD forced him to drop out of college, he found his military training had no civilian applicability. After reaching a point in 2015 where he felt "lost and hopeless," he attended a talk on WFW and ended up moving to San Diego from Michigan to enroll. Seven months and at least five certifications later, he already has a job offer which will return him to Michigan. "This program completely changed my life, and gave me a chance at a real future. Without [it] . . . I don't know where I would be today or even if I would still be," says Palmer, echoing classmates when he adds, "This is more than a school, it's an opportunity for a future."

Another student arrived essentially homeless, with dependency issues and having lost custody of her children. She described coming to the school as the "first time I found hope." After 16 weeks of training, she was able to get a job at a good wage, secure housing and is now living with her family again. For Luis y Prado, it is one of his more moving success stories. "If that's not impact, then why are we doing this? People know if they stick it out, they will have a passport for financial freedom for the rest of their lives."

"There is nothing like going to one of these graduations and feeling the appreciation of these students. Some live in



Credit: the Association for Manufacturing Technology

"These people have succeeded in a difficult environment – the military – and have more discipline and leadership capabilities. They know their way around a ship, all the terminology, how to deal with the customer, how they think. We could not run NASSCO without hiring former military."

– Kevin Mooney,
Vice President of Programs and Supply Chain Management

cars just to be able to be there to do the classes. They get teary-eyed because they know they had nothing to look forward to," says Rick Biben, president of Gibbs & Cox, Inc., who is on two WFW boards. With 2,500 openings in the area per graduate, "over 90% are hired before they graduate," he adds.

A Hero's Welcome on the Shop Floor

You don't have to ask employers like NASSCO, GD BAE and Vortex Engineering twice to hire a vet. "Students out of high school are looking for a first job. These [veterans] have experience, training, maturity. As an employer, I'll take that any day of the week," says Biben.

Beyond patriotic sentiments, there are many reasons why ex-military would be in high demand for advanced manufacturing positions, say BAE's Elden and Kevin Mooney, another Navy veteran and vice president of programs and supply chain management, NASSCO. Both are WFW supporters.

"These people have succeeded in a difficult environment – the military – and have more discipline and leadership capabilities. They know their way around a ship, all the terminology, how to deal with the customer, how they think. We could not run NASSCO without hiring former military," says Mooney.

"It is extremely difficult in San Diego to find someone who can machine or weld, never mind both," says BAE's Elden, who says shipyards and defense contractors often have to tell the government that they will have to delay work processes or repairs because they don't have certified welders.

BAE subcontracts work to WFW Industries, and sent two workers through the program, effectively paying for an entire class, in part to "help keep the doors open" in the school's early days in San Diego. Beyond that, says Eldon, "We do $100,000 worth of work a year through the profit side."

"When you hire a veteran that's gone through his system, you get someone who steps on the property ready to go to work, comes with the certifications that you need, and who has that level of dedication to the trade that you need for them and your business to be successful," Elden notes.

Unlike high school-aged apprentices or vocational or college graduates, most veterans are older, used to problem-solving, committed to what is a physically demanding career path, and in some cases, come with years of experience working as welders, machinists and fabricators on ships. They know where the piece they are making is going, and they know how key precision work is, says Michael Bice, president of Vortex Engineering, because they know what it's like to have to daily use a poorly made locker or desk, etc..

"They have the ability to learn and improve," says Bice, explaining that "you spend the whole time in the military training to get better." For example, a welder he hired from WFW had an 'okay' skill level, but his "real value," says Bice, was his willingness to listen to the more experienced workers on the shop floor helping him grow as a skilled craftsman.

"It takes all those years of knowledge to be passed on from one person to the next to actually be the best at what you do. If we could get young America working side-by- side and transfer that knowledge, it would be most beneficial. I am worried about that gap; every year we delay, it makes it harder," says Elden.

The fly in the ointment is that WFW can't graduate enough workers fast enough to meet demand – from students or employers. It's why Eden thinks the maritime industry should provide a certain amount of tax-deductible financial aid to WFW, who can turn out more skilled workers at a lower cost than apprenticeship programs and give the supporting companies first access to job interviews.

The best thing, though, says Elden, is what the program does for the students. "Early in the program he sent me pictures of students – two were in wheelchairs with no legs, one was missing an arm. These people that have given so much to the country, graduated and were placed in jobs, but without Hernán, they'd be lost. I don't know how you put a price on that. It's life changing. It's why I stay involved." And it's why Work Shop For Warriors hopes you will too.

Patricia Keefe
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U.S. Boatbuilding
Exports Buoy Bottom Lines

Gladding Hearn


Eastern Shipbuilding


SafeBoat

Swiftships

Vigor

Market conditions dampen some future prospects, but domestic yards have proven that they can compete overseas, and will do so again when the time is right.

By Barry Parker

These are 'interesting' times for U.S. shipbuilders. The tail end of one of the biggest boom cycles seen in the last 50 years also finds some builders at the pointy end of once-fat backorder books and searching for new sources of business. This point in the cycle, however, also provides ample proof that U.S. yards can do more than produce expensive blue water Jones Act hulls for the domestic markets. Looking overseas for new opportunities has many yards demonstrating that the domestic builder can and does compete overseas in certain niche markets – on price, quality and speed of delivery.

The dozens of U.S. ship and boat builders are as vibrant as they are diverse – building vessels for a range of military and commercial applications. For example, data from the U.S. Maritime Administration (MARAD) shows that U.S. exports of small vessels have been valued at between $2.0 and $3.5 billion in recent years. Parsing the numbers shows that pleasure-craft (including yachts) have been the largest component, but the trend has legs in other sectors, as well. The statistic is deceiving, since it includes re-exports of expensive super-yachts which visit areas like Fort Lauderdale in the winter. Nevertheless, commercial and military vessel sales have held above the $1.5 Billion mark during the past five years. There are indications that this trend will continue.

Versatile History

U.S. yards, many located along the U.S. Gulf Coast and in the Pacific Northwest, are versatile. Indeed, one recent merger saw a large operator of offshore service vessels, Harvey Gulf International Marine, purchasing two yards from the Gulf Coast Shipyard Group tied to the yachting business. One of the yards, in Gulfport, MS, has been building a series of duel-fuelled OSVs (that can burn either conventional gasoil or LNG) for its subsequent acquirer. Prior to a 2013 Private Equity infusion, the two yards, then known as Trinity Yachts, were designing and building super-yachts.

Commercial building – passenger ferries, pilot boats and the like – responds to business drivers. In better days, the offshore oil business provided an outlet for U.S. builders; in 2008 – 2009, Horizon Shipbuilding, based near Mobile, Alabama, exported fast platform supply vessels to Mexico and Nigeria.

Eastern Shipbuilding, in Florida's Panhandle, recently tied to PSVs for both Harvey Gulf and Hornbeck Marine, along with tugs for Florida Marine Transporters, had built a series of PSV's exported to Brazil (with deliveries in 2013-2014). The yard is presently building a quartet of inland river towboats for a logistics provider (tied to one of the world's leading commodity trading houses) in Colombia.

The boats, designed by CT Marine, are purpose-built for the South American trades and feature triple screw propulsion, and retractable pilothouses. The first of these hulls, the Impala Soledad was launched in June. According to Eastern's prepared statement on the launching, "This series of towboats expands Eastern's commitment to the inland maritime industry abroad and continues its long history of being a successful diversified US Shipbuilder."

On the U.S. West Coast, plans to further penetrate foreign markets are well underway. Leveraging the combined weight of its two newest acquisitions – Kvichak Marine Industries and Oregon Iron Works – Vigor is eyeing the overseas combat and patrol craft market. Acting not only as a balance against a waning domestic military small boat market, Vigor also sees potentially rich opportunities with Middle East entities who will likely see great need for this type of littoral craft in the future.

This isn't Vigor's first export rodeo. Vigor has previously exported to Israel, for example, and its Kvichak side of the equation has been selling oil skimmers all over the world for 25 years. Beyond these shores, Whittemore says the skimmers are in operation in places like Brazil, Poland, Russia, Australia and Mexico. Whittemore also points to Kvichak's experience in the pilot boat markets. "We have export experience – this isn't something new to us. One of our first significant export projects involved the production and delivery of three 22 meter pilot boats for Dutch pilots in Rotterdam and Amsterdam. These are semi-governmental agencies and for the Dutch to go outside Holland for these hulls – especially the U.S. – was a big deal." He adds, "We gave them the boat they wanted – not a stock hull or pre-designed form." Beyond this, Pilot Boats have also been delivered to the Middle East (Oman), Survey Vessels to South America and Commercial Fishing Vessels to Russia.

Current Events & Looking Ahead

Military applications respond to world events and the nuances of how government programs are administered. And, it is here that U.S. yards have been particularly successful. Dennis Morris, CEO of SafeBoats International of Bremerton, Washington, pointed to recently delivered SAFE 38 Full Cabin vessels, and told MarPro in July, "The current trends are needs for vessels with the mission profiles of drug smuggling interdiction, immigrant smuggling interdiction, and, Search and Rescue (SAR) – especially to combat the grow-

ing unprecedented immigrant migrations from the embattled countries in the Middle East to Europe." Looking ahead, he sees likely top regions for export over the next five to ten year time horizon as being Central and South America, Southeast Asia, the Middle East, and North Africa. But, not everyone necessarily shares his enthusiasm.

CEO Shehraze Shah of Swiftships, another builder of boats with an enviable export record, offered a more cautious view, saying, "Since 2014, defense exports have been on a serious downward trend. This can be attributed to several reasons: First, oil is the main commodity for most of defense clients (Middle-East, South America, and Africa), and the slump in oil prices have put orders on a screeching halt." He added that, "Secondly, the US Political Military Policy for defense product(s) towards emerging allies causes major set-backs due to policies being so-rigid."

When asked about factors at play in its business, SafeBoats' Morris explained that: "To date, SAFE has built and exported vessels to over 60 countries. We foresee a striking increase in the market in the international sector in the next few years with a trend in procurement away from the material of fiberglass towards aluminum due to life cycle costs, durability and performance." One such outlet for SafeBoats, for example, has been the Royal Jordan Navy Command.

Morris adds, "Another example of our international business is a total of 10 patrol vessels delivered or on order for the Israel Marine Police. The Israel Marine Police (IMP) contract for the last three of ten was signed in late June. The IMP models of choice include the 27 Full Cabin, 31 Walk Around Cabin, and the 25 Center Console."

Swiftships and SafeBoats are hardly the only players in this market. Peter J. Duclos, President and Director of Business Development at Gladding-Hearn Shipbuilding/ Duclos Corporation in Somerset, Mass, detailed his yard's involvement in both commercial and military exports in recent years. Notably, the yard has exported ferries to Bermuda, where it also sold a 61 ft pilot/rescue boat. And Freeport Harbour Company (Bahamas) took a 52-foot V-Hull all aluminum pilot boat. Separately, the Colombian Navy was a customer for seven 56-foot V-Hulled "Chesapeake Class" patrol boats (with a top speed of 27 knots), delivered in 2015.

For his part, Morris sees more exports on the horizon, pointing to significant international interest (in particular from Colombia, Mexico and a group of Caribbean nations) for its newly unveiled Multi-Mission Interceptor- a 35 ft. aluminum boat with top speeds in excess of 55 knots.

Like Swiftships Shehraze Shah, Gladding Hearn's Duclos offered another more cautious assessment, telling MarPro, "The backlog at the yard currently spans 12-14 months … our order book, consisting of six passenger ferries and three pilot boats, is all domestic, except for some small sales of parts." Addressing the export markets, he added, "The prospects for exports are not looking good at the moment. The biggest effect on export we see is the strength of the US dollar against other currencies. Our focus is on Central/South America and the Caribbean countries. There seems to be a preference for these countries to do business in the US rather than Europe or Far East."

In the meantime, West Coast-based Vigor isn't sitting on its hands. The acquisition of Kvichak (2015) and before that, Oregon Iron Works (2014) has quietly positioned Vigor to vie in the fiercely competitive government patrol and combat markets, combining the experience of both and the economy of scale of a state-of-the art metal processing facility in South Seattle. Today, the old OIW and Kvichak are collaborating under the Vigor Banner, sharing design and engineering resources, product development and marketing resources, and each performs production and fabrication support for one another.

Utilizing bar codes, waterjets and lasers in their south Seattle building, all pre-fabrication work for the small boat line is accomplished. Vigor's Keith Whittemore says Vigor's facility is second to none. "There is no other metal processing facility like it in the United States. We scan inventory parts in and out

Gladding Hearn

> **"Since 2014, defense exports have been on a serious downward trend. This can be attributed to several reasons: First, oil is the main commodity for most of defense clients (Middle-East, South America, and Africa), and the slump in oil prices have put orders on a screeching halt. Secondly, the US Political Military Policy for defense product(s) towards emerging allies causes major set-backs due to policies being so-rigid."**
>
> **– Shehraze Shah, CEO, Swiftships**

with a barcode system, he said, adding, "Now, production and engineering is all under one roof to tackle these markets."

The Big Picture

It is also true that export success stories of the military variety are tied, in part, to U.S. Government efforts, notably the Foreign Military Sales (FMS) program. The Defense Security Cooperation Agency (DSCA) administers the FMS program for the Department of Defense (DoD). Under FMS, the U.S. government uses DoD's acquisition system to procure defense articles and services on behalf of its partners. Eligible countries may purchase defense articles and services with their own funds or with funds provided through U.S. government-sponsored assistance programs.

But such programs are subject to the vagaries of budgets and foreign policies. Mr. Shah amplifies that point, saying, "We have delivered almost 300 vessels through Foreign Military Sales (FMS). Recent scrutiny from the State Department has slowed the FMS programs to a screeching halt due to the budget cuts in Federal procurement offices. These programs have not only been beneficial to Swiftships but it assists our foreign clients, as well."

With these cutbacks, sales can still be made directly to foreign governments, subject to approval by the U.S. Department of State. According to Shah, this has important implications "The recent awards Swiftships has received were Direct Commercial Sale (DCS) vs. FMS. FMS does allow us to reach a broader base of local shipyards, which reduces the inherent risk in international sales, facilitation, planning, and reducing the administrative burden of doing business. The fact that the risk of doing business in lessened because FMS sales effectively are just sales to the United States Government, allows us to do business with ease."

SafeBoats International's CEO has his own thoughts on the subject. "There are strong and weak manufacturers in the boat building industry. The U.S. Government (USCG / USN) should start encouraging industry consolidation." He also pointed to governmental incentives, saying: "Tax policies which enact tax credits at the local/state level should be established for highly skilled manufacturing industries such as boat building. SAFE employs highly skilled labor and is an exporter of American manufactured goods. Support from the

Swiftships

U.S. government in the order of tax incentives will bolster the ability to export," Morris insists.

Factors outside of U.S. control will also influence boat successes, with Morris acknowledging that: "Continued growth of international economies allows for procurement of high performance defense equipment such as the vessels which SafeBoats builds." Another take on improving the situation for U.S. boat exporters came from Mr. Shah. "Create more collaboration within the international defense sector by increasing staffing and adding skilled contractors (non-Government) with less rotation so programs are not handed-off every year to new staff." He also had suggestions on how programs are organized, saying: "Clients overseas should be given more flexible terms with International Program Offices (IPO), to be a Program Office with the ability to execute work, which will ease branches of the Military and not burden them with more export business. This effectively ensures that business doesn't get hurt locally – or globally."

Mr. Duclos, from Gladding Hearn, offered still another big picture view when he said, "I think our exports depend more upon their election cycles, and economies, rather than trade agreements." In opining about the interaction of the ongoing election cycle, and political actions, with the ability to sell to foreign customers, he said "I'm not really sure how we would be affected by our candidate's trade policies. I know that under the Obama administration, our trade relationship with Colombia was strengthened. Our previous MA Governor Deval Patrick also made at least one trade mission to Colombia."

The military side may be seeing some headwinds. Swiftships talks about U.S. budget cutbacks creating a backlog and thus opening up business to foreign competition. The CEO, Mr. Shah, says: "As a result, clients are now switching to DCS instead of FMS. The difference between the two is that now ALL major players like Lockheed, Boeing, Northrop Grumman cannot support DCS due to their corporate (in-house) restrictions, which hurts export because OEM's like Swiftships cannot supply technology to meet clients' needs."

But Mr. Duclos, on the commercial side, hit on a bigger problem – the maritime industry's lack of visibility, saying: "Massachusetts is second only to Florida in exports to Colombia, most of which is high tech and medical. Exporting boats is such a small number that I don't think it's on anyone's policy radar."

At the same time, and as the market for government hulls begins to slow in the United States, Middle East regional conflicts persist in a half dozen places, and additional hot spots flare daily. As it turns out, Vigor is already there. Whittemore explains, "Kvichak has been very interested in foreign military markets for many years. The U.S. market share is saturated – there's only so much market share here to get. Kvichak has a bunch of it, but if we want to expand, then we need to be marketing overseas."

Vigor, for one, is putting its money where its mouth is. Whittemore has been to trade shows all over the Middle East, demonstrating their latest boats and visiting virtually every country in the region in the process. The $2.5 million boat – a 45' RB-M 'Vigilant' – is based in Bahrain, and at no small cost. Vigor maintains a local captain, a Middle East Manager, and local support for the operation. In place long before Kvichak's merger with Vigor, Whittemore says that the boat represents their firm commitment to this market. That said; Vigor is hardly alone when it comes to U.S. builders vying for business in the region.

The U.S. Maritime Administration, in a report delivered just last year, says that despite an increase in foreign competition, exports by U.S. shipbuilders have strengthened in recent years, rising to $1.2 billion in 2014 (representing 4.6 percent of industry revenues). As a result, the U.S. shipbuilding industry has run a trade surplus in six out of the last nine years and a cumulative trade surplus of $1.5 billion over this period.

That kind of track record will eventually translate into repeat export business, when the business climate improves. That's because price, quality and reliability are the key variables when it comes to selecting builder – at home or abroad. In these niche sectors, U.S. yards have proven over time that they can deliver all three. To that end, however, Vigor's Whittemore recently advised, "If you are going to play in this market, you better have a lot of patience and significant money to invest."

Barry Parker of bdp1 Consulting Ltd provides strategic and tactical support, including analytics and communications, to businesses across the maritime spectrum. The company can be found online at **www.conconnect.com**

Risk Management and the Human Element

Even as ship vetting and risk management techniques evolve, defining the human element of the equation nevertheless remains ever elusive.

By Joseph Keefe

If the vast majority of shipping casualties are a function of 'human error,' then it is also true that the effort to identify, define – and mitigate – the risk that emanates from the human factor remains very much a work in progress. As vetting procedures have improved and become more sophisticated, the ability to pinpoint which vessel or fleet might not be a good candidate for hire has also improved. According to RightShip CEO Warwick Norman, predictive analytics is just one key to a safer shipping sector. How to incorporate some measure of the human element into that ever-complex equation is another thing altogether.

Virtually every maritime concern on the planet is today, in one form or another, actively addressing risk on the water and looking for ways to better define, mitigate and ultimately eliminate risk where possible. Within that subset, the international vetting experts at RightShip, the tanker industry stakeholders who comprise the ranks of INTERTANKO and Shell Trading each approach the subject differently. All say that there is still much work to be done.

Important Work, Impressive Stakeholders

Since 1970, the International Association of Independent Tanker Owners (INTERTANKO) has been the voice of independent tanker owners, with the goal of ensuring that liquid energy is shipped safely, responsibly and competitively. As of January 2016, the organization boasted 210 members, a combined fleet of 3,654 tankers totalling 313 million deadweight tons.

According to Katharina Stanzel, the Managing Director of INTERTANKO, Safety first and the aim of zero accidents and incidents have been a long standing aim for INTERTANKO. Stanzel told MarPro in July, "As part of the sectors quality improvement efforts over the past 20+ years, structural and operational aspects were important, but the Human Element has been very much at the core of our work. Among INTERTANKO's 12 working committees, the 'Human Element in Shipping' Committee (or HEiSC) sits at the center and contributes to the work of the other committees at every level. It is staffed by a broad range of subject matter experts from within the Membership, including crewing, HSQE and academic & training professionals."

At the heart of Shell's efforts to grow its staff organically, their Goal Zero program is the vision statement and foundation of Shell's HSSE programs with two Goal Zero counters: one for 'no harm' and the other for 'no leaks.' Tim Gaughan, Shell's General Manager of Maritime Talent, explains further, "We believe that safety is paramount to our success and strive to recruit from within our own operated fleet whenever possible. In growing our own timber, we can ensure that our staff are fully aligned with our Goal Zero culture onboard our ships and this continues in their shore based assignments."

Despite that kind of industry focus, Warwick Norman, CEO of RightShip, says it isn't quite that simple. "We look at human factor more closely for a new delivery or change in DOC, however we are working to augment the human element to supplement the vetting process – in particular, with closer analysis of 'the human factor' in PSC deficiencies, including those associated with the MLC Convention." That said; those involved with assigning a rating to a particular vessel or fleet must tread lightly. That's because risk transcends just a cursory look at the crew itself.

The RightShip Way

"When we say that, for example, 80% of incidents are caused by 'human error', this does not mean that it is necessarily the crew's fault; it could also refer to human error in the design stage, at the shipyard, or even at the vessel manager level," says Norman, adding, "'Human error' is often used as a collective term or 'bucket' for everything that's not mechanical.

RightShip

Shell

The assumption is that experience is aligned with competence – which is often the case, but not always so. As well as privacy laws, more general issues surrounding the privacy of individuals need to be factored in here too, adding to the complexity."

This year, RightShip is introducing the next generation vetting tool, RightShip Qi. Pronounced 'key' – and an acronym for Quality Index – RightShip Qi is all about improving maritime safety and efficiency. According RightShip, the new system harnesses 'big data,' predictive analytics and real-time risk assessments to better target substandard maritime performance. Vast quantities of ever-changing data are analyzed by sophisticated algorithms to spot patterns and draw conclusions from data sets too large, diverse and dynamic for analysis with previous technology.

The newest version of RightShip – Qi has moved from an expert-opinion model (SVIS) to a predictive model (Qi). Warwick explains, "Previously we utilized multiple data feeds from different providers, however now we are managing it all in-house through our own data warehouse. This eliminates the variable quality of 3rd party providers, allowing us to aggregate data across numerous sources and to create a single 'golden record' that is updated in real time."

According to Norman, the model works. "A vessel with a 1 star rating in 2015 was 20 times more likely to have an incident than a vessel with a 5 star rating. This predictive model is fluid, and we have the capacity to continuously improve it; however customers can be confident that it works."

Despite the difficulty in predicting the human element, RightShip records show that in terms of the top five reasons that vessels are turned down for charter, the Crew Matrix ranks right up there with an Unsatisfactory SIRE report, Age of the Vessel, PSC actions and/or Environmental Sustainability (or lack thereof). But, he cautions, "There is a blurred line between vessel risk and the human element. When the latter is not explicitly measured, we find that PSC and DOC reports are often a mask or proxy for crew experience (or lack thereof) as issues will often be uncovered in this process."

Five Minutes with Shell Trading US Company

On the front lines in the battle to ensure that the world's merchant fleet and in particular, its oil tankers are run to the safest standard possible, it is likely that no one entity has more at stake than Shell Trading US Company. At the tip of that spear is (Captain) Tim Gaughan, Shell's General Manager of Maritime Talent. Long before he was tasked with finding the best and the brightest for Shell, he's done just about every job that he recruits for. Most importantly, Gaughan, first and foremost, knows risk.

A graduate of SUNY Maritime College and from St. John's University in New York with an MBA in Executive Management, he has been with Shell for over 26 years and joined the company after completing a 13-year seagoing career working aboard crude, product and chemical carriers, ultimately sailing Master for three years. Along the way, he held marine technical, operations, and commercial positions within Shell Oil Company in Houston, and then, overseas. Those roles have taken him from London to The Hague, into Nigeria and finally back to Houston in 2012.

Gaughan describes the reach of his domain, saying, "We have about 3,500 seafarers on our operated vessels that are managed out of our Shell Ship Management Limited (SSML) office in the Isle of Man, UK. Currently, we have about 500

maritime professionals in various technical, operational, commercial, assurance, risk management and safety roles throughout the Royal Dutch Shell Group. I am responsible for maintaining a robust talent pipeline globally for Shell Shipping & Maritime for all these positions into the future."

Shell's recruitment strategy is a simple one, and reflects the need to integrate shoreside ranks with expertise (and experience) from the marine side. "We recruit maritime professionals from across the Maritime sector and from academia all over the world, namely Europe, Americas and the Middle and Far East. One of our main drivers for operating a fleet is to grow our own Ship's Staff with the ultimate goal of bringing the best and brightest ashore for a future career in our global organization. We also have a Graduate Internship program wherein we recruit business, logistics and engineering talent from top tier universities around the world."

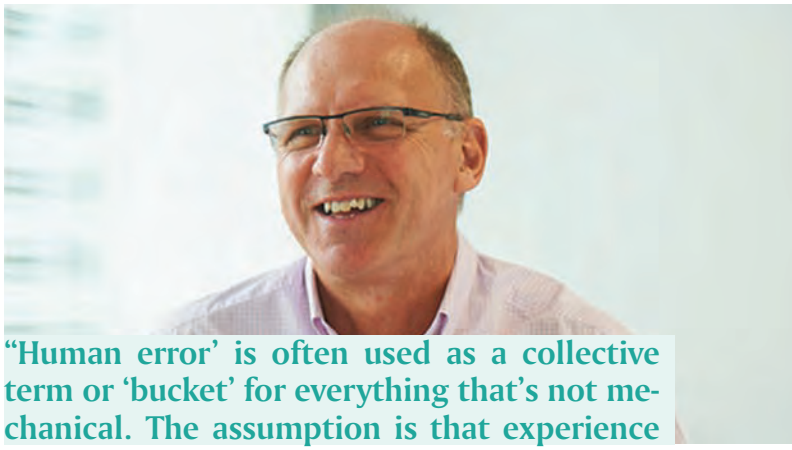
Separately, and in a world where oil touched $20 briefly, and at a time when the bulk, offshore and containership trades find themselves in the doldrums, Gaughan and Shell have seen little impact to their ranks. He told MarPro in July, "As the majority of our marine professionals are primarily involved in ongoing oil, product, chemical, LNG and upstream operations, safety and assurance activities, we have seen minimal impact to our current staff levels."

Even in a down climate for many sectors, Shell relentlessly looks toward the future. That effort involves providing cadets berths to U.S. maritime academy cadets. These include SUNY Maritime College, the Massachusetts Maritime Academy, Texas A&M at Galveston and the U.S. Merchant Marine Academy. The program is yielding fruit, with caveats. "Currently, we have a number of junior American officers who are sailing in our International Fleet. Sailing on board a multi-national crewed vessel is not for everyone and remains a challenge for many American seafarers. We have found success by hiring academy graduates who have cadet sailed with us as our best option, as they know what to expect on board from previous experience."

Gaughan says that most Americans who join and stay with Shell, enjoy the global international sailing experience and also the ability to sail on new, state of the art oil, product and LNG carriers. He adds, "We plan to continue our cadet program and also to hire American officers for our future talent pipeline needs."

INTERTANKO Weighs In

Katharina Stanzel couches the INTERTANKO focus in a different light. "I think the word 'quality' needs to be better defined. We and our Members are focusing a lot on competency and experience as a measure of what I think you describe by 'quality'. Regarding our Member's attitude, entrusting their multimillion dollar asset (with an even more valuable cargo) to a handful of professionals does by definition focus the mind on the 'quality' of those professionals, so they are extremely aware and focused on the quality of their crews and officers." She adds quickly, "I think here the tanker sector does have a clear advantage and much better training today because of the dangerous nature of our cargoes."



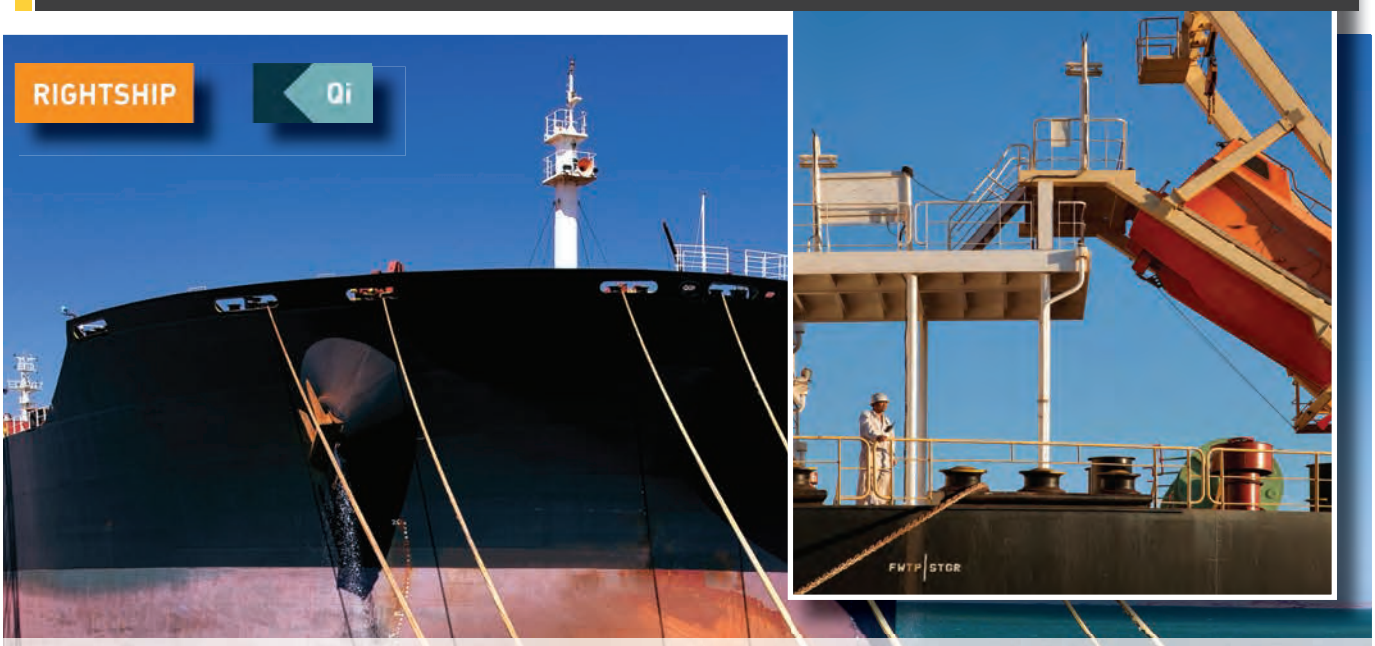
"Human error' is often used as a collective term or 'bucket' for everything that's not mechanical. The assumption is that experience is aligned with competence – which is often the case, but not always so. As well as privacy laws, more general issues surrounding the privacy of individuals need to be factored in here too, adding to the complexity."

– Warwick Norman, RightShip CEO

Nevertheless, Stanzel says there will always be caveats. "Trying to define measures and KPIs for this 'quality' is what is difficult, particularly when simple answers are preferred. The crew matrix requirements are in my mind an example of such simple answers because they try to express numerically, what is really a complex combination of factors." Beyond this, she insists, "I would urge caution to equate accidents with a lack of quality. One of our major challenges is to address and prevent complacency in very experienced and highly qualified personnel." That process is anything but easy.

Because INTERTANKO maintains that competency and experience can be undermined by complacency, the organization is focusing on learning from incidents and what tools are most effective to get 'lessons learned,' disseminated and then acted upon. That, she says, is easier said than done. "A lot is down to basic human psychology – which is why 'case studies' or stories we can relate to and that elicit an emotionally charged response and recognition work so well. One major difficulty is trying to keep simplified assessment systems useful in how they actually address the risks they are designed to mitigate."

Vetting the human element is a delicate task, fraught with political, social and national ramifications. Stanzel herself concedes, "... there is probably no other industry where national stereotypes and cultures are addressed so overtly and directly as shipping. Bridge team management and similar efforts for example seek to address directly some of those very delicate issues – for example, how an Asian junior officer can



RightShip

safely challenge a higher authority on the bridge. We have some subject matter experts within our Membership that deal with crewing and others with training, so the links can often be directly demonstrated and discussed."

Stanzel's position on vetting drills deeper than simple 'suitability' of a vessel. "In my mind, 'vetting' always has something to do with suitability and one of the things we have done for nearly ten years is to establish model training and experience requirements for tanker officers to ensure they are 'suitable' to do the job safely. Many of our Member companies have specific training schemes for their officers and sometimes crew and we are currently revising and collating what we consider 'best practice' in that field together with some of the charterers."

And, she maintains that there are many ways to test for suitability. "Some types of training (like simulator work) may be able to gauge the suitability at a certain level, but I would argue there is much more to it. I am also absolutely convinced of the importance of going beyond pure 'competency based training' as that tends to address specifically needed skills rather than the personal and professional development of the individual. Most of our members work to enhanced training standards, in particular for their officers and many have personalized development plans for all their staff, addressing not just required competencies." Taking a step back, that sounds very much like the Shell approach.

Three Views: One Goal

When it comes to the effort to create a safer environment at sea, INTERTANKO, RightShip and Shell are all on the page, albeit approaching the same ideal in different ways; sometimes for different reasons.

RightShip and founder Warwick Norman aim to more precisely define risk and at the same time, help customers to manage marine risk by identifying and eliminating substandard ships from their supply chain. Along the way, promises Norman, "We are working to augment the human element to supplement the vetting process – in particular, with closer analysis of 'the human factor' in PSC deficiencies, including those associated with the MLC Convention." In fact, the next evolution for Qi is to directly factor a crew matrix into the risk rating. Warwick adds, "Our analysis shows us that the crew is an important factor, but to consider this in terms of experience alone is an oversimplification: it is the crew's interaction with events that is important. For example, if we look at a crew (rather than a vessel) that regularly calls at a terminal, we can see a direct relationship to their efficiency at that terminal."

For Shell and Gaughan, it involves more than just looking for mariners. "We have found that today's seafarers are looking for much more than just finding a ship to sail on and then upgrade their licenses. They all want a long term career. At Shell, we have developed an Employee Value Proposition (EVP) to attract the best and brightest and to offer them future possible career paths throughout the Shell Organization," says Gaughan.

Separately, INTERTANKO's aim is to address and mitigate human factors and associated risks, not quantify them. "That may be more something for the charterer's liability lawyers or P&I underwriters or the likes of RightShip trying to provide easy answers to complex combinations of factors. We are of course interested in whether tools like the crew matrix for example could be re-engineered with a goal based approach so they actually address the risks of concern directly. I believe at the moment there is little actual evidence that the measures in the matrix (time in rank and with the company) actually directly correlate to a risk of incidents."

Whatever the underlying motivation, the goals remain the same. Safety, in its purest form, will always involve the human element. Measuring, mitigating, and managing risk. We all want the same thing. It's only human.

Asking the Navigational Question:

What do I need to know? What am I looking at? What are my options?

By (Captain) Christian Hempstead

Transas

The practices of marine navigation in the digital age may be trending away from navigation. Not so much by replacing manual skills with automated systems, although this is certainly a reality. Opportunities for hands-on practice are still present in most forms of seafaring. The real issue is how to hold fast to the ever-evolving *Navigational Question*. There is no single question. This is a concept or attitude that points us to the endless stream of questioning that enables the identification of our moment-by-moment circumstances.

Most of the time, the *Navigational Question* seems to involve asking 'What.' 'What' questions involve asking how things work, how systems work together, and why things are or are not as they appear. Asking 'when' is particularly elusive, partly because marking elapsed time is subconscious, and is highly vulnerable to distraction. Longer term 'When' questions, for purposes of noting trends and updates, require some form of record keeping, such as memory aids. Accordingly, training is particularly challenged by developing the feel of the internal clock, the physicality of speed, the meaning of real-time, and the awareness of the age of data.

Time questions are generally embedded in 'What' questions. Consider the visual bearing, the running fix, the intermittent radar blip, the aspect of running lights, the hand-made fix on a chart (electronic or paper), the depth under the keel, the state of tide, and/or set and drift. All of these are highly temporary, and all require continuous updating. Thus the sequence of questioning flows naturally in active watchstanding, whether in solo mode, or in a team of two or more.

Impact of Automation

There is a consequence to automating this updating process in a two-dimensional array of graphical and data displays. The watchstanding routine shifts to a form of inspection for updates. This form of perception and analysis is at once tedious, open to mistaken assumptions, and easily formulated in software logic. Counting and inspection are soon automated into TCPA, Safety Depth, Cross Track Distance, minimum depth, position offset, etc. Alarm functionality, on the path to meaninglessness, multiplies swiftly to the point of profound expectation. Vendors do not intend this, yet naval architects and designers remain unaware of the inevitable operator capitulation to automation. Training schemes, with rare exceptions, overlook what has elsewhere been referred to as automation awareness.

The active watchstander, within a fixed budget of cognitive resources, must convert real-time internalizing of external cues into abstract awareness of alarm parameters and appropriately configured graphical displays. The Navigational Question must accommodate the health, idiosyncrasies, and criticality of systems. This inevitably comes at the sacrifice of time spent physically dwelling in the midst of external cues.

Looking Back, Planning Ahead

Coaching a trainee in methods of well-defined questioning is actually quite familiar. When radar was new, a freshly observed blip was marked, and then the junior watchstander was instructed to immediately raise the binoculars to see what, if anything, was on the horizon, or closer, and to consider: *What risk, if any was developing?* Likewise, a visual contact on the edge of visibility was crossed-checked for range on radar as a significant factor in asking many questions: *Is our present speed safe? What Rules of the Road now apply? Are the conditions changing? What is the proximity of other hazards?, What are my options and their risks? When will the unfolding workload exceed my capacity? When is the time to augment the watch?*

At present, there are multiple tracking devices, and still we have the visual prerogative, most of the time. It only requires a subtle shift in emphasis to use the tracking information to crosscheck internal estimates. In the 1970's when ARPA was new, Future Shock (Alvin Toffler 1928-2016) considered a technological world we humans would be compelled to want to operate, or else suffer a deep collective anxiety. Now in that future, we are in the midst of discovering a deeper impulse: To be glad to go off watch, not unlike the all-too-common event of a ship's bridge team relieved to hand over full navigational control to the just-embarked pilot. Controlling the ship is not overly complex, until the contexts of confined and dynamic waters no matter how familiar raises the risks to levels nearly unmanageable by humans.

Letting go is a reasonable response to anxiety, just as narrower safety margins are the inevitable outcome of control by highly technical and complex systems of sensors, logic, parameters, and redundant power sources. But letting go operationally also seems to include the rapid decay of asking the Navigational Question. Maintaining responsibility requires participation.

Managing Automation, Keeping Watch

How should mariners practice participation in navigational systems that both exclude them and yet require their attention? To begin with, they must keep asking the Navigational Question: *What am I looking at? What does this mean? Is this information ambiguous? How are the conditions changing? What risks are developing? What is the consequence of this trend? What are my options for action?* Two basic streams feed into this constant querying. One is un-teachable: Just being curious. The other can be developed with guidance: Just keep moving about in your navigational environment, physically and mentally. If you are rooted in a sophisticated cockpit, then your physical motion is confined. This makes your full perception far more deliberate. For that we have techniques of scanning the visual scene, the graphics and data readouts.

Numerous shipboard navigational functions, some exceptionally complex, and often designed into the very purpose of the vessel, enable the commercial contract, or may be critical to a military mission. Consider DP dive support, shuttle tanker operations at an FPSO, ultra-deepwater drill ship position keeping, multi-vessel offshore towing, cruise ship maneuvering, "footer" laker transits based on real-time water levels, vessel fuel economy dependent on track control, high-speed transits dependent on reliable sensors, underway vessel stabilization, ice navigation, environmental forecasting, chart survey data quality, not to mention the navigational impact on cargo care in general, integrity of the ship's structure, and the well-being of crew and passengers.

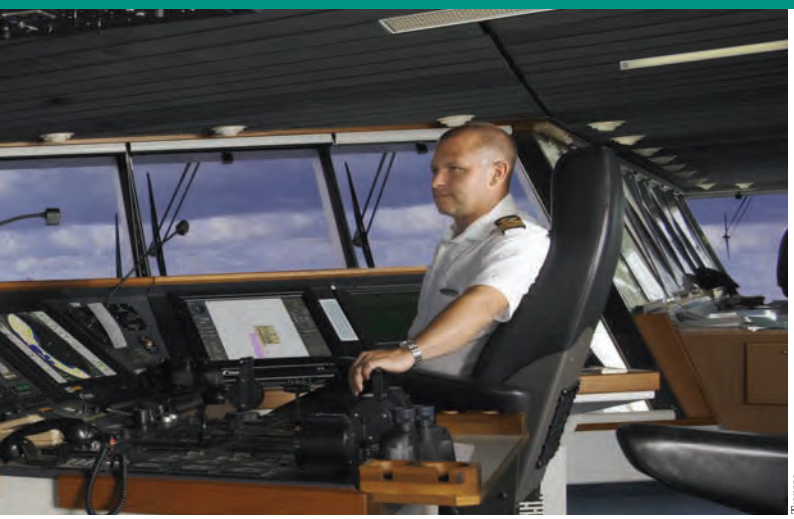
We have come to expect that automation means less human involvement in the operation of the technology-based system, certainly during routine periods. However reasonable that sentiment may be, we must also guard against losing interest in what makes things work, or in the responsibility for necessary skills and understanding. What is routine in maritime work inevitably gives way to the unimaginable.

A noteworthy trend is the diminishing value of navigation's very foundation; namely, the timely exercise of good judgment. The shallow view generally taken is that navigators are prone to making mistakes. To be sure, there are efforts within IMO and some professional maritime groups to support the so-called Human Element. Nonetheless, the context for human seafarers is changing undeniably, and at a pervasive pace, aided by vendor applications of remarkable complexity. These systems, designed for the broadest possible market, are used only in partial ways. That quickly brings on the problem of partial use, because the less one uses a system, the less one knows and understands it, until the most prudent approach is not to use it all.

Back to Basics

Of course, what makes our profession so fascinating is that alongside the fleets of vessels wired for digital automation, there are vessels and operations that are entirely hands-on and permanently analog. Young and retired river pilots alike recount their enjoyment of fleeting barges and flanking massive tows around bends in the Western rivers. Skillful towboaters work remote uncharted waters of Alaska serving dependent communities. Ice navigation still demands exceptionally alert perception whatever real-time updates come online. The skillful adaptation of trawler fishing technologies has had undeniable consequence, while globally, uncountable fishers remain remarkably unenhanced.

An extreme example of non-instrument navigation is the traditional wayfinding knowledge and techniques of Pacific Islanders in open-ocean voyages. This wayfinding uses no positioning, no compass or clock. A revival of wayfinding was championed by master navigator Mau Piailug aboard Hokule'a in the mid 1970's, and carried on by his mentee Nainoa Thompson in the 1980's, who is presently training new Pacific island



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navigators. In addition to a well-informed course strategy that considers expected winds, currents, celestial movements, and the destination, the method is an extended exercise in internalized deduced reckoning and proximity to the reference course. There may not be language to describe the spiritual powers, as real as the elements, embodied in the voyaging canoes.

Mike Cunningham, crewmember and captain in the Polynesian Voyaging Society, states "Guided exclusively by the stars and ocean swells (without charts, sextant, radio or even a wrist watch), these modern voyagers [have] proven that this nearly extinct navigational skill could be used to guide the first explorers to the Hawaiian Island chain." In May 2014, Hokule'a embarked on a four-year world-wide voyage, and is presently visiting the U.S. East Coast. While Hokule'a illustrates the embodiment, and humanness, of living and breathing the Navigational Question, there is another recent navigation story to relate.

As counterpoint to the deep reach of networked technologies in the maritime world, author George Foy examines the neuroscience of navigation while unfolding a personal sea story. In his book, *Finding North: How Navigation Makes Us Human*, published this past Spring, Foy focuses on the quintessential navigational question of *'Where am I?'* as a blend of philosophy, cognitive psychology, microbiology, literary symbolism, and affirmation of personal identity. Yet his context all the while is the immensely practical problem of actually finding position on a voyage of his own in homage to his ancestral seafarers. In the tussling, Foy confronts a collective loss of non-instrument skills and identity. The process of moving and navigating is ongoing, and life affirming, through the enlivenment of memory and ultimately of personal identity. To Foy, the risk of losing our navigational abilities through substitution by technology equates directly as a risk to human identity.

Incorporating Technology in Successful Navigation

The inclusion of technology in navigation can be invigorating, so long as it enables hands-on navigational practice. What we perceive by eye as a bearing, by ear as a change in wind, by feel as a vibration in the shallows, can all be confirmed by vital navigational instruments. Predicting set and drift over time can be confirmed by position fixes. Computing the math for celestial lines of position (LOP's) permits more practice of the hard part, collecting many LOP's instead of a few. Plotting LOP's helps create a physical understanding of GPS error and satellite constellations. Confirming gyro or magnetic compass error over a passage is a lesson in gyro oscillation, and geomagnetism. Radar target tracking overlaid with AIS tracking offers insight into visual aspect, vector lag and relative motion. The electronic chart, as a collecting point for all kinds of data, should routinely send us back to confirm the health of our source sensors. But first comes asking questions of curiosity, one a time, in a useful priority.

Our seafaring identities are tightly bound to our tools and innovations, no matter what age we are living in. There is no back to go back to. Just because so much automation confronts us in our present age does not directly threaten to erase our memories, or deprive us of our navigating brain. The instruments are not that powerful. Keeping our wits as mariners is our own choice. Our uniquely human advantage is in asking questions as a response to learning the answer(s) to the prior questions, and so on.

Real Navigation Skill: Use it or Lose it

The irreplaceable skill is the judgment we apply to anticipate what will likely be happening soon and eventually. Sound judgment can be lost without constant practice. But blaming technology is akin to drilling holes in the bottom of your own boat. Better to approach it all with the practice of curiosity. If we become surprised at how a long look out of the windows can contradict easy assumptions derived from digital displays, we should feel encouraged to return to the practice of questioning, as well as to teach that practice to others.

It is ambiguity that we are on the lookout for. Intending safe navigation and avoiding navigational surprises is the goal. We should fear the loss of questioning, not the onslaught of instrumentation. While on watch we should resist capitulating in the face of flawed software and hardware, and devilish installations. Habitually asking the 'Navigational Question' can soothe the anxiety, reinsert us into the spatial context, and open up our internal clocks.

Christian Hempstead, Master Mariner, shipped for 19 years on US flag tankers as senior deck officer, experiencing the transition to GPS and ECDIS navigation. During that time, he completed an MA in literature. Following a calling to teach, he came ashore in 2000 as professional instructor and eventually full professor at USMMA. He contributed ECDIS training requirements to STCW-2010, and developed the 2012 revision to the IMO ECDIS Model Course 1.27, based on in depth experience in navigation and training. Since 2013 he has run Hempstead Maritime Training full time, focusing on ECDIS navigation and simulation trainer training.

DOMESTIC SHIPYARDS – UNDER THE RADAR – SHINE IN EXPORT MARKETS

The U.S. Department of Transportation's Maritime Administration (Marad) issued its report entitled The Economic Importance of the U.S. Shipbuilding and Repairing Industry in November of 2015. As we prepared for this edition of ***MarPro***, we asked them for specific details on domestic export activity. They delivered.

According to Marad, there are currently 124 shipyards in the United States, spread across 26 states, which are classified as active shipbuilders. Not surprisingly, the Federal government is an important source of demand for U.S. shipbuilders. While just one percent of the vessels delivered in 2014 (11 of 1,067) were delivered to U.S. government agencies, it is also true that 10 of the 12 large deep-draft vessels delivered were delivered to the U.S. government: five to the U.S. Navy, four to the U.S. Coast Guard, and one to the National Science Foundation. Today, that latter metric is changing (somewhat) as U.S. yards enjoy a resurgence of sorts in terms of Jones Act newbuilding. This short term a phenomenon has its limitations because older hulls in a rapidly diminishing domestic fleet are not being replaced in a one-for-one fashion, and there is only so much demand for coastwise traffic, especially in the tanker trades. Eventually U.S. yards will need to look for other sources of work. Some have already found it – overseas.

During the past year, much has been made of the cost of U.S. shipping and the related cost of domestic cost of shipbuilding in context of discussions surrounding the Jones Act and its implications for local, state and the national economy. A growing number of attacks have been seen on the almost 100-year old law which specifies that U.S. flag tonnage engaged in cabotage trades must, among other things, be built in the United States and crewed by American mariners. In perhaps the most vocal of these spats, the Commonwealth of Puerto Rico recently pinned its hopes for economic recovery by demanding that the Jones Act be suspended for its ocean shipping trades. This didn't happen, of course, but the implication that U.S. boatbuilding costs make it uncompetitive on the world stage was a much-repeated, familiar theme in these arguments. Upon closer inspection, however, the numbers would suggest otherwise.

Research and compilation by the U.S. Maritime Administration (Marad) for the purposes of this edition actually showed a robust export trade for U.S. yards, and one which holds significant promise, as well. To be sure, the export volume and traffic occurs in specific niche sectors. These do not include the production deep sea, blue water deep draft tonnage, something which the Asian yards in particular excel at, especially when executing series-build newbuild programs. On this side of the pond, the U.S. component has done surprisingly well, and today eyes new markets, as well. The numbers, ***in specific niche markets***, speak for themselves:

Shipbuilding Exports	Millions of USD $							
Type Vessel	**2012**	**2013**	**2014**	**2015**	**2016 (*)**	**2016 (#)**	**Total (#)**	**AVG (#)**
Dredge	57.1	102.6	42.2	36.8	1.8	7.2	**248**	49
Submersible / Drilling	911.6	39.2	230.2	683.3	261.5	1,046	**2,910**	582
Light Vessel	29.1	29.6	21.5	15.4	1.8	7.2	**103**	21
Warship	---	30.0	297.2	3.1	15.0	60	**390**	78
Lifeboats	187.3	215.2	191.7	413.2	44.2	177	**1,184**	237
Inflatables	3.8	3.1	5.3	2.8	0.7	2.8	**18**	4
Floating Structures	109.4	177.8	269.2	131.1	22.3	89.2	**777**	155
TOTALS	**1,298**	**568**	**1,057**	**1,286**	**347 (*)**	**1,389 (#)**	**5,630 (#)**	**1,126**

(*) Through March 2016 / (#) Extrapolated for full year / source: Marad

To be sure, the numbers ebb and flow over time, and the broad categories specified by Marad provide only a snapshot of the proprietary data that rests just below the surface. Nevertheless, U.S. yards do compete on a global stage, especially when quality, reliability, and timeliness of delivery and – yes – price are all equally important. Within this edition of MarPro, Barry Parker's in-depth look at U.S. markets (page 50) is therefore an eye opener. So, too, is another look at Marad's data, from the standpoint of specific kinds of hulls being exported. ***So, what do foreign buyers want?*** Marad shows us below, in great detail, for the calendar year 2014:

Marad further explains that the value of imports and exports of ships and repair services varies considerably over time, in part due to the long lead time associated with manufacturing and delivering finished ships. In contrast, however, and despite an increase in foreign competition, exports by U.S. shipbuilders have strengthened in recent years, rising to $1.2 billion in 2014 (representing almost 5 percent of industry revenues). According to Marad, the U.S. shipbuilding industry has run a trade surplus in six out of the last nine years and a cumulative trade surplus of $1.5 billion over this period. A struggling U.S. yard, then, needs only to pick its niche – and get to work. – ***MarPro***

TYPE OF VESSEL EXPORTED (2014)	VALUE	PCT VALUE	PCT WT
VESSELS (TRANSPORT OF GOODS AND PERSONS)	$341,355,873	13.6%	25.3%
FISHING VESSELS; FACTORY SHIPS, ETC.	$6,463,442	0.3%	0.6%
INFLATABLE YACHTS AND VESSELS FOR PLEASURE	$8,693,663	0.3%	0.2%
SAILBOATS, W/AUXILIARY MOTOR (< 9.2 M LOA)	$5,494,906	0.2%	0.2%
SAILBOATS, W/AUXILIARY MOTOR (> 9.2 M LOA)	$36,517,807	1.5%	0.8%
SAILBOATS (< 4 M LOA)	$2,166,202	0.1%	0.1%
SAILBOATS (4-to-6.5 M LOA)	$3,562,768	0.1%	0.1%
SAILBOATS (6.5-to-9.2 M LOA)	$2,188,556	0.1%	0.1%
SAILBOATS (> 9.2M LOA)	$1,523,267	0.1%	0.1%
MOTORBOATS, INBOARD/OUTDRIVE (> 6.5 M LOA)	$27,567,619	1.1%	1.1%
MOTORBOATS INBOARD/OUTDRIVE POWERED (> 6.5 M LOA)	$124,412,669	4.9%	3.3%
MOTORBOATS (> 8 M LOA)	$71,604,284	2.8%	3.0%
INBOARD POWERED MOTORBOATS (> 8M LOA)	$270,741,208	10.8%	5.0%
ROW BOATS AND CANOES (no motor or sail)	$18,780,421	0.7%	0.8%
OUTBOARD MOTORBOATS	$70,486,248	2.8%	2.3%
YACHTS & VESSELS FOR PLEASURE OR SPORTS (NESOI)	$504,937,444	20.1%	14.0%
TUGS AND PUSHER CRAFT	$27,321,396	1.1%	2.3%
DREDGERS	$42,230,186	1.7%	1.4%
FLOATING/SUBMERSIBLE DRILLING/PRODUCTION PLATFORMS	$230,161,027	9.1%	16.6%
FLOATING DOCKS	$6,071,438	0.2%	0.9%
VESSELS (NAVIGABILITY SUBSIDIARY TO MAIN FUNCTION)	$15,128,087	0.6%	1.1%
WARSHIPS (INCLUDING SUBMARINES, TROOPSHIPS ETC.)	$297,162,184	11.8%	0.8%
SHIPS' HULLS	$4,653,070	0.2%	0.1%
VESSELS, INCLUDING LIFEBOATS (NOT ROW BOATS), NESOI	$185,312,590	7.4%	2.3%
INFLATABLE RAFTS	$5,263,783	0.2%	0.1%
BUOYS	$118,750,756	4.7%	8.5%
TANKS	$8,475,636	0.3%	0.8%
FLOATING STRUCTURES (RAFTS, COFFERDAMS, etc.)	$79,535,457	3.2%	5.1%
VESSELS & FLOATING STRUCTURES FOR SCRAPPING	$906,720	0.0%	3.0%
Total	**$2,517,468,707**		

Source: U.S. Maritime Administration

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