Maritime Professional

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Mark Barker

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(Photo: Rai Deepak)

ON THE COVER

Mark Barker (center) President of Interlake Steamship Company, has positioned his firm as the leader among Great Lakes shipping companies in the race to provide environmentally correct and economically sound fleet power. Plans to convert Interlake's bulk carriers to operate on LNG promise great reward, but at the same time, are fraught with risk. **p. 40**

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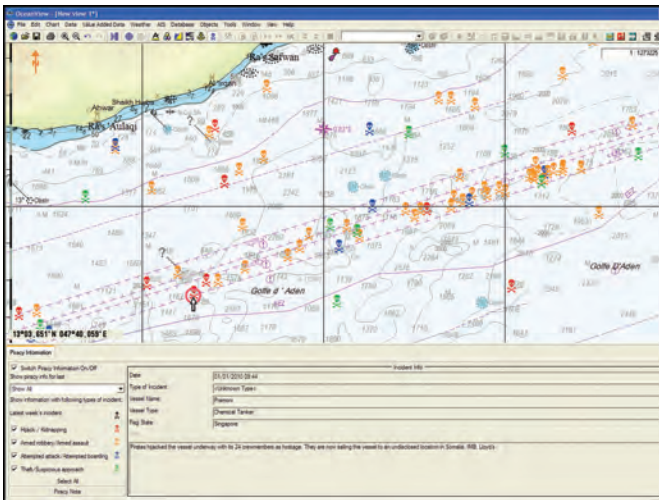

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Jeppesen PiracyUpdate helps to mitigate and manage the risk of Piracy without weapons.

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Unconventional Progress

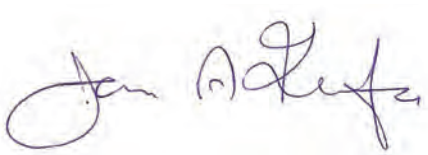
In August, the Maritime Labor Convention (MLC) of 2006 came into force, bringing a consolidated legal framework governing the rights of seafarers. What that means depends on what flag state that a mariner sails under. And, even if a particular nation hasn't ratified the code – such as the United States, for example – the implications might still be the same. Indeed, the first ship detention has already been reported. The Convention introduces many things that yesterday's seafarers could only dream about. Nevertheless, MLC will be a two-way street; for mariners and shipowners alike.

The new rules are sufficiently ambiguous that compliance, in many instances, is left open to the interpretation of those writing the local version of the rules. In general, life aboard the world's 45,000+ deep draft ships ought to be getting better. Hence, a lingering shortage of qualified mariners will potentially afford seafarers the rare opportunity of being choosier about which ship they sail on. For shipowners, one thing is crystal clear: compliance with yet another global regulation is sure to impact the bottom line.

Our feature story in this edition centers on one of the more interesting and certainly the most diverse and aggressive business plans in the maritime industry today. Shane Guidry has Harvey Gulf International Marine on a course that promises to upend the conventional offshore support model forever. Introducing groundbreaking dual fuel tonnage loaded with state-of-the-art crew amenities (there won't be any MLC violations here) and any number of innovative initiatives, Harvey Gulf is arguably setting the stage for the long awaited "flight to quality" and the "two-tier" Gulf of Mexico OSV charter market. How it all plays out could ultimately redefine who does business in this market, where they compete, and the manner in which the job gets done.

As operators (perhaps) prepare to ramp up creature comforts and extend better on board communications to their mariner employees as both a means to compliance and to attract and retain the best talent, seafarers themselves also have new responsibilities. That's because no longer will mere compliance with baseline STCW requirements be enough for the privilege of going to sea. Increasingly, the concept of "performance-based assessments" is becoming the rule, rather than the exception. For many operators today, the practice of blindly hiring a mariner on the basis of documentation alone has come to an end. Markedly improved simulation training is at the root of all of that, and therefore has a prominent place in this edition.

Finally, and as piracy spreads from region to region like proverbial wildfire, the security of ships and supply chain also falls under the general heading of crew welfare. In this edition, we take on maritime security – at sea and ashore. In both cases, technology is the key to success in both venues. Finance, technology, innovation and corporate vision all come together in this edition of ***Maritime Professional***, charting the way forward for a rapidly evolving industry. As you navigate your way within the pages that follow, see if you do not agree.



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

THE LIST People & Companies in This Edition

MLC 2006: Consolidating, Costly and Confusing

By Gary English

An expensive new Convention, ratified and now in force, brings many things to international shipping and, in exchange, promises to take away much from the bottom line. What will it mean to you and your operations? MarPro contributor Gary English helps to sort it all out.

The Maritime Labor Convention (MLC) of 2006 is a product of the International Labor Organization (ILO), which aims to provide a consolidated legal framework governing the rights of seafarers, updating and supplanting previous applicable international conventions.

The MLC 2006 constitutes the "fourth pillar" for the International Maritime organization (IMO). Together with SOLAS, STCW and MARPOL it aims to ensure that safe, environmentally friendly quality shipping is established, maintained and constantly improved. Speaking at a recent NorShipping event in Oslo, the Chairman of the International Chamber of Shipping (ICS), Masamichi Morooka, said that the weight of the impending new legislation potentially presented an additional industry-wide cost of more than half a *trillion* US dollars between 2015 and 2025. This is around 50 billion dollars of additional capital and operating cost in every single year for a 10-year period and beyond. MLC, of course, is only part of that cost.

Simply stated, the MLC 2006 creates a framework of rights to support uniform working and living conditions for seafarers, and ensures equal conditions of competition for shipowners. MLC 2006 brings together the majority of the existing maritime labor instruments into a single Convention and replaces the current international law on all of these matters.

The Convention was ratified with the submission from the Philippines being lodged with the ILO on August 20, 2012, meeting the criteria of 30 states representing at least 33% of the world's tonnage ratifying the Convention. Therefore, MLC 2006 came into force 12 months later, on August 20, 2013, and applies to all Member States. The United States has not ratified MLC 2006 and likely will never do so. That doesn't mean that U.S. operators won't have to comply when trading in international waters. They will.

Foreign states will likely enforce the convention on U.S. ships and the U.S. Coast Guard, in tacit recognition of this reality, has issued preliminary guidelines to U.S. flag vessels on how to comply. Table 1 is a summary of MLC 2006 Regulations and Code.

Table 1: ***Summary of MLC 2006 Regulations and Code. Note: Each title comprises two Parts, (A) and (B), with Part A regulations being compulsory and Part B consisting of guidelines.***

Title 1	Minimum requirements for seafarers to work on a ship: Minimum age; Medical Certification; Training and qualifications; Recruitment & placement.
Title 2	Conditions of employment: Seafarers' employment agreements; Wages; Hours of work and hours of rest; Entitlement to leave; Repatriation; Seafarer compensation for the ship's loss and foundering; Manning levels; Career and skill development and opportunities for seafarers' employment.
Title 3	Accommodation, recreational facilities, food and catering.
Title 4	Health protection, medical care, welfare, and social security protection: Medical care on board and ashore; Shipowners' liability; Health and safety protection and accident prevention; Access to shore-based welfare facilities; Social Security.
Title 5	Compliance and enforcement: Flag state responsibilities; Port state responsibilities; Labour-supplying responsibilities.

Implementation

The MLC 2006 requires implementation by Flag States through their national laws or other measures; it therefore does not apply in itself directly to ship owners, ships or seafarers. The Convention sets out the minimum standards that must be implemented by all Flag States that ratify it. It is the maritime law as implemented by the individual Flag States that will be applicable for those shipowners, ships operating under that flag and for the seafarers working for those shipowners or on those ships.

The Convention will apply to all ships, whether publicly or privately owned, ordinarily engaged in commercial activities, other than ships engaged in fishing or in similar pursuits and ships of traditional build such as dhows and junks. This Convention does not apply to warships or naval auxiliaries. A "ship" is defined as a ship other than one which navigates

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exclusively in inland waters or waters within, or closely adjacent to, sheltered waters or areas where port regulations apply.

Table 2 below is a summary of nominal procedures for obtaining a Declaration of Maritime Labor Compliance Certificate (DMLC). All new ships flagged in a Member State that are constructed after the Convention comes into force must be built to meet the requirements of the Convention. Attention must be paid in particular to accommodation areas, where more space may need to be set-aside for the crew. Ships built before the Convention comes into force are required to comply with existing requirements of the Flag State.

Under the Convention, shipowners will be liable for costs in relation to illness, injury or death of crewmembers occurring during their duties on board. The provisions are quite wide in application. The exceptions - if enacted by Members in national laws - would be limited to situations where;

- ***Injury occurred otherwise than in service of the ship;***
- ***Injury or sickness was due to willful misconduct by the seafarer concerned; or***
- ***Sickness was intentionally concealed when the seafarer was taken on by the shipowner.***

Table 2: ***Summary of Procedures for Obtaining a Declaration of Maritime Labor Compliance Certificate.***

Step 1	Application for DMLC I with the Flag State.
Step 2	Preparation of DMLC II by the shipowner.
Step 3	Submission of DMLC I & II for review. The result of a satisfactory review is the issuance of a "Letter of Review" by Competent Authority that will be forwarded to the ship.
Step 4	Apply for the on-board inspection.
Step 5	On-board inspection. During the on-board inspection, the Maritime Labor inspector will verify compliance with the ship's national requirements for decent living and working conditions by using various inspection methods: Collecting documents evidence; Visual tour of the ship; Conducting interviews with seafarers (in private).
Step 6	Issuance of Maritime Labor Certificate incl. DMLC I & II. After successful inspection has been conducted, the Maritime Labor inspector will sign and stamp the DMLC and issue a Maritime Labor Certificate.

The MLC 2006 will require that Flag States ensure that seafarers are entitled to:

- ***Repatriation, including repatriation in cases of a ship owner's insolvency for which financial security must be in place;***
- ***Unemployment compensation resulting from a ship's loss or foundering. Paid for the days during which the seafarer remains unemployed at the same rate as the wages payable under the employment agreement, but the total indemnity payable to any one seafarer may be limited to two months' wages;***
- ***Compensation in the event of death or long-term disability due to an occupational injury, illness or hazard as set out in national law, the seafarer's employment agreement or collective agreement and for which the ship owner must provide financial security.***

In relation to the repatriation, sickness, injury or death, occurring in connection with seafarer's employment, Flag States will have to require ships flying their flag to maintain "financial security" in respect of such claims. Financial security is not defined and the MLC does not prescribe the form or any amount of coverage. Each Flag State will require its own form of financial security in its own domestic legislation to implement the Convention. Seafarers are entitled to repatriation in the following circumstances:

- ***If the seafarers' employment agreement expires while they are abroad or is terminated by ship owner or seafarer for justified reasons or when the seafarer cannot carry out his duties or be expected to carry them out under specific conditions;***
- ***In the event of illness or injury or other medical condition which requires repatriation when found medically fit to travel;***
- ***In the event of a shipwreck;***
- ***In the event of the ship owner not being able to continue to fulfill their legal or contractual obligations as an employer of the seafarers by reason of insolvency, sale of ship, change of ship's registration or any other similar reason;***
- ***In the event of a ship being bound for a war zone, as defined by national laws or regulations or seafarers' employment agreements, to which the seafarer does not consent to go; and***
- ***In the event of termination or interruption of employment in accordance with an industrial award or collective agreement or termination of employment for any other similar reason.***

An important question will be whether a standard P&I Certificate of Entry (COE) will be sufficient for the purpose of establishing that the required financial security is in place, to meet MLC 2006 standards. While some parties to the negotiations of the MLC 2006 considered such COEs sufficient, the MLC 2006 does not define what is suitable 'financial security,' and it will be up to individual States to decide what may be required. What may play in Peoria, then, might not be good enough in Hong Kong. While this may not be controversial for illness, injury or death arising from work on board the vessel - matters typically covered under P&I insurance - more challenging may be the issue of security for the costs of repatriation of abandoned crew.

The abandonment of the crew by a shipowner in financial difficulty is a matter that has always caused great concern. In these difficult economic times, it is likely to continue to be a challenge facing seafarers. Given that this circumstance typically arises from the bankruptcy of the shipowner, it is something that has to be addressed further, as the consequences of bankruptcy are not always a straightforward insurance matter.

Finally, many of the terms used in MLC 2006 are arguably vague, making it difficult to assess how to set a standard regulation. For example, words like 'adequate', 'reasonable', 'suitable' and 'appropriate' are capable of producing a wide range of interpretations.

Equally, it will remain to be seen exactly how a particular Flag State incorporates the Convention's regulations into national law. There is a real possibility of significant differences arising between different interpretations and becoming enacted in national legislation/regulation of Member States. Therefore, it will be critical for each shipowner to closely monitor how their Flag State incorporates MLC 2006 into their national statutes and regulatory schemes.

Gary English is a graduate of the U.S. Naval Academy and the Charleston School of Law. He represents businesses and individuals with an emphasis in defense of transportation, dredging, & towing and maritime law litigation. The President of the Marine Forensic & Investigation Group, LLC, he is widely published and a frequent contributor to Maritime Professional magazine.

An Unarmed Approach to Piracy

Technology might allow some ships to leave the guns at home. That doesn't mean they will be defenseless.

By Kevin Reeder

The changing seascape of global piracy indicates that the technology to share and integrate information may prove to be as important for safe navigation as military support. Modern piracy is here to stay. And it's no longer confined to the Gulf of Aden. The latest hotspot is West Africa, where the oil-rich Gulf of Guinea is seeing a spike in the number of attacks. Vulnerable areas include the waters off Nigeria, Ivory Coast, Ghana, Benin, Togo, Cameroon and Lagos.

A paradigm shift in global piracy

According to Arild Nodland, CEO at Bergen Risk Solutions (BRS), global piracy is changing. Somali piracy might still be the foremost threat in the minds of shipowners and operators, but a glance at the incident map will show it becoming less common. According to Nodland, the decline in Somali piracy has been achieved by containment and deterrence tactics.

With piracy moving from Somalia to the Gulf of Guinea and further offshore, the pirates' strategies are changing. "Nigerian pirates are using motherships. They are using some of the same methods as the Somalian pirates," said Nodland.

Not only is there a change in the pirates' modus operandi, but also in their choice of targets, with kidnappings taking a backseat role. Recently, there has been a rise in the number of oil-product tanker hijackings, according to Nodland. Rather than kidnapping people, pirates hijack a tanker, steal the fuel cargo, transfer it onto a local tanker and get away with it. "It's an enormously lucrative trade," Nodland said.

But it's not just Africa that's at risk. Piracy is global. In recent years countries from India and Indonesia to Peru and the Philippines have seen vessel hijackings and armed robbery in their waters. Besides costing the shipping industry billions each year, piracy today puts the lives and wellbeing of thousands of seafarers at risk. Piracy is all about armed robbery, assault, murder and even torture.

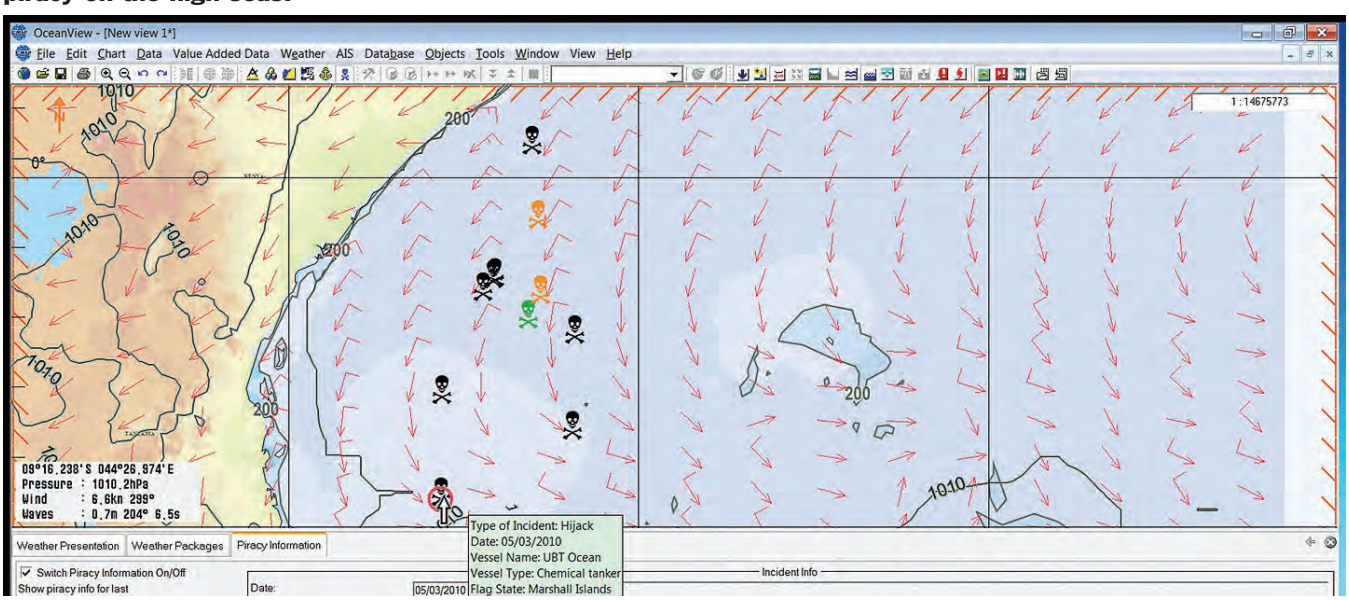
Armed guards onboard ships have proven to be an effective measure against piracy. But what about complementary e-navigation based solutions that can help seafarers to avoid confrontation entirely?

E-Navigation to combat the piracy threat

Research and the use of data can go a long way towards avoiding the scourge of the seas.

For Nodland, getting information out of Nigeria is a challenge, because "the oil companies and government tend to keep a lid

Jeppesen PiracyUpdate is based on intelligence from recognized and authoritative sources on global sea piracy. PiracyUpdate helps seafarers and the marine industry identify, understand and manage the risks associated with piracy on the high seas.



on things. But we have an excellent network in the country that enables us to provide good data on maritime security," he adds.

BRS uses Jeppesen's Piracy Update software to help customers identify, understand and manage the risks associated with crime at sea. It is based on intelligence from recognized and authoritative sources on global sea piracy. BRS gathers, verifies and uploads this information five times a day during the week and once on weekends.

Piracy Update is used by mariners aboard vessels, as well as by owners, operators and insurers ashore. Several national navies use it too. Another feature of the software is the inclusion of weather information. This is important because pirates can't operate in certain weather conditions.

"The challenge is not lack of information but too much of it," says Nodland. "So one needs a system that can process then disseminate what is timely and relevant. Piracy Update's filtering function allows us to select incidents and time frames that are relevant to our customers' requirements."

BRS uses Piracy Update every day to locate high-risk areas and to communicate this knowledge to customers.

"We use it when producing risk assessments for clients with a long-term outlook, such as drilling and seismic operators – and we use it to assist clients with a much shorter term requirement, for example ships in transit in the Gulf of Aden and the Indian Ocean," said Nodland.

Piracy Update in action

One example where Piracy Update helped provide valuable insight to lawyers, insurers, the owner, charterers and other parties involved, was when 14 hijackers armed with AK-47s and knives approached a 73,400-dwt Greek oil tanker on October 6, 2012. The vessel was in the region to carry out two ship-to-ship transfers off Abidjan. It had 30,000 tons of gas oil on board. Before the second operation took place, the ship switched off all lights and sailed directly south without explanation. A total of 24 Greek and Filipino crew were on board the vessel. The vessel was forced to steam southeast and then northeast towards Nigeria. Three days later the ship met a waiting vessel and the hijackers offloaded 2,600 metric tons of gasoline. The vessel was released some 50 NM east of Lagos on October 9.

"Piracy Update quickly established a good overview of the geographical situation and also immediately showed us that this was an atypical attack, as it was carried out 350 nautical miles west of the pirates' usual hunting grounds," says Nodland. "That made us uncertain at first; but when we used Piracy Update to compare this hijacking with what we knew about similar incidents, in terms of the modus operandi, type of ship being hijacked and cargo carried, we were soon able to tell the client what had happened, what the risks were to their vessel, cargo and crew, and what was likely to happen next."

"When we plotted distances and calculated the ship's speed from the point she was hijacked to where the pirates were likely to take her, we could also provide the owners with a rough timeframe for how long the hijacking was going to last," said Nodland.

Piracy Update is delivered by Jeppesen and integrated with its other products — electronic navigation charts, ports database, weather and wave forecasts — allowing Nodland's team to quickly plan a safe seaborne medical evacuation, which was thankfully unnecessary. That said; Nodland emphasizes, "It is not a miracle tool. It cannot tell you where the pirates will take a hijacked ship, for example. So we rely on good intelligence analysts and experienced area specialists as well." Piracy Update may not be a miracle, but it does provide a sound technology that supports a non-military approach to combating modern piracy.

Kevin Reeder has 12 years of experience in corporate communications. His career track includes work for BBC World Service, Channel 4 and international NGOs.

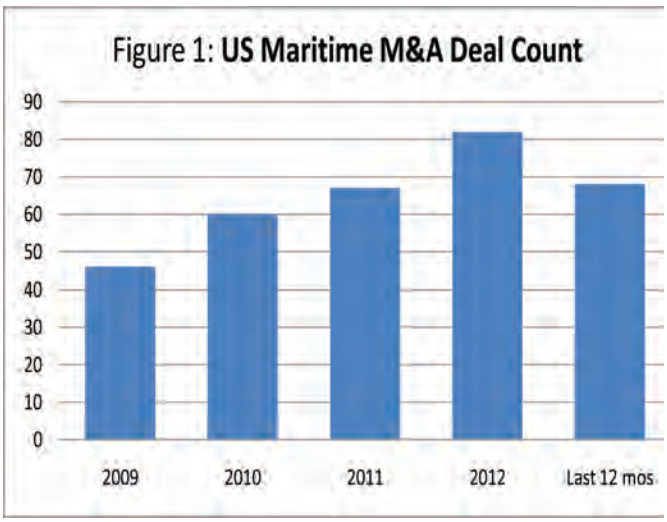
Maritime & Offshore M&A

Regulatory, Financial & Operational changes drive strategic deals in the crowded Workboat markets

By Harry Ward

Workboat and offshore marine markets have been gaining strength over the past three years. A resurgence of oil production in the Gulf of Mexico has brought orders for new vessels, major oil companies are ramping up their presence in the region, and Gulf-oriented state governments are aligning to encourage offshore growth. Merger and Acquisition volumes have generally expanded in the US along with this growth as strategic companies seek to strengthen their positions in niche competencies (Figure 1). As always, a trickle of less strategic deals has materialized in response to opportunistic conditions such as regulatory changes and cases of financial distress.

A recurring theme in our quarterly studies of the marine dealmaking landscape, particularly in North America, is the dominance of inland and offshore workboat markets. The graph in figure 2 shows the consistency and general outperformance of the inland/offshore public stock indices in comparison with other marine segments, and the S&P 500 this year. Despite continuous regulatory challenges, upward momentum in both domestic oil production levels and petroleum price levels are likely to sustain the positive trends for at least the near future.



Recent Deals in the Oil Patch

The first deal we examine is a strategic asset deal, as **Genesis Energy L.P.** (GEL) announced its acquisition of **Hornbeck Offshore Services'** (HOS) fleet of oil-transport barges and tug boats for about $230 million in July. Genesis operates a fleet of inland barges and tugs, as well as terminal facilities and oil pipeline systems. The addition of the Hornbeck vessels adds to Genesis' ocean-going capabilities and expands the company's presence in the GOM, northeastern US and Great Lakes region, despite some customer overlap. Shares of publicly-traded limited partnership Genesis are up more than 30 percent since the beginning of 2013. Hornbeck's shares are up more than 50 percent in the same period, and the sale of the transport vessels dovetails with the company's strategic shift to focus on oil and gas exploration and production.

Order books for newbuilds have been strong this year. After acquiring Bollinger's **Bee Mar OSV** operating company last year for $243 million, **Harvey Gulf International Marine** again made headlines in May with the signing of three agreements totaling $540 million for construction of 14 new vessels. These and other orders will keep yards such as **Eastern Shipbuilding Group** in Panama City, FL busy for quite some time. **LEEVAC Shipyards**, another growing ship repair and building company, answered calls from their customers for a facility east of Lake Charles by acquiring the **Quality Shipyards** subsidiary of **Tidewater, Inc.** (TDW). The asset deal includes 35 acres on 2,500 feet of waterfront, four drydocks, several cranes and 100,000 square feet of covered production facilities.

Tidewater stock is up about 20 percent this year, and the company continues to focus on ownership and operation of its multifaceted fleet serving the worldwide offshore energy industry. Tidewater crews operate more than 340 vessels, providing a wide range of services in support of offshore petroleum exploration, field development and production. In May, through a wholly-owned subsidiary, Tidewater entered into an agreement with HitecVision to purchase Norway's **Troms Offshore Supply AS** ("Troms Offshore"). The acquisition will expand Tidewater's global footprint into the Norwegian sector of the North Sea and supplement Tidewater's experience and vessel fleet operating in harsh environments, including cold climates. The approximately $395 million deal implies a multiple of earnings before interest, taxes, depreciation and amortization (EBITDA) of 33X.

Another player that has been very acquisitive in building a marine energy presence is **NGL Energy Partners** (NGL), which most recently acquired the assets of **Crescent Terminals, LLC** along with **Cierra Marine, LP** and its affiliated companies. The Cierra Marine acquisition doubles NGL's current fleet of tow boats and crude barges, while the Crescent facility adds 130,000 barrels of storage capacity by Eagle Ford shale in South Texas, and 20,000 barrels per day of capacity

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to reach markets along the Gulf Coast. NGL has logged about $1.8 billion in acquisitions since its 2011 IPO, including Corpus Christi boat and barge operator **Third Coast Towing** for $43 million in cash and **Pecos Gathering & Marketing** in a $45 million private placement.

Woodlands, Texas-based **Arc Terminals** has made at least six terminal acquisitions since 2007, and this year announced the acquisition of marine terminal assets from **Gulf Coast Asphalt Company**. The Mobile, Alabama terminal added 1.2 million barrels of storage and distribution capacity for third-party customers in asphalt, crude oil, HFO and methanol. Arc now boasts 5.5 million barrels of capacity around the US, and is pursuing a direct "rail to deep water" project in Mobile to transport Canadian crude via a direct Canadian National Railway rail link to Gulf Coast customers.

Rounding out recent deals in the GOM region, **Seacor Holdings Inc.** (CKH) acquired the remaining 50 percent stake in **C-Lift LLC** for $12.7 million in June. Seacor Holdings experienced a strong quarter ended June 30, 2013, with net income of $19.3 million, or $0.91 per diluted share, as compared with $11.2 million and $0.54 last year.

The Pacific Northwest

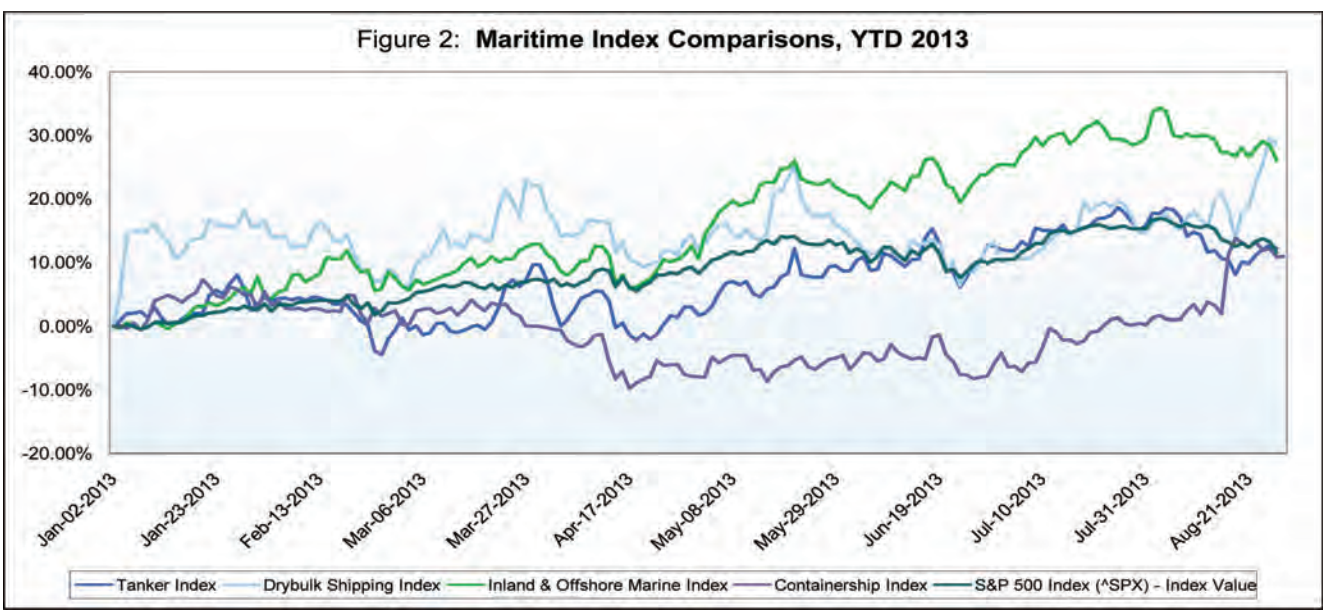
Looking to the northwest, the maritime landscape has changed slightly with the completion of a couple of deals, one of which had its origins in a successful dredging program. In 2010, the Columbia River channel was deepened to 43 feet in a project funded by the states of Oregon and Washington. The successful deepening has enabled larger ships to operate in Columbia's ports, boosting export capacity for regional businesses. On the downside for **Foss Maritime**, this has also resulted in fewer but larger ships, which reduced business for their unionized tug operation, maneuvering large ships in and out of port and transporting pilots. **Tidewater Barge Lines** stepped up and announced in April that it would acquire the Foss tugboat business. Foss had previously sold selected tug assets to Tidewater back in 2008.

In a more strategic deal, **Lynden** entered into a purchase agreement to buy **Northland Services** from its major shareholder Endeavor Capital. With the acquisition, Lynden added tug and barge capacity to expand its freight service between Alaska, Hawaii and Seattle. Northland also provides transportation, loading, and discharge of construction project-related cargoes; contract barge services; charter cargo hauling services to the Russian Federation and Japan; and cargo stevedoring services to general containerized freight and specialized machinery. Lynden is a family of freight and logistics companies that includes Alaska Marine Lines, which also provides tug and barge transportation services between Seattle and Southeast and Central Alaska.

Looking Forward

Despite the slight falloff in deal activity during the past 12 months in the various marine segments (Figure 1), the environment remains reasonably attractive for both consolidation and investment. A few of the likely driving factors for future

Figure 2: **Maritime Index Comparisons, YTD 2013**



deal flow:

- ***Regulatory:*** Environmental, safety and other regulatory changes are usually accompanied by deal flow, as less agile companies struggle and proactive organizations look to capitalize on their adaptive capabilities.
- ***Energy Demand:*** Despite its boom and bust nature, the energy industry will likely continue on a secular expansion path, with competing business models and asset-holders driving deal flow.
- ***Aging Infrastructure/Fleets:*** Companies that successfully balance investment risk in upgraded assets with fluctuations in demand often find themselves in an enviable position to acquire less strategic-minded companies in the long run.
- ***Emerging Needs:*** New demands driven by hot market segments and new technologies are always a driver of deal-making. For example, many large future dredging projects, and AUV/ROV technology are both likely to spur acquisition activity.

Of course, all of this depends upon a reasonably healthy financial picture and at least some promise of economic growth, both of which seem more difficult to predict than market segment drivers.

The Author

Harry Ward leads the transportation and logistics practice at The McLean Group, a middle-market investment bank based in the Washington, DC area. Mr. Ward has executive management experience in the marine industry and focuses on mergers and acquisitions for mid-sized companies. He is a US Naval Academy graduate and earned an MBA at San Diego State University.

Interview

CAPT. ERIC CLARKE, IMTECH MARINE USA INC.

A Chat with Capt. Eric Clarke

By Gregory R. Trauthwein, Editorial Director

Last month Captain Eric Clarke took the helm as managing director of Imtech Marine USA, Inc. (Houston). Maritime Professional was afforded the opportunity for an exclusive interview with Captain Clarke to garner his insights on the state of the industry at large, as well as Imtech's potential in the near term.

Captain Clarke, how did you come to a career in the maritime industry?

I fell in love with the maritime industry as a kid, as I fondly remember my dad taking me to see what were then largest supertankers in the world – at 500,000 DWT – during their dry docks in my home town of Marseilles. After sailing competitively during my youth, I decided to become a professional of the sea, pursuing both unlimited Captain and Chief Engineer licenses, and then sailing in these senior capacities. After about 10 years at sea, I made the jump ashore to help start Euronav, now part of the Tankers International pool. Prior to joining Imtech, I held the position of Vice President Americas at RightShip (a specialized company offering the commercial shipping industry a Ship Vetting Information System), building the company to be a leader in its field, performing more than 34,000 vets and more than 3,000 ship inspections.

Imtech has been a global driver of consolidation in recent years. For MarPro readers not intimately familiar with the company and its offering, can you describe it in one or two sentences?

Imtech Marine wants to be the best maritime service provider for its customers. We operate as a full-service provider and system integrator of tailor-made, innovative and sustainable technology solutions covering the whole ship. And most importantly, with our global service network we cover almost 100 locations along the major shipping routes. In 2012 we integrated the Radio Holland organization in the USA, its expertise in navigation and communication systems strengthening the global Imtech marine organization. Simply put, we are a strong international service provider and system integrator, with a varied range of innovative technology solutions, from engine room automation to propulsion and HVAC.

What, specifically, attracted you to the position of Managing Director, Imtech Marine USA?

Maritime is at the cornerstone of world trade, and Imtech, with its global network of strategically placed locations, is at the core of our industry. I found the opportunity to head the USA branch to be incredibly exciting, as helping our clients to operate their ships with minimum interruptions, maximum safety and utmost efficiency is exactly the type of mission for which I have a passion.

Additionally, I must admit that in my private life I am a bit of a geek, and some of the technology that Imtech Marine offers sits exactly at the intersection of my passion for the industry and my natural proclivity towards technical shipboard solutions. The idea of combining the two was just hard to resist.

Coming into the position, what are your immediate near term (next 12 months) and longer term (next 5 years) goals, and how do you plan to achieve them?

My short terms goals are to continue to sharpen the company and shape it into a very customer-centric organization. I want to continue to strengthen and grow our service network. I want the talented Imtech crew to be part of our clients' crew; I want them to be our clients' shore side support team, helping them to keep their ships running safely and efficiently.

I don't see us as repairing radars, as much as I see ourselves helping our clients keeping their ships running safely and efficiently, without port delays or worse, detentions. I am therefore refocusing the company's energies toward this immediate goal and client need.

Longer term, I want to ensure that we strengthen and grow the four cornerstones of Imtech Marine USA:

- Services are core to what we do and will continue to do. Wherever their ships go in the USA a qualified local service team is never far away, and always ready to assist.
- Service Projects: From delivering services, we naturally get asked to design, install and service NavComm equipment. By strengthening and growing our regional networks' ability to respond, we will continue to earn ship owners' trust with all their NavComm projects.
- New builds and refits: We have the strength of a large company to support large projects, yet the regional knowledge and skills to deliver locally.
- OTC: Providing a one-stop-shop for all "over-the-counter" equipment and parts, delivering what is needed, where it is needed, in a simple and cost-efficient manner.

Captain Eric Clarke, Managing Director, Imtech Marine USA Inc.

Vital Stats

Name	Capt. Eric Clarke
Age	49
Favorite Book	The Wave, by Susan Casey
Favorite Quote	"I never did a day's work in my life, it was all fun." Thomas Edison
Company	Imtech Marine USA Inc.
Title	Managing Director
Email	Eric.Clarke@imtechmarine.com
Web	www.imtechmarine.com

From a more strategic level, I want Imtech Marine USA to be the ultimate specialist for maritime shipboard solutions: a one-stop-shop for all matters related to shipboard solutions.

Your former position at the well-respected RightShip group entailed its own share of technology innovation for the marine markets. And while that assignment involved the integration, analysis and dissemination of data / intel, your new job seems to be one of a system or hardware integrator. What will you take away from your past assignment that will be of value to Imtech and its customers?

While you are correct about what and how RightShip delivered its services, I believe my role there was, above all, to provide RightShip's clients a top quality service. There it was

based on a worldwide ability to deliver vetting advice and inspections. In many ways this is not very different than what we do here at Imtech, and it is what I bring most with me from RightShip: The passion to help our clients through a large network of skilled people and worldwide expertise. RightShip was also at the top when it came to using technology to deliver a customer-centric experience, and I will also build from that experience to bring value to Imtech and our customers.

As MD of the Imtech Marine USA, you now lead a considerable team of system integrators for the marine industries. Where do you think you and Imtech will have the most impact in the coming years in this market?

Today we are still very much focused on the deep-sea merchant shipping market, which is approximately 50% of our revenues. Offshore and workboat are increasing in importance though and also ferries, which have been an important niche, and have held up better than the traditional commercial shipping.

In all these segments we operate as a Life Cycle Management partner for our customers, combining our experience as system integrator and services provider, as well as our capabilities in engineering, commissioning and project management. I see that we will make a large impact in this industry when it comes to ship automation, green technology and remote monitoring.

We note with interest that Imtech Marine Canada won its first subcontract for the engineering of an Offshore Fisheries Science Vessel. This will include responsibility for the ships' platform automation, electrical solutions, electric propulsion and heating, ventilation and air conditioning systems and has started the first engineering activities. Do you see the design of marine vessels evolving into a process where just one firm is responsible for all aspects of the vessel's equipment?

With regard to this Canadian project I can confidently say that this is a normal scope of supply for many of the projects that we execute globally. When looking at the second part of your question, about the direction of our industry, I see many players in our industry moving in the direction of delivering whole ship solutions. I do however see a large role in this industry for Imtech Marine: we operate supplier independent and are therefore flexible in delivering tailor-made whole ship solutions that fit customer and operational requirements.

At what point does the shipyard's responsibility and that of the OEM become yours – as the systems integrator? How will it all work when your goal of becoming "a supplier independent top three player in the global marine market." What does that phrase really mean?

During the early stages of ship design, we assume the responsibility for designing a solid technical infrastructure on board. We do not take on the shipyard's responsibility, but work

hand and hand with them, as value-added partners. We concentrate on what we are good at, so that shipyards, in turn, can do the same. We complement each other and work in close partnerships. For example, we take responsibility for the technical infrastructure on board, the choice of technology installed and the full project management. We believe that being a good partner for the various stakeholders require some scale in this industry. That's why we want to be a top thee player in this market, not the biggest, but the best.

The world is in various stages emerging from the economic meltdown of 2008 / 09. As you look over your area of responsibility, by market niche, by geographic region (or both), where do you see the most promise for better business today?

I believe we are seeing slight tremors of a comeback in the market, at least in the U.S. Here, offshore construction and associated workboats will undoubtedly be an important part of our strategy and future, together with the offshore business as a whole. Further, as the U.S. continues to be an economic engine for the world, our ability to deliver services around the U.S. will be central to our growth, yet it is our part in the overall global Imtech Marine network that gives me the most optimism for better business. There is real value in a one-stop-shop, one that can assist your vessels all around the world.

As the world becomes ever more connected, our solutions delivering Internet access, VoIP services, and remote monitoring of shipboard installations are the way of the future. Ships – like your car – have become increasing complicated, and – like your car – require more and more complex maintenance and servicing solutions. Yet ships can afford less and less time in port. Today problems are diagnosed and solved by plugging computers into networks to read error codes, reset them or run maintenance software and code from expert technicians. I see our ability to do so remotely as part of our common maritime future.

A

Analysis

HARVEY GULF INTERNATIONAL

Handicapping Harvey Gulf

A look at the finances of one of North America's most interesting offshore services companies and its formula for success.

By Barry Parker

Harvey Gulf International's steady movement towards a dominant position among U.S. flagged offshore support and towing operators has arguably been supported by a well constructed financial structure. On that score, it would seem that credit ratings and risk analyst Moody's would, for the most part, agree. Nevertheless, the company's ongoing transition from towing to an offshore services provider, though exhibiting great foresight, has not been without financial risk. Likewise, bumps in the road (each with costs attached) will accompany its moves into the realm of LNG (for propulsion, and as a fuel supplier); still an emerging technology.

Looking Back

In 2008, Harvey Gulf's fleet stood at 15 vessels. Through the intervention of Fortis Merchant Bank, the company – by then run by the grandsons of the company's founder – was able to simplify its ownership structure at a time when the business needed to grow. This occurred with the backing of a New York based private equity investor with a specialty in leveraged buyouts – The Jordan Company. According to news release at the time, Shane Guidry and Shawn Guidry would retain a 24% interest in the company, after what was described as $500 million transaction that closed only weeks before that year's financial melt-down. In 2009, the now recapitalized Harvey Gulf announced that it would be committing $200 million to vessel construction and acquisition of existing vessels. In Q3 2012, Harvey Gulf closed on the acquisition of nine OSV's from Bee Mar, a unit of Bollinger Shipyards, in a deal valued at $243 million. Construction of state-of-the-art dual fueled OSV's was also beginning at this time.

Fast Forward

Five years after the original PE investment, the capital needs are even greater. By mid 2013 and following an announced acquisition of 11 vessels from Gulf Offshore Logistics (GOL), Harvey Gulf's fleet now totals 35 vessels (27 support vessels and eight towing vessels). On order are nine vessels (including six dual fueled OSV's and two deepsea construction vessels (and another which was just delivered). As a private company, Harvey Gulf's financials are not published, but an informed guess of its capital commitments (including vessels on order, the acquisition of GOL boats, and plans to create a bunkering hub at Port Fourchon) yields roughly $680 million. In perspective, a very rough estimate of its balance sheet size (based on comparison with a comparable company's financials) yields about $1.44 billion, including the GOL acquisition.

In late Spring, 2013, Harvey Gulf took two important steps, refinancing $534 million of its outstanding bank debt (along with funds to pay for the GOL vessels) into a pair of new loans totaling $750 million (Term Loan "A" – $150 million and the all-important Term Loan "B" – $600 million), complemented by a $250 million Revolver. Harvey Gulf, previously un-rated, received a Corporate Family Rating of B1 from Moody's, a leading rating agency. Shane Guidry, Harvey Gulf's CEO, explained the evolution of the deal: "We strategically re-worked the facility to include a Term Loan A tranche, and executed the debt facility in the most efficient way possible while maintaining a low cost of borrowing." Harvey's CFO, Jeff Henderson, added: "We closed our debt facility during a time when many other refinancing plans failed to execute due to the extreme volatility in the marketplace."

Handicapping the Deal

According to debt traders who spoke to *Maritime Professional*, "Term Loan B structures, which grew out of the high yield market, are very popular." From the lender side, the loans can be sold onward to hedge funds, or put into packages such as CLOs (who offer portfolios containing slivers of various transport debt packed together to their institutional customers). Investors in the Harvey Term Loan B include Sun Trust, Nuveen (a fund packager), Principal Finance Group and money manager Black-Rock. One trader explained to *MarPro* that audited financial statements and a credit rating are prerequisites for the debt; as banking has shifted, the universe of debt holders now moves beyond traditional "relationship" banks (or those that would have formed traditional lending syndicates). Harvey Gulf's Henderson told *Maritime Professional*, "The credit rating was obtained in connection with the Term Loan B tranche."

The attractiveness of the structure comes from terms that are better than that offered by traditional bank lenders, including "covenant lite" structures, which may enable borrowers to avoid compliance with measures such as loan-to-value, or maximum net leverage ratios. These are floating rate loans (here 450 basis points margin over Libor), which, in a rising rate environment, generates considerable investor demand. Issuers also like them, the loans often come with softer call protection than traditional bonds. In the case of Harvey, the "B" loan can be called at 102% in Year 1 and 101% in Year 2. Their minimal amortization is another attractive feature – here, it is 1% of principal value per year (contrasted with a typical bank loan; The "A" loan here amortizes down to a 25% bal-

loon at the end of five years). The debt issue is being led by Merrill Lynch Bank America.

The recent *Marine Money* conference in New York provided some insights into the trading of loans for maritime companies, an important tool for banks managing exposures to different companies and sectors. Ms. Jennifer Box, Senior Vice President at Oaktree Capital (an active player in deep-sea ship finance) offered that: "Trading begets more trading … you'll see that for companies that have been historically followed where people know the story … you'll see one trade … and then there's a market." She said "There's a whole universe of shipping loans, for partially private companies and well known companies, where banks just haven't seen a trade happen yet," adding that "We've only tipped the iceberg in terms of what could happen." From the traders' angle, they can benefit, selling their debt at a profit, if a company's prospects improve (and its yield is reduced, based on less perceived risk).

Looking Ahead

For Harvey Gulf, as it starts firing on all cylinders (presumably, burning LNG), its credit rating may improve from the B1, which is in the "Speculative" category several notches below investment grade. According to Standard & Poors, another rating agency, the Term B loan will provide a yield to maturity between 5.9% and 6.00%. The minimal call premiums would enable an issuer to buy back its debt, and re-issue at a lower rate if its rating improves. Earlier this year, another U.S. flag OSV player, Hornbeck Offshore called back $250 million of 8% senior notes (debt) issued in 2009 (and due in 2017) and entered into an even larger eight year bond (maturing in 2021) with a 5% coupon.

Harvey Gulf: Working and Playing Well With Others?

Date	Vessel	Position / Destination	Comments
7/27/2013	Harvey Express	MC725	Hess drilling, exploration
7/27/2013	Harvey Legend	Stena Icemax	hired by SHELL to work in French Guyana Exploration
7/15/2013	Harvey Legend	Chaguaramas	
7/27/2013	Harvey Intruder	South.TIM.17	Contango Oil & Gas, exploration
7/26/2013	Harvey Intruder	Eugene Island SB	
7/27/2013	Harvey Thunder	Eugene Island 63	Contango Oil & Gas production platform
7/27/2013	Harvey Falcon	GC782	Mad Dog Field: BP (60.5%)/BHP (23.9%)/Chevron 15.6%.
7/26/2013	Harvey Falcon	Atlantis/ GC782	
7/27/2013	Harvey Leader	Fourchon ENI dock	
7/15/2013	Harvey Leader	MC 215	ENI, "ODD Job" Exploration
7/26/2013	Harvey Rain	WD-143	SHELL production, MARS B
7/26/2013	Harvey Warhorse II	Miss Canyon 807	Mars SHELL
7/22/2013	Harvey Spirit	Green Canyon 20	Gryfalcon tieback, production SHELL
7/22/2013	Harvey Runner	KC93	Tiber field, BP production
7/22/2013	Harvey Sailor	GC 654	BHP Billiton, exploration
7/19/2013	Harvey Provider	WR 95	SHELL Walker Ridge, exploration
7/15/2013	Harvey Explorer	MC 721	SHELL
7/15/2013	Harvey Pioneer	MC762	West Boreas SHELL
7/15/2013	Harvey Wind	ST-301B	Brutus field SHELL production

(*) Positions and dates and vessels extracted from web-based commercially available AIS tracking programs. No assumptions or implied statements here indicate who Harvey Gulf may be working for. The close proximity of the Harvey Gulf fleet to all of these quality operators and their operations speaks volumes as to who might allow Harvey Gulf to work in the same theatre. Food for thought.

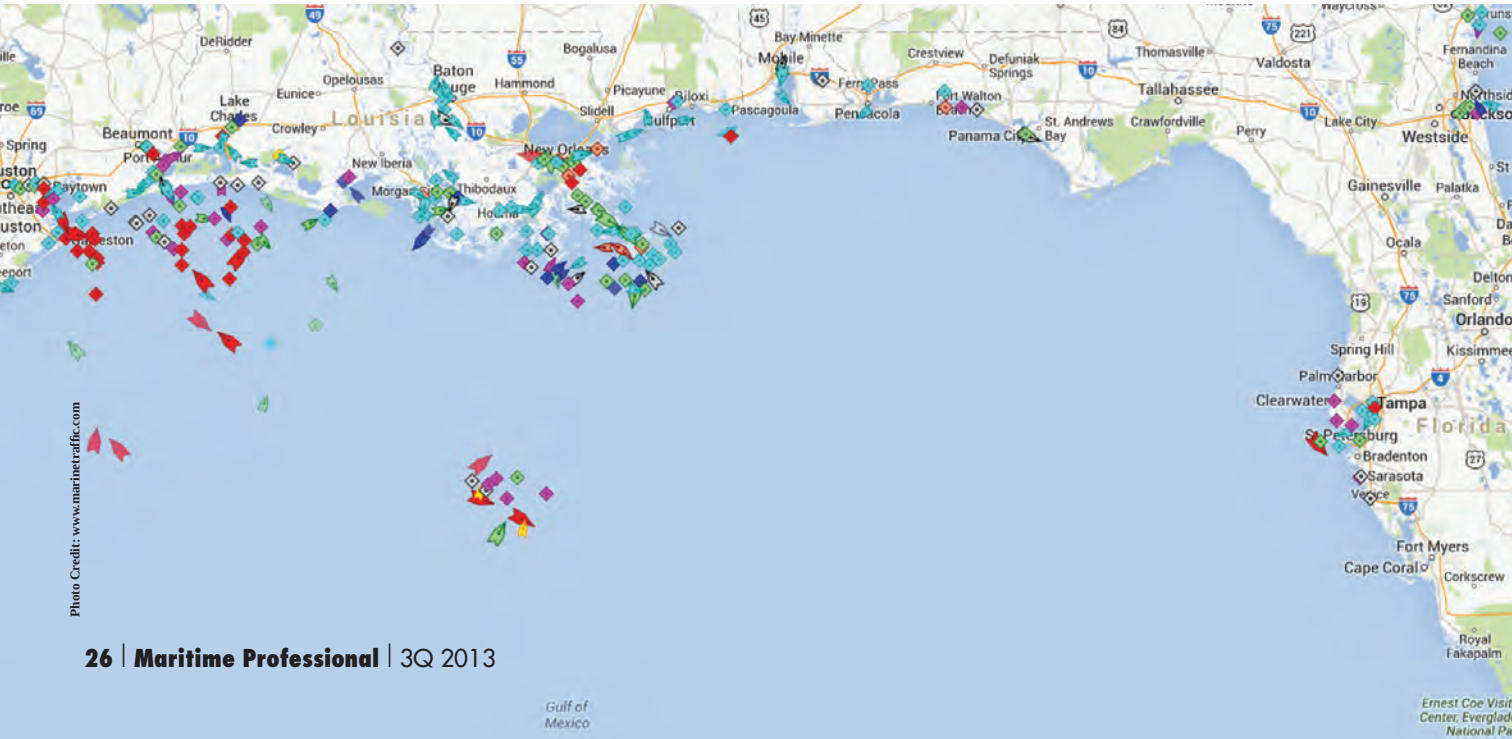


Photo Credit: www.marinetraffic.com

The finance savings are compelling, outweighing a hefty premium on an early call. Hornbeck's rating, now BB- (S &P) / Ba3 (Moody's) is consistent with that from four years ago, but the overall interest rate curve had dropped tremendously.

Looking forward at the bigger picture, Harvey Gulf is in the midst of a hefty program of capital expenditures. Shane Guidry identified key points buttressing the game-changing nature of its investments. He emphasized that Harvey Gulf seeks to maintain and grow relationships with operators by constructing state of the art vessels designed to stay ahead of future safety and environmental regulations while also meeting the current and future needs of its customers.

Because Harvey Gulf's equity has been supported by the PE investment from Jordan Company, the company's further financial future beyond the $1 billion debt program is a subject of conjecture. The near-term outlook is robust. Moody's said, in its rating action, "Currently, strong industry fundamentals in its primary geographic market are likely to keep demand high for Harvey's OSV services, and potentially allow for some margin expansion through day-rate increases as the contracts on vessels from GOL are negotiated."

The rating agency also throws down the gauntlet for strategic initiatives that could catapult Harvey Gulf into the tier of world class companies, a leap not attainable with another financial burst down the road. Moody's, speaking about the credit rating, says: "At this time, an upgrade is unlikely mainly because of the company's limited scale and revenue concentration. However, an increase in geographic diversification and asset base, a larger worldwide market share, and debt/ EBITDA – a financial measure of leverage compared to cash flow – sustained below 3.5x could result in an upgrade." Moody's says that the debt facility would likely contain a covenant limiting this ratio to 5.75x through June, 2015 – the timeframe when capital is needed to fund the new capacity. The rating report had noted a reliance on three un-named top customers (comprising over 60% of revenues) with a concentration of work in the Gulf of Mexico, as well as an exposure to the very cyclical E&P business.

Bottom Line

The world class future that Moody's hints at would require a financial turbocharger at a time that the PE investor would likely be ready for an "exit." Financial investors in shipping and offshore businesses typically ease out in three ways: the sale to another financial investor (another investment fund), the sale to a strategic investor (often, a competitor), or a public offering. Moody's points to the unlikelihood of a debt reduction in the next 12 – 18 months (due to the capex associated with the newbuilds).

Jeff Henderson, Harvey Gulf's Chief Financial Officer

Shane Guidry, Harvey Gulf's CEO

The ratings report does offer an important clue, saying that Harvey Gulf "…expects to acquire two additional OSVs (beyond the 9 vessels taken in Q2 2013) from GOL at a later date…" for a price working back to aggregate $79 million. It is not impossible to conjecture a partial PE "exit" or "liquidity" event, the first of several tranches, also bringing in sufficient money to purchase these assets (if the revolver is not used for this purpose). In this purely hypothetical scenario, as EBITDA grows dramatically and debt is paid down, the stars may align for a further PE exit at the time that total debt has crested and new assets are delivered. At that time, maybe 18 – 24 months out, an expanded valuation will be possible based on another important metric – the EV/EBITDA ratio, where peer companies are presently valued at around 9x - 10x.

Eventually, we got down to brass tacks and asked: When will Shane Guidry, if ever, ring the bell at NASDAQ? Without hesitation, he replied, "I don't know. There's no doubt we talk about it. I think I have a bigger, better story to tell – new assets, the most technology out there, very diverse – my average daily rate is $30,000 per day and we've got great growth. Do I want to stand pat and run 50 to 70 boats or do I look to take Harvey worldwide? If I do, I can't rule out going public because access to capital would be quicker."

Somewhat nonplussed at Moody's inference that Harvey Gulf wasn't doing enough international work, he told *MarPro*, "I'm getting great day rates here right now on long term contracts. Why would I change that? I really don't have to do anything, especially with my current contracts, through maybe 2018. We have about $1 billion in contract backlog with substantial options on the backend of that. Do I want to deal with a large board of directors? Maybe not. But, I could take it public and keep it a closely held entity, too. For me, it would be better. And we've looked at our options."

There's plenty on Shane Guidry's plate already without having to contemplate a public offering and then, answering to a large board of directors. Still, as he rides an enviable wave of good fortune in a bull market, industry analysts can't help but wonder what will come next. And, he isn't saying.

Riding the Wave

Harvey Gulf International Marine leads the charge to re-capitalize offshore support assets. Where will it lead next?

By Joseph Keefe

Imtech

Last week the captain of the MV Felice had planned a two-day maintenance stop in Cadiz. Imtech Marine managed to complete the entire job in less than 6 hours, including an inspection round and some preventative repairs. Yesterday evening, the ship had already entered her home port Liverpool, where she was unloaded this morning. Meanwhile Captain Henry North seized the opportunity to spend some quality time with his son Alex.

Imtech Marine's global network and services expertise will advance your business in any situation. Find out more at www.imtechmarine.com/services.

See you at the International Workboat show booth 2142

Imtech Marine

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In the midst of a red hot offshore boom, one that arguably has its epicenter squarely in the middle of the Gulf of Mexico, everyone seems to be busy: shipbuilders, operators, OEM vendors – everyone. Scores of new offshore assets are on the way. As it unfolds, three U.S.-based offshore support providers are pouring hundreds of millions of dollars into fleet and infrastructure renewals. One of those firms, Harvey Gulf International Marine LLC, and its CEO Shane Guidry, have combined its growth plans with the introduction of innovative technologies, a new financing vehicle, high end equipment and an aggressive acquisition strategy.

The Harvey Gulf plan is dependent on a number of assumptions, both fraught with risk, and at the same time, the promise of great reward. Gambling that "the flight to quality" will finally come to fruition, Guidry and Harvey Gulf are set to deliver into the market a modern fleet of support vessels the likes of which have never before been seen under U.S. flag. Bigger, more capable, cleaner LNG-powered vessels will arrive, also equipped with accommodation standards and redundant safety features that, until now, were commonly found only in the Norwegian markets.

As the new tonnage comes out, the upgrade of a newly acquired, older fleet of outside acquisitions is also underway. And then, there are the new LNG bunkering facilities, a recently inked Moody's $1 billion credit facility and the new additions of engineering and operations staff to run it all. It's a long list of "firsts" for Harvey Gulf and industry, too. To sort it all out, *MarPro* spent a morning with Guidry on the Gulf Coast in July. As with all things in the Harvey Gulf business model, it isn't for the faint of heart.

Wherewithal

The first public rating from Moody's for a new $1 billion credit facility, announced by Harvey Gulf in June, is the cornerstone upon which the Louisiana-based firm will build its future expansion plans. Shane Guidry, Harvey Gulf CEO explained, "The Moody's rating gives you better access to capital; as good as if you were a publicly traded company. The loan was done through Bank of America – so that's the only entity I'm dealing with." Competing against other firms, some of which are publicly traded and can access capital in other ways and perhaps with more ease, the Moody's rating was a key step for the company.

The LNG Play: risk, payback and the future

The June announcement that Guidry had exercised its option for a sixth clean burning LNG OSV hull with Mississippi-based TY Offshore leaves no doubt that Harvey Gulf is committed to the concept. The only question left to answer is why no one else is following. Guidry has his own take on that. "It's a combination of several things. Others claim that this is a niche market only. It's not a niche market; it's a new market. So, it's going to be a situation where everyone is looking to see how successful we are and perhaps Shell, too. We have interest from foreign oil concerns who want to talk about taking the LNG boats to Australia. Here's what happening: the only LNG boats in the world are being built in Norway, most likely financed by the Norwegian government, so they have to be used in Norway. So, now there are boats available to be operated anywhere in the world. We've been contacted by a company in the Middle East. It just has to make economic sense. So, we chartered the first three boats to Shell – which was the right thing to do – and the entire oil and gas world can see that somebody is interested in this and can make it work."

Responding to doubters who point to the operational drawbacks of a dual fuel arrangement, Guidry shrugged and said, "The LNG tank weighs 100 tons – we lose 100 tons of cargo there, but we got back 50 tons by reconfiguring the vessels. Now, the engines weigh more because they are bigger so you lost some there. But, at the end of the day, instead of being 5,500 deadweight tons, we end up being 5250." He adds, for emphasis, "When we finish the build out of the current 49 vessel plan, 6 of the 49 will be dual fuel vessels. But, we have options for 4 more – they're called options but we are going to exercise them. That's because I'd sign for them today if the yard didn't require a deposit. But, I'm not going to give them money until they can start the boat."

According to Guidry, the Wärtsilä dual fuel engines will not require after treatment, because when burning LNG, they exceed the requirements for tier 4, and on the diesel side, there are no rules for tier 4 in this class. That said; the lure of LNG and dual fuel for Harvey Gulf had more to do with the promised reduction in maintenance issues and longer span between service intervals. Detractors point out that the real merits of the concept are as yet unknown and may not be all they are cracked up to be. Again, Guidry shakes his head and says, "People do not understand these engines and until they do, they shouldn't make statements like that."

He continued, "Here's what we do know: Wärtsilä recently had a dual fuel engine that ran for 20,000 hours on a Norwegian offshore vessel and when they opened that engine up and took a white glove to the inside of it, there was no carbon. If you can make 20,000 hours – why can't you make 60 or 80,000 hours, as long as you do not operate those engines using diesel. And that's why I am hell bent on not allowing anyone to use diesel fuel in my boats. When we bring these boats in, I'm not going back offshore until we fill those LNG tanks. The CAPEX is a lot higher – yes. But, the maintenance CAPEX is a lot less to support the decent rate that I've been giving out. But, in order to do that, I have to run LNG."

Finally, Guidry addressed the issue of cost. "They talk about the building costs. It does cost $12 million more per boat. So, with the 6 boats I am building, I could've gotten 1.5 more. Right now, the returns are no more than what a $42 million supply boat is getting. But, Harvey Gulf is not the compa-

ny looking for returns for today; we're looking for long term returns. That coincides with our philosophy on long term charters."

Bunkers, LNG and Operational Realities

It used to be the 600 pound gorilla in the room, but Guidry dismisses the fears about bunkering logisitics. "People wonder where they will get the LNG. Well, they'll get it in Fourchon. And yes, we will sell bunkers to others if they want it. Right now, we're the only dual fuel operator in the gulf. The dual fuel boats will have 67,000 gallons of usable LNG – you can go 2,000 nautical miles before you have to switch to diesel. We think the boat will be able to DP 14-to-17 days on LNG, depending on the forces it encounters. There's no difference in operational mode when you use LNG versus diesel." What about safety? Guidry insists, "For there to be a real problem with LNG, there would have be a double breach, which is pretty much impossible."

A construction delay, because one of the shore-based LNG tanks was damaged in transit, means that a February 2014 completion date will not be met. With the first dual fuel hull scheduled to be delivered in mid-March, the hope is that the terminal will be ready then. Guidry admits, "The casualty set us back a bit, but we'll be up and running in April of 2014 for sure." Explaining further, he adds, "It takes only two hours to bunker one of our boats at 500 gallons per minute – a lot quicker, perhaps than typical conventional bunkering operation. But, we elected to have no other hazardous materials or other bunkers on the property because LNG is so new to people. It'll be a standalone facility for the purposes of safety and perception." Separately, and as MarPro went to press, Guidry was also considering a deal to build and operate LNG barges in concert with Shell, and others.

At Sea in Style

For a guy who loves to talk about quality, the two-tier market and his newbuild program, Shane Guidry is also acquir-

ing a lot of used "cars," too. Dolphin Towing, BeeMar and Gulf Offshore Logistics vessels now fly the Harvey Gulf flag and Guidry is acutely aware that what might have been good enough for others won't cut it when it comes to putting out to sea for Harvey Gulf. He also puts his money where his mouth is. "We're spending millions of dollars to bring up to Harvey Gulf standards the quality of the interiors on the boats that we've acquired."

The improvements extend beyond interior accommodations and creature comforts. The plans to stretch five of its recently acquired OSV's, increasing their deck space to 10,000 square feet and cargo capacities to 10,000 Barrels of Liquid Mud plus 10,000 cubic feet of Dry Bulk is already underway. And, he adds, "For example, some of the boats have just two generators – they conform to the rules but we don't like it. So, we're adding a third. It's about providing the best possible service. We're going to change out the flooring in all of these vessels. The crew boats will be upgraded to more comfortable living quarters. First quality mattresses – everything. I appreciate the hard work and the safe job that they do, so you just can't expect keep it that way with a couple of pay raises. You also have to make people want to come to work."

At Harvey Gulf, they do want to come to work and Guidry is intent on ensuring that they go home in the same condition that they arrived on board. Since 2008, the firm has had one recordable incident. Guidry says, "I'm not sure if anyone else can say that. And knock on wood, in 58 years of being in business; we've never had a fatality. At our company, there is no budget in our safety department – they get whatever they want. They can make any changes they need to for the betterment of the boat; no matter what the cost or the time involved. Today, I've got 36 boats working and 18 safety people. It's my most costly division and there's no doubt it brings in the most in terms of return."

Guidry points to today's Gulf of Mexico oil companies operating in a post-Macondo world: "They want safety. We are the only group with cameras on board monitoring safety with 180 tilt – up and down/side to side, with 1000x zoom. From Alaska to French Guiana, we have someone watching the boats. We could use it for operations, but for us, it's all about safety.

The Flight to Quality: Pie-in-the-sky?

Shane Guidry talks about the so-called "two-tier" market. Todd Hornbeck calls it the "flight to quality." To date, however, it hasn't come to pass and Guidry himself freely admits that his shiny, high tech, environmentally correct tonnage still isn't yielding an appreciably higher rate of return than boats costing tens of millions less. He also isn't worried about it, either. According to the Harvey Gulf CEO, to understand where the market is going, you have to understand where it is today.

"Today, we have 36 boats out working, with nine under construction and two additional firm commitments. Tidewater is probably the largest operator, but in a fragmented market, that equates to less than 10 percent of the worldwide fleet. As we climb the ladder, the difference between us and a Tidewater, for example, is that we're climbing the ladder with new assets. Tidewater has a lot of older assets, but they work them in places like the Middle East and Asia where perhaps the standard of the boat doesn't yet matter as much as it might here in the Gulf of Mexico."

Continuing, Guidry insists, "Tidewater is not the right company to compare this sort of thing to. Why? Because they operate older tonnage in a lot of areas where top quality and modern assets aren't going to matter for a long time. Many places in the world are still okay with 25-30 year old boats that they'll pay $9,000 to $12,000 per day for. Tidewater only has 3 percent of their boats here, and the ones they do have are new. If they want to compete in this market, they have to build or buy. That's a management decision, of course – do you play here or do you play somewhere else? You can't be everywhere so you play where you think you have the highest chance for best returns."

Pointing to the local markets, Guidry sums it up by saying, "In terms of our U.S. Gulf fleet, I think that Chouest is the largest, and then Todd and I are close – if you take out all his DP-1 stuff. He does have a lot of boats under construction, so I'm not sure where we'll end up. I think you could eventually see us end up with 70-to-75 DP-2 boats."

Moody's Caveat: a non-Starter

The Moody's rating reflects the expectation that Harvey Gulf "management will successfully handle any operational complexities arising from the material increase in its fleet size." That caution is understandable for a company whose fleet has expanded from 15 to 49 vessels in a very short time span. In February, Harvey Gulf addressed those concerns when it tapped Mike Carroll to head up its New Construction and Special Projects. The new Senior Vice President will be Houston, Texas and brings with him 15 years of experience in the field of Naval Architecture and ship construction. But, bringing in Carroll from STX wasn't Guidry's only move in that regard.

"We also hired another from STX. They're part of that 'ramp up'. We have drydocks being built in one shipyard in Louisana; boats being stretched at Bollinger, in Gulfport and Florida. We have five shipyards building for us right now. We also have to run our vessels and maintain our fleet and drydocking schedules. By April of 2016, we'll have 49 boats. It hasn't been too long since we only had 15. Back then, we had 35 in-house people and today, we have 120. On the boats, we've gone from 200 to over 700."

The Harvey Charter Plan

Shane Guidry's strategy when it comes to deploying his fleet is a simple one. Guidry says flatly, "There are other groups with more folks and boats, but we don't play in the DP1 arena. It's not high quality enough for us. I run my company differently. Our goal is to get 5-year charters for our boats. Today,

"When we finish the build out of the current 49 vessel plan, 6 of the 49 will be dual fuel vessels. **But, we have options for 4 more – they're called options but we are going to exercise them.** That's because I'd sign for them today if the yard didn't require a deposit. But, I'm not going to give them money until they can start the boat."

Shane Guidry

80 percent of our fleet have those; the rest have one to three years. We prefer five years and we'll give a discount to get it."

Reinforcing his earlier remarks on charter strategy, Guidry drilled a little deeper into his playbook. "I have a certain EBIDTA return that I want to make on each asset – somewhere between 57-67 percent, depending on the cost of the vessel, its size and ability to bring the higher amounts of cargo to get the higher rates.

I'm comfortable not pushing the envelope; I'd rather have long term contracts that allow me to pay down debt and build assets. Let's face it, these boats last 30 years; I don't want to try and make all my money in one week. It's like a restaurant – you'll keep going back if the food and service are consistent. With us – it's our service and our safety record. It allows us to be very consistent with our returns and growth."

Jones Act Compliant – and Smart Business, too.

The Harvey Gulf business plan goes beyond evironmentally correct vessels. "We're looking at everything – rig decommissioning, anything that requires high quality, fully capable construction assets," says Guidry. He adds, "For some reason, the industry has not committed the funds for Jones Act compliant construction vessels. We saw that some time ago as a big void and that's where we ordered the *Harvey Deep Sea*, *Harvey Blue Sea* and one other. Those huge, 340-foot LOA vessels will be the biggest, American flag Jones Act compliant vessels in the U.S. Gulf. These sleep 120 people in 1 and 2 man rooms."

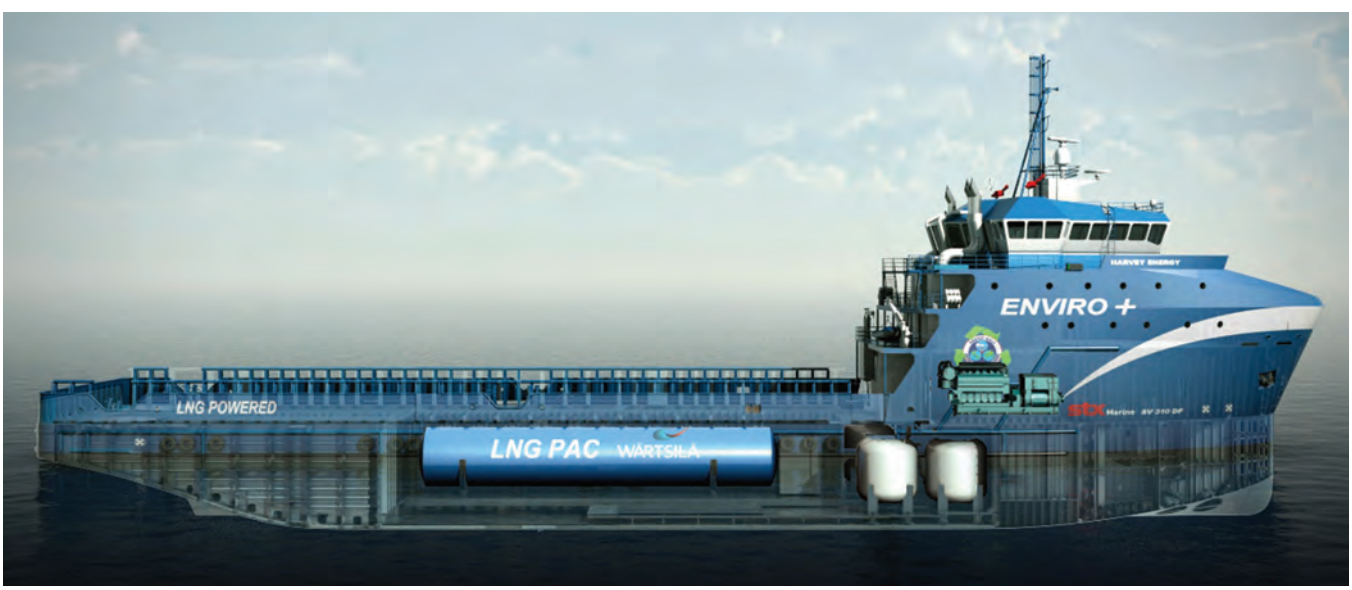
Guidry also knows that the oil companies don't necessarily have to charter his boats, depending on how far out and where they do work. But, it's not all about day rates, either. Leaving the boat out in the Gulf of Mexico and having supply boats bringing out of all the cargo comes at a cost. Guidry predictably hits all the hot button issues of U.S. jobs and tax revenues, and finally gets to the heart of the matter.

"A lot of people don't want to make dual transfers – it is a big liability. The oil majors would rather deal with high quality US flag assets here in the Gulf. This is for two reasons: It allows them to come inside and take a full load of whatever they want and take it out there and lay it. Let's say you have two big foreign flag construction boats working here, you might have to have four supply boats tending them. With Harvey Gulf, you just incur the main vessel costs with less potential liability. We're building bigger because we see more operations past 10,000 feet of water and 80-to-100 ton pieces of equipment. In order to deliver that cargo out there it is going to take a larger vessel with a bigger crane. We also see where bed space is a premium and our larger vessels will be a huge plus in that regard."

Looking Ahead

Guidry's take on the U.S. Gulf of Mexico is fairly simple. "It's busy times, but consolidation is still the key. We've bought Dolphin Towing, BeeMar, and Gulf Offshore Logistics. There are other companies out there to buy. I wish more people would go out there and do it. Let's consolidate and not overbuild. At some point, we will be overbuilt, only the strong will survive and we'll be one of them. We might have to redeploy to other parts of the world."

Enumerating just a few of the many variables in play, Guidry points out that a lot of rigs are being built – 65 to be delivered by 2022. He asks, "Will they be cancelled? Will they happen? Will LNG become the golden fuel offshore? Will oil come down to $65 per barrel and hurt us all?" Conceding that he has no crystal ball, he continues, "These are the kind of things we prepare for by having long term charters. And if LNG partially displaces oil? It'll be great for the economy, great for jobs and the country and it'll make the oil last that much longer." No doubt it'll be good for Shane Guidry and Harvey Gulf, too.



Finding the LNG Comfort Zone

Training on LNG-as-fuel systems commences shortly for Harvey Gulf crew at Wärtsilä Land & Sea Academy in Ft. Lauderdale

While there remains some market skepticism on the long-term legs of LNG-as-fuel in the commercial marine market, even the most ardent skeptic admits that the numbers are compelling. Today, it appears that the price of gas relative to diesel and distillates will be favorable for a generation. If that were not enough (and it is!), LNG gives shipowners an immediate means to meet ever more stringent environmental emission regulation. Still there remain questions, chiefly surrounding the ready availability and safe transport and handling of LNG on a larger number of vessels plying the coastal and inland waterways. Enter Wärtsilä Land & Sea Academy, which next month is scheduled to start instructing Harvey Gulf International Marine crew on procedures for safe and efficient handling of LNG on its new fleet. Beyond this high-profile assignment, Wärtsilä aims to serve as an information repository, providing a resource of knowledge and training for the industry and government to advance the use of LNG as fuel in the maritime community.

The Pioneers

Today the vast majority of marine owners and operators are in 'wait and see' mode regarding the incorporation of LNG as fuel on fleets of commercial marine vessels, hesitant to invest the time and capital on what is still widely (and erroneously) considered an unproven technology. But there are always pioneers willing to push conventional norms in the name of competitive advantage, with Harvey Gulf and Wärtsilä leading the charge here. With 10 locations worldwide, Wärtsilä Land & Sea Academies offers wide ranging LNG Training courses, specific to Wärtsilä product and projects as well as generic to the concept of gas and LNG on the shipboard environment.

While LNG-as-fuel is still relatively new in the marine environment, it is important to remember that it has a long operational history in other industries. "We have been conducting gas training here for the last 10 years," said Bob Miller, Regional Training Manager

Bob Miller is the Regional Training Manager America's for Wärtsilä's Land & Sea Academy. Miller has worked with Wärtsilä since1992 he graduated from the U.S. Merchant Marine Academy, and has been the training coordinator since 2001.

Americas, Wärtsilä Land & Sea Academy. "When you look at Harvey Gulf vessels, they are gas engines, and that's not something uncommon for us." The difference for this application is the LNG storage, specifically the LNGPac. (which is the storage tanks, regasification and the entire system leading up to the engines). "Once you're up to the engine it is simply a gas engine."

Miller said training will take place in its Ft. Lauderdale facilities for the longer five-day courses, as well as in Harvey Gulf's offices for the one-day courses. "For your regular maritime engineers, there simply needs to be a comfort zone (regarding the safe onboard storage and handling) with LNG as fuel," Miller said. "This is a new fuel for them; it's simply something different."

An LNG regasification unit is being shipped from Wärtsilä's Turku training center for hands-on training, and a bunker simulator will be used to teach LNG bunkering skills. "One of the main concerns we see are questions regarding the safety of the fuel, and the bunkering, as this is a critical area where you are moving it," Miller said.

- G. Trauthwein

Pioneering LNG on the Great Lakes

Interlake Steamship Company took pole position among Great Lakes shipping companies in the race to provide environmentally correct and economically sound fleet power when it announced in May 2013 its plans to convert its fleet of bulk carriers to operate on LNG. Mark Barker, President of Interlake Steamship Company, weighs in with MarPro on LNG repower, risk – and reward, too.

By Eric Haun

The potential benefits of LNG as fuel are well documented throughout the commercial shipping sector. According to Germanischer Lloyd, LNG fuel is both cleaner and more cost efficient as it reduces sulphur oxide and carbon dioxide emissions, and so far is less costly than traditional heavy fuel oil. This, coupled with the next wave of ECA regulations scheduled to take effect in the coming years, has shifted industry focus toward affordable, clean energy.

More companies each year are announcing LNG conversions and newbuilds, however these LNG repowers and builds have mainly appeared in the offshore sector, raising questions as to why large scale LNG conversions haven't taken place on the Great Lakes. The short answer seems to boil down to accessibility. LNG bunkering is not available in the Great Lakes, at least not yet. Mark Barker, President Interlake Steamship Company, said the benefits of LNG lured his company to begin considering conversion a few years ago, with the initial idea to repower a single ship, but the absence of LNG bunkering on the Great Lakes made conversion impractical.

Game Changer

That changed when Interlake announced in May its plans to repower its fleet with dual fuel LNG engines. The company also revealed an agreement in principle with Shell for the supply of LNG to support the operator's conversion project which will in effect bring LNG bunkering to the Lakes as operations expanded to justify small-scale liquefaction. Now, as Shell prepares bunkering arrangements, Interlake looks to convert a total of seven ships to dual fuel engines powered primarily by LNG, with a goal of completing its first conversion by spring 2016 and one per year, thereafter. Of the 10 ships under Interlake operation, two vessels will not be repowered due to recent conversions to ultra low sulphur diesel, and another will forgo conversion because it is owned by an outside company. Interlake's first vessels scheduled for repower are its three 1,000-foot class bulk carriers.

Nuts & Bolts

The conversions will take place during the ships' annual layup period between January and March. Shipyard arrangements and contracts are yet to be finalized, but Barker said an engine manufacturer and tank supplier have already been determined: MaK Caterpillar and Taylor-Wharton, respectively. Interlake's vessels have recently-upgraded gearboxes, tail shafts, propellers and control systems, so less labor is required for total repower. "We're changing engines out. We're putting in gas systems and the safety systems that go along with that, and that's really the scope of the project," Barker said. "We've done extensive repowers and equipment upgrades on our ships already, so LNG is just another step in that equipment upgrade."

For Barker, the "next step" is ultimately about providing a long term transportation option for Interlake customers that is both cost effective and sustainable. "We need to be compliant or exceed compliance," Barker said, "and if we're going to

"We looked at technologies of all kinds: scrubbers, number two diesel, using compliant fuels and other alternatives," Barker said, adding, "We were trying to look at the technology from a long term point of view, looking further than just a few years ... LNG would exceed compliance, utilizing a lower cost fuel than just using ultra low sulfur diesel and still be able to provide a reliable, low-cost transportation to our customers."

Mark Barker

install technology, we want to put technology in that we feel will withstand the test of time."

There are other ways to increase efficiency and sustainability, but after thorough investigation, Barker said the company decided its most attractive option was an LNG repower, especially when planning for the onset of additional ECA regulations. "We looked at technologies of all kinds: scrubbers, number two diesel, using compliant fuels and other alternatives," Barker said, adding, "We were trying to look at the technology from a long term point of view, looking further than just a few years. Scrubbers would help us become compliant, but LNG would exceed compliance, utilizing a lower cost fuel than just using ultra low sulphur diesel and still be able to provide a reliable, low-cost transportation to our customers."

He added, "Fuel is a large impact cost of our business. And at the same time we want to make sure we are minimizing our effects on the environment. It was those two drivers that came together to make this work."

Trailblazing

Even with the potential benefits, Barker pointed out that there are still inherent risks involved. "We're a privately held company," he said, "and we're taking on a large endeavor by being a leader in the LNG sector, in the U.S. and especially in the Great lakes." Trailblazing a project of this magnitude places some uncertainty in the hands of the shipowner. After all, LNG infrastructure is yet to be developed on the Great Lakes, and LNG ships of such scale simply have not been operated there.

Additionally, there is financial risk. Barker did not want to address capital investments, but a Great Lakes Maritime Institute study found capital costs for LNG bulk carriers to be 15-20% higher on average than those of non-LNG ships. Barker did say that Interlake is constantly searching for ways to reduce the financial risk, either by finding ways to offset ECA effects or investigating the possibility of clean energy grant money.

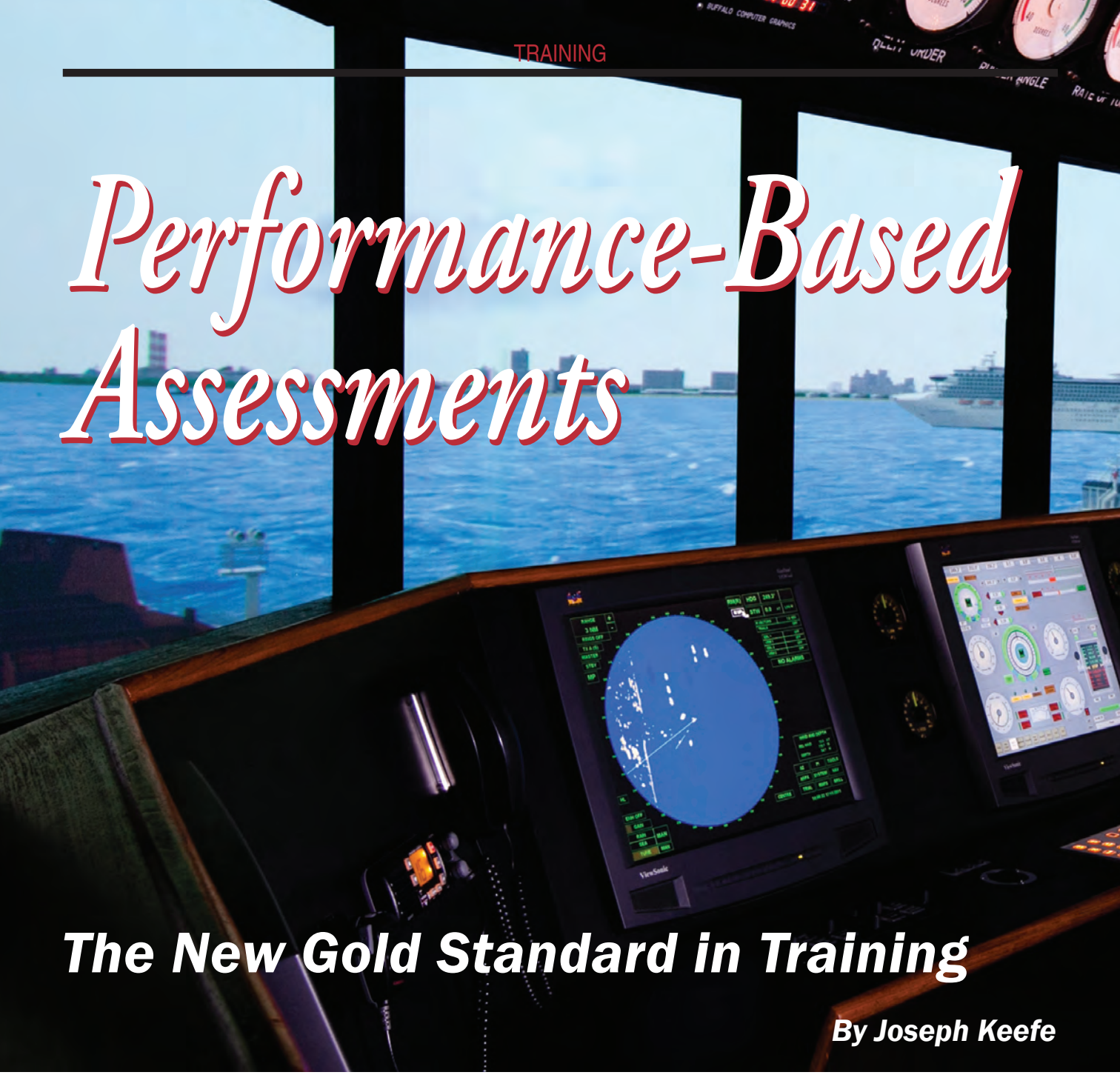
One thing is certain: Interlake and Shell have the power to change Great Lakes operations on a very large scale over the coming years. Barker believes that if everything goes as planned, Interlake's reward will be large and its impacts will be far-reaching. "This is an important project," Barker said. "We're helping to bring LNG to the Great lakes as a fuel source, not only for ships, but other modes of transportation."

Interlake's project is not only a significant step for shipping, but also for the United States, Barker added, "We're supplying North America with raw materials from the U.S. to the U.S. plants using U.S. ships and now we're going to use U.S. fuel. Once the concept is proven, it will be much likelier that other companies would look at converting or [using LNG] as a fuel source." At that point, Barker insists, "I think a lot of the risk will be taken out of it."

Barker to Address SHIPPINGInsight

Scheduled to speak at ***SHIPPINGInsight 2013*** in Stamford, CT in October, Interlake Steamship CEO Mark Barker will be featured on the Fuel and Propulsion Management panel. The panel will address the latest investments and challenges with LNG bunkering, efficiencies of LNG dual fuel design and the impacts of LNG training on efficient ship operations, among other fuel and LNG topics. **www.shippinginsight.com/event-registration/**

Performance-Based Assessments



The New Gold Standard in Training

By Joseph Keefe

In a maritime environment where the benchmark for competence now far exceeds mere compliance with STCW and flag state benchmarks, a new generation of simulation technology is helping to measure real mariner capabilities. At the heart of it all is Transas and one of its primary customers, Maritime Professional Training.

At the Transas 2013 Users Conference, held this summer in Maryland, USA, the best and brightest that maritime training and simulation has to offer came together for a four-day summit. As simulation training roars into high fidelity with improved data input, customer interaction and some amazing technology, training schools and their customers have embraced the changes with vigor. As they do, the concept known simply as Performance-Based Assessments are changing the way shipowners and operators hire mariners and the way the training institutions deliver training. Neither will ever be the same again.

Customer "give and take," says Transas USA President George Toma, is necessary to develop the next generation of high-tech training aids. That said; customer interaction is just one of several critical variables impacting marine simulation training development today – and tomorrow. To that end, Andrey Sitkov, Transas Marine Internal's simulation Business

Manager, told Transas users in August that future trends and challenges in maritime simulation include the growth in the energy and offshore markets, better data derived from wind, wave, tidal and ocean currents, the coming Polar Codes, and the advent of piracy as a lingering problem for international shipping.

Transas European Sales Director Evgeny Drumachik, looking to the future, cited three chief simulation drivers; regulatory change, non-regulatory requirements (customer specific tasks that need to be satisfied) and evolving technology. According to Drumachik, since STCW'95 was adopted, 'non-regulatory requirements' trend of simulators development have, with increasing pace, overtaken 'regulatory' trend. Today the gap between regulatory and non-regulatory trends keeps growing. At the same time, 'Technological' trends were billed as the 'enabler' of further users' non-regulated requirements to advance training features of new simulators.

From the training side of the equation, Maritime Professional Training (MPT) Managing Director Amy Beavers told *MarPro* in August, "Our training involves not only Performance-Based assessments, but also focuses on a growing 'overreliance on technology' being seen in the maritime community." Indeed, MPT's own version of assessments – '*virtual*

vetting' – is something that a broad, growing spectrum of clients are asking for.

Performance-Based Assessments

Today, STCW standards are merely base requirements. For that reason, business related tasks and competencies will be the drivers for what comes next. Drumachik insists, "No longer will industry accept learning on generic simulation platforms. The move towards the ability to swap out equipment and controls, to duplicate and closely mimic actual conditions at sea for the customer's own equipment, will be very important." Simulator layout and equipment set must now be adaptable for multiple vessel types and purposes – navigational and engine rooms alike – including, but not limited to Tugs, Offshore Vessels, Cruise Ships, Naval Ships, LNG and a host of others. As simulation training evolves, however, the need to keep the price reasonable for the increasing numbers of mariners who need it will be just as important.

Transas customer and maritime training provider MPT started over 30 years ago as a result of what was perceived by its founders as a lack of training available for the industry, outside of the academy and union system.

Now, arguably the largest privately held training facility in the country with over 125 approved programs and over 50,000 square feet of facilities, its clients come from every sector. As ample testament to the diversity and flexibility in its training programs, that client split, says Captain Ted Morley, MPT's Chief Operations Officer, comes with parity in numbers between the deep sea industries and the near shore or inland industries.

As maritime training schools everywhere ramp up to embrace Performance-based Assessments, the concept has been a staple at MPT for many years. An early adopter of the concept, MPT today is a leader in the field. Morley says, "We have long ago embraced performance based assessments, as have many of our client companies. Pre-vetting has been a staple for us for over 10 years. We see a logical up-tick in demand as more companies see the benefits (reduced accidents, reduced lost time, and reduced insurance premiums) of that concept. More and more segments are looking at changing their procedures to match that paradigm."

Morley explains the MPT philosophy when it comes to training. "Everyone at MPT operates from the same position – if the student cannot successfully achieve the skill level, they don't get certificated. That can be difficult, but everyone that comes to us understands that basic concept. Our client companies and individual students are looking for competence so they come to us realizing that the road ahead will be difficult but rewarding. All of our instructors are committed to the success of our students – work groups, homework, proficiency building practical exercises are all designed to assist the student achieve the standard. The student must be willing to work hard, as well.

We currently are seeing a better than 95 percent pass rate in most of our programs. Our 3rd Mate Unlimited students are passing the USCG tests at the RECs with better than a 98% first attempt pass rate. Students that are completing a course and are unable to pass it on their first attempt have the option to re-sit the course or a component of it, or get remedial training to help them get the concept. We also see students return to sea to get more experience and then come back in a few months to complete any practical assessments they were

MPT's Dynamic Positioning simulation laboratory.

unsuccessful with.

But, training at MPT doesn't stop when the student goes back to sea. "We provide a considerable amount of training and consulting to the cruise industry, we are also involved in onboard training for several major cruise operators as well – ensuring that the training makes the transition from the classroom to the vessel," adds Morley.

Emerging Trends – and Solutions, too

From MPT's considerable experience in the training arena, and looking at the training candidates that pass through MPT's Fort Lauderdale-based doors on a daily basis, Morley says that the emerging trends are clear. "We see two areas of apparent weakness; the first being engineering competences. The technical aspects of modern engine rooms are requiring more and more training as the 'apprenticeship' programs of the past have gone away. The (reduced) crew sizes we see now require immediate ability as soon as the person signs on. There is no time for them to learn on the ship.

The second area is in the basics – technology is great and definitely helps us to do our job but the mariner still needs to be able to tie the basic knots, plot a fix using the stars, and they still need to be able to compute a course distance or a fuel consumption calculation. We feel these areas need to be addressed not only at the regulatory level, but also at the corporate level.

Alluding to Transas European Sales Director Evgeny Drumachik's earlier comments, he added, "Regulations establish the minimum level of competence. Companies need to determine if the minimum level is good enough and if not, implement training programs within their fleets to improve the level of skill and abilities amongst their mariners."

MPT's Radar Lab

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>
> Ted Morley,
> MPT's Chief Operations Officer

The Way Forward

For Transas, keeping up with its customers is important, but just one of many drivers for its growth and product development. Since the first iteration of the Users Conference in 2005, the number and diversity of the attendees has doubled, and during that eight year span, the Transas Simulation group has grown to be the second largest of the corporation, encompassing 200+ employees. The group regularly invests as much as 25 percent of its total revenues back into R&D, producing 15 new products into the market and more than 50 upgrades of existing products during that timeframe.

From the customer end of the equation, MPT's Amy Beavers says that MPT pays for every one of those product upgrades. She explained, "It costs money. But, the upgrades give each student the most realistic outcome. Every time, Transas inserts something that makes something else more possible." Continuing, she insists, "They (the upgrades) are worth it. But, our prices do not necessarily go up every time we spend on simula-

Challenges for manufacturers – and training providers, too:

Manufacturer	Training Schools
Simulators must fit in smaller spaces	Raise funds (for upgrades)
Simulators must have a high utilization rate	keep up with customer requirements
Simulators must be multi-functional	Increase quality & diversity of training
Minimal down time – Easy, Quick Maintenance	Recruit qualified instructors
Minimize hardware to reduce price	Translate Tech Training form class to sea

tion, but we do it because of our desire to maintain MPT equipment with the 'latest and greatest' in new developments."

Ted Morley expanded on the value of the upgrades and the MPT relationship with Transas. "Transas has been a key partner in working towards improving the level of realism in simulation. This has become very important as we look at the increase in training requirements and the shortage of time on the ships for mariners to complete training and assessments. MPT has, since their first simulator, had an on-going upgrade schedule. Every 6 months we evaluate the software and hardware we use, making enhancements as they become available. This has allowed our systems to stay at the cutting edge of technology and make full use of the Transas capabilities."

Today, MPT is engaged in a large scale overhaul of their entire simulation facility, creating bigger bridges and engine rooms, adding even more features. Before that, Morley and MPT looked at over a dozen facilities from every major manufacturer. They eventually settled on Transas and have never looked back. Morley says that as the first privately-owned simulator in the country, there really wasn't a model for what MPT wanted to create. He continued, "I had known George Toma for many years and had confidence that they could build what we had envisioned. That decision has proved itself many times over during these past 10 years. When we decided to create a DP lab, we didn't want to just use the DP equipment; we wanted to integrate it with every other system on the bridge. We were able to build a lab with not only great real-world DP hardware, but also have radar/ARPA, ECDIS, radio communications, autopilot, navigational instruments, ships controls, and visual scenes, giving us the ability to teach the students not only DP, but how DP interfaces and works with the entire bridge as part of a system. At that time, that didn't exist. Transas worked hard to create the interfaces that allowed us to have that level of integration.

The uses for simulation go far beyond training itself, and can include skills assessment of personnel (hiring, promotions, etc.), R&D work for emerging and established markets and ports, Incident investigations, risk-related analysis (oil pollution, piracy, collisions, groundings) and many other applications. Take for example the growing, global demand for new, powerful and more maneuverable tug. The switch to Z-drive propulsion means a huge training challenge for Inland Towboat operators. And, climate change is driving simulation manufacturers and schools alike to develop training and platforms to develop ice navigation skills and even the monitoring of emissions monitoring.

Generation Next

Marine Simulation training will be used in a myriad of ways going forward. A key component of that growth will necessarily include a better data set – derived and collected from actual at sea experiences on board specific platforms. This will not only allow far more realistic training, but also provide a window into many other uses for the equipment. Going forward, research and development, accident evaluations, risk-based analysis and pre-employment evaluations will rapidly expand the use of this technology. And, because distance learning and Internet-based platforms are also coming, the "*cloud*" is clearly the limit.

Today, the Transas reach into simulation goes far beyond their relationship with MPT. With more than 1,300 organizations as customers, and boasting a reported 99 percent retention rate among that group, the work is never done. That's because the customers themselves drive the innovation that Transas delivers. Performance-Based Assessments are now part of that value proposition. And, this summer, Transas users got a good look at what is coming next. In part, and because of them, it's actually already here.

USCG TESTING

Why We Test for Drugs & Alcohol

Is chemical drug and alcohol testing of commercial vessel personnel effective? *By Walter J. Brudzinski*

In 1988, the Coast Guard implemented chemical testing to discourage drug and alcohol use by commercial vessel personnel, reduce the potential for marine casualties related to drug and alcohol use, and enhance the safety of the maritime transportation industry. While the Coast Guard has been collecting data on drug testing results for more than 20 years, there have not been any studies on the effectiveness of chemical testing in meeting stated goals.

To determine the extent chemical testing achieves these goals, Post-Accident drug and alcohol test results of crewmembers from two vessel categories were compared. The first vessel category consists of minimally regulated commercial fishing vessels (CFVs) with no crewmember chemical testing requirements except for Post-Accident drugs and alcohol. The second category consists of highly regulated small passenger vessels (SPVs) of 100 tons or less with comprehensive crewmember chemical testing requirements. The drug test results that marine employers submit to the Coast Guard each year, 2003-2011, were also compared.

Comparing Post-Accident drug and alcohol positivity rates between crewmembers of the above vessel categories, Post-Accident drug and alcohol positive tests per serious marine incident (SMI) between crewmembers of each vessel category, and Random versus Post-Accident drug test positivity rates from all commercial vessel personnel subject to comprehensive chemical testing as reported by their employers, crewmembers on small passenger vessels were found to have had much lower Post-Accident drug and alcohol positive test results than crewmembers on commercial fishing vessels. Chemical drug and alcohol testing therefore appears to have achieved its goals at least to the extent of the data analyzed in this study.

Methods

U.S. Documented small passenger vessel (SPV) crewmembers in safety sensitive positions are subject to chemical testing as well as credentialing or licensing requirements. SPVs are also subject to inspection and are the most regulated of all U.S. Documented vessels. Conversely, U.S. Documented commercial fishing vessels (CFVs) are subject to the least amount of Coast Guard regulation. For example, they are subject to safety inspections such as firefighting and lifesaving equipment, but are not subject to vessel inspection. CFV crewmembers are not subject to Coast Guard credentialing or licensing requirements; they have no limits on the time they are on duty; and, they are not required to pass a Pre-Employment chemical test or be subject to subsequent Random or Reasonable Cause testing. They are, however, subject to Post-Accident drug and alcohol testing so they present a perfect contrast to SPV crewmembers for comparison.

To determine if the test results between the two vessel types were statistically significant; the two-proportion z-test was used. Yearly and total, overall differences in positivity rates and positive tests per SMI between CFVs and SPVs were compared. The level of significance used for those tests was equal to or less than 0.05, giving less than 5% likelihood the results were due to chance. Linear regression and correlation were used to examine the relationship between Post-Accident drug test positivity rates and Random drug test positivity rates from all vessels with crewmembers subject to chemical testing.

CFV vs. SPV Post-Accident Positive drug tests

To determine the extent chemical testing has discouraged drug use by commercial vessel personnel, **Figure 1** compares Post-Accident verified positives for one or more drugs between CFVs and SPVs from 2003-2011. Each year, the positivity rates of CFVs are higher than the positivity rates of SPVs by at least 32% and as much as 96%. SPV crewmembers averaged 77% fewer positive drug tests than CFV crewmembers. Overall, the probability that Post-Accident drug test positivity rates between CFV crewmembers and SPV crewmembers was due to chance is much less than five percent and thus statistically significant.

CFV vs. SPV Post-Accident alcohol tests

Figure 2 compares Post-Accident alcohol test positivity rates between CFV and SPV crewmembers. Despite some expected year to year variation, all of the Post-Accident alcohol test positivity rates of SPVs were lower than CFVs by at least 14% and as much as 100%. SPV crewmembers averaged 73% fewer positive alcohol tests than CFV crewmembers. Overall, the probability that Post-Accident alcohol test positivity rates between CFV crewmembers and SPV crewmembers was due to chance is less than 5 percent and thus statistically significant.

CFVs vs. ALL vessels Post-Accident drug tests

Figure 3 compares Post-Accident verified positives for one or more drugs between CFVs and ALL vessels with crewmembers subject to comprehensive chemical testing from 2003-2011. Recall from Figure 1 that Post-Accident drug test positivity rates of SPV crewmembers subject to chemical testing were much lower than drug test positivity rates of CFV crewmembers not otherwise subject to chemical testing. The differences were even greater when CFV crewmembers' posi-

tivity rates are compared to crewmembers of ALL vessels with crewmembers subject to comprehensive chemical testing.

Post-Accident positivity rates of crewmembers subject to chemical testing from ALL vessels were at least 89% lower and as much as 97% lower than Post-Accident positivity rates of CFV crewmembers. Crewmembers from ALL vessels averaged 92% fewer Post-Accident positive drug tests than CFV crewmembers. Overall, the probability that Post-Accident drug test positivity rates between CFV crewmembers and ALL crewmembers was due to chance is much less than five percent and thus statistically significant.

CFV vs. SPV Post-Accident positive drug tests per SMI

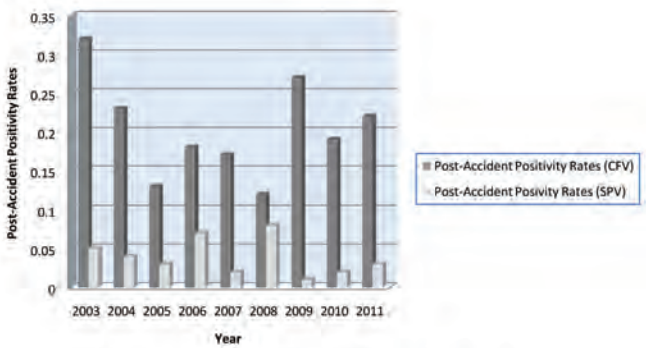
In response to whether chemical testing reduces the potential for marine casualties related to drug and alcohol use, Post-Accident positive drug tests wee compared to the yearly 2003-2011 SMIs in which drug tests are reported. Comparisons were performed in the same manner as those presented above except they are per-incident instead of per-person and include only SMIs in which drug tests are reported. As shown in Figure 4, SPV Post-Accident positive drug tests per SMI are much lower than CFV Post-Accident positive drug tests per SMI by at least 17% and as much as 93%. SPVs Post-Accident positive drug tests per SMI averaged 64% lower than CFV Post-Accident positive drug tests per SMI. Overall, the probability that the differences between SPV and CFV Post-Accident positive drug tests per SMI was due to chance is much less than five percent and thus statistically significant.

CFV vs. SPV Post-Accident alcohol tests per SMI

In further response to whether chemical testing reduces the potential for marine casualties related to drug and alcohol use, Post-Accident positive alcohol tests were compared to the yearly 2003-2011 SMIs in which alcohol tests were reported. As shown in Figure 5, SPV positive alcohol tests per SMI were much lower than CFV positive alcohol tests per SMI by at least 8% and as much as 100%. SPV Post-Accident positive alcohol tests per SMI averaged 73% lower than CFV Post-Accident positive alcohol tests per SMI.

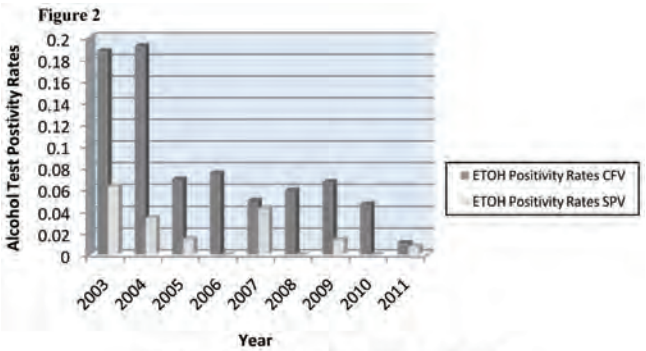
As with year to year variations in alcohol test results in previous comparisons, similar variations exist here. Two factors are known to contribute to these variations. The first factor is the two hour time period in which alcohol tests must be ordered. This time limitation will leave out many instances in which tests ought to have been ordered but were not due to the remoteness of the vessel's location, especially commercial fishing vessels that ordinarily operate farther offshore than small passenger vessels. The second factor is the relatively small number of tests which could cause wide swings in the percentages of positive tests per serious marine incident. Even with these factors, the ratio of positive alcohol tests per serious marine incident consistently shows crewmembers

Figure 1



CFV vs. SPV Post-Accident alcohol tests

Figure 2



CFVs vs. ALL vessels Post-Accident drug tests

Figure 3

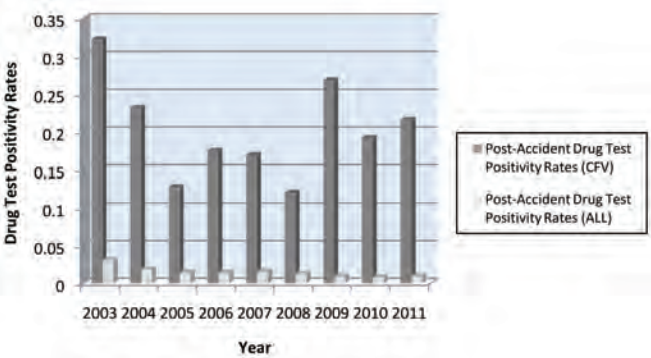


Figure 4

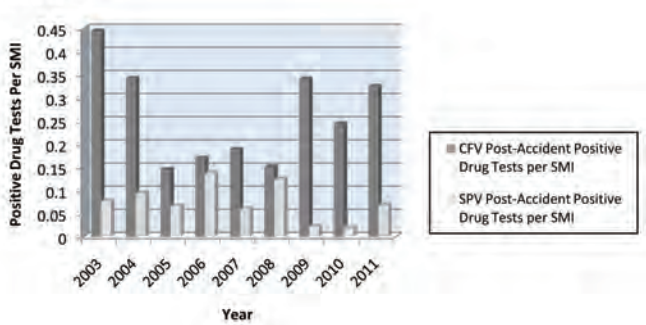


Figure 5

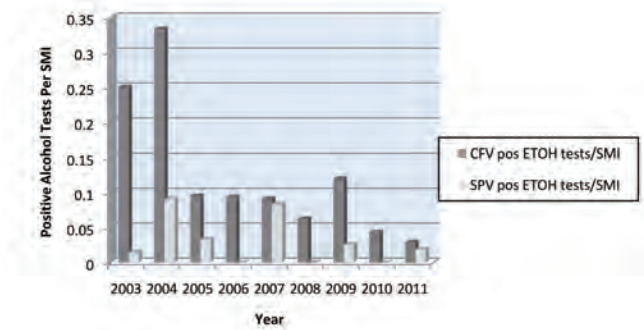


Figure 6

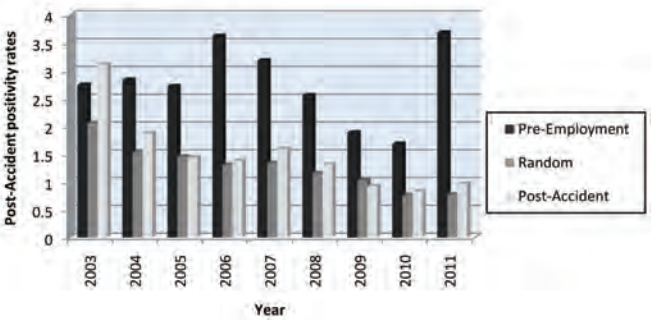


Figure 7 Trend Line of Random and Post-Accident positivity rates

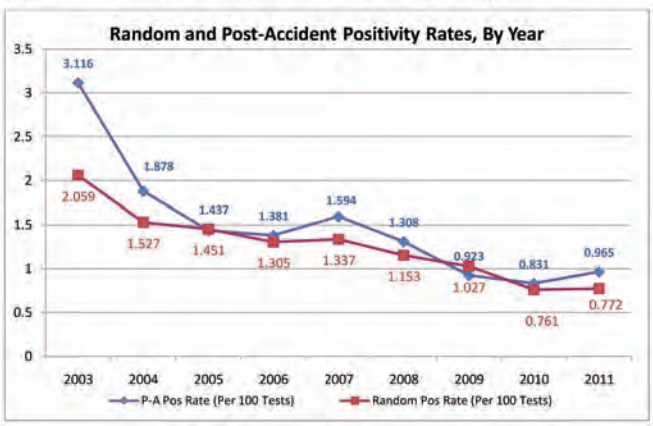
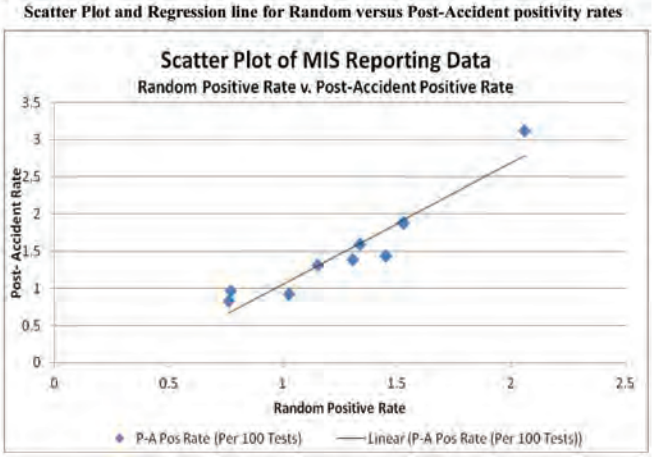


Figure 8

Scatter Plot and Regression line for Random versus Post-Accident positivity rates



of small passenger vessels test positive for alcohol less than crewmembers of commercial fishing vessels. Overall, the probability that the differences between SPV and CFV Post-Accident positive alcohol tests per SMI was due to chance is much less than five percent and thus statistically significant.

Random vs. Post-Accident drug test positivity rates

Figure 6 shows yearly 2003-2011Pre-Employment, Random, and Post-Accident Random drug test positivity rates from ALL vessels with crewmembers subject to chemical testing as reported by their employers.

Trend Line of Random and Post-Accident positivity rates

Crewmembers not passing a Pre-Employment chemical test for dangerous drugs are not hired and thus not subject to further comprehensive chemical testing. Pre-Employment positivity rates therefore do not directly affect Random or Post-Accident positivity rates; however, the differences in positivity rates between Pre-Employment and Random as well as between Pre-Employment and Post-Accident are startling. The data appear to show the Pre-Employment drug test eliminates those persons whose drug use would appear to be so much a part of their lives that they are unable to suspend it sufficiently long enough to pass a drug test even with advance notice. Random and Post-Accident positivity rates also appear to have a gradually decreasing trend as shown graphically in Figure 7.

Scatter Plot and Regression line for Random versus Post-Accident positivity rates

Examining annual drug test results marine employers submit to the Coast Guard, random drug test results represent at least 53% and as much as 63.6% of crewmembers eligible for testing. This represents more than a mere sampling of crewmembers subject to Random drug tests; therefore, the trend as shown in Figure 7 is fairly representative of the crewmember population. Figure 8 shows Random and Post-Accident positivity rates in a scatter plot with a regression line.

The scatter plot and regression line show that within the range of values for which there is data (2003-2011), there is a very straight linear relationship between Random and Post-Accident positivity rates. Statistically, this linear relationship has a near perfect correlation coefficient of 0.9464. Beyond the shown data points, the line may no longer be linear and no predictions are made of Post-Accident positivity rates based on Random positivity rates that are not part of the data. It is sufficient to conclude that decreasing Random positivity rates have, on the average, predicted decreasing Post-Accident positivity rates at least from 2003-2011. On vessels where comprehensive chemical testing is required, lower Random positivity rates result in fewer serious marine incidents with drug involvement, thereby enhancing the safety of the maritime transportation industry.

Conclusion

Chemical testing appears to have discouraged drug and alcohol use. Analysis of 2003-2011 Post-Accident data showed positivity rates from small passenger vessel crewmembers subject to comprehensive chemical testing to be significantly lower than those from commercial fishing vessels not subject to comprehensive chemical testing. Put another way, there is less likely to be drug and alcohol use in the more highly regulated segments of the maritime industry. Further, chemical testing also appears to have reduced the potential for marine casualties related to drug and alcohol use. Again, the 2003-2011 data showed the SPV group had significantly fewer Post-Accident positive drug and alcohol tests per SMI than CFVs. Finally, chemical testing appears to have enhanced the safety of the maritime transportation industry. The 2003-2011 data showed Random positivity rates are fairly accurate predictors of Post-Accident positivity rates among those vessels with comprehensive drug testing requirements.

NOTES:

This article is a summary of the dissertation submitted in partial fulfillment of requirements for a Ph.D. in Judicial Studies. Entitled Chemical Testing of Commercial Vessel Personnel: An Analysis of Archived Test Results, the views are those of the author and do not necessarily reflect the views of DHS, the Coast Guard or its leadership, or the Office of Chief Administrative Law Judge. The author expresses appreciation to Captain David S. Fish, Chief, Office of Investigations and Casualty Analysis and his staff for their suggestions and assistance, especially Mr. David H. Dickey and Mr. Robert C. Schoening. Mr. Dickey also served on the author's dissertation committee as subject matter expert.

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Meeting MLC – and More

By Joseph Keefe

The MLC 2006 Code isn't easily defined or satisfied. Nevertheless, DigiGone's Shipboard Video Telemedicine service and GWU's Medical Faculty Associates have been doing just that, for years. The service actually goes much further.

Title 4 of MLC 2006 requires that health protection and medical care for seafarers must include prompt access to necessary medicines, medical equipment and facilities for diagnosis and treatment. Ratified by more than 30 member states reflecting more than 33 percent of world gross tonnage, MLC 2006 came into effect in August 2013. The document applies to more than 1.2 million seafarers. Since 1989, a service for ship operators has provided Shipboard Telemedicine services through the Maritime Medical Access Program at the George Washington University (GWU). Subscribers enjoy access to more than 550 physicians and specialists at the GWU Medical Faculty.

The use of Digi+Doc is an innovative way to meet the MLC 2006 healthcare requirements, but in truth, it does so much more. In the early days, the service involved simple telephone calls between doctors and clients. Today, the kit facilitates real-time transmission of data from ships to a remote clinician. Digi+Doc subscribers can also take advantage of encrypted video and audio conferencing, video streaming, Voice over IP (VoIP), IM Chat and file transfer, optimized for maritime satellite channels. Easily installed on most PCs, laptops, tablets or smartphones, it can work over a multitude of networks, with satellite airtime costs much lower than other commercial teleconferencing services.

Getting Started – Almost 25 Years of Service

James Betz, Innovative Program Manager for Maritime Medical Access (MMA) with the Department of Emergency Medicine at George Washington University, told MarPro, "We started with a couple of physicians who were interested in seeing how they could extend their emergency medicine skills. We found one or two shipping companies that were interested in utilizing our services, mounted a telephone in our emergency department and started to take calls. Now, we have a dedicated communications center which takes in these maritime calls and connects them to physicians who are on call."

Betz continued, "Initially, we got things done via telephone and by E-mail, once that became a possibility on board ships. With E-mail, we found that we could send still photos and therefore could deliver a lot better medical advice. But, the limits of 'still' photography limited our ability to really practice medicine to the fullest extent. We were looking for a video product that would work well, but all the ones we looked at weren't secure or they were inefficient with their bandwidth. We found one company that had a kit, but it was proprietary and very expensive and our clients weren't interested in having something that would just be for medical use."

Eventually, MMA found DigiGone. And, for the past few years, the two have been working together to develop a kit that can be used for telemedicine. Betz says, "We started deploying it to our existing clients and we've had good success in providing better medical services, using video."

The technology provides real value to users. For example, a recent case involved a sailor on board a ship in the Mediterranean Sea who had suffered a head injury. Betz explained, "The ship and our physician were concerned with symptoms, so we initiated a video conference. Our doctors were able to walk them through a thorough neurological exam using the DigiGone kit. It was like being there in person. The patient was more comfortable." In the end, the physician was comfortable that they could continue – avoiding a costly diversion and medevac for the vessel.

Diagnosis and treatment are the most obvious benefit, but ship operators are seeing merit in preventative medicine, as well. Doctors can sometimes see someone who is trying to hide a medical condition; "tough it out" so as not to be labeled a non-performer. Betz says, "It is important to get that person medical attention and avert something far more serious for the mariner and the vessel." The benefits extend beyond initial care and treatment – DigiGone and the GWU physicians follow up on each case.

The initial impetus for U.S. vessels was rooted in Jones Act requirements. Lately, DigiGone and MMA are seeing increased interest because of the new MLC requirements. Betz adds, "Many new subscribers are reporting that they did so because of the MLC Code. They, for the most part, feel that this should certainly satisfy their flag-state requirements." For U.S. flag operators, future, potential Jones Act maintenance and cure expenses can likely be amortized against the cost of service.

Carrier Agnostic & High-Tech, too

Michael Dunleavy, President & CEO of DigiGone, explains the nexus of the innovative service. "We started out in the special operations and intelligence community. This grew from that to doing remote video surveillance and we were then approached by Maersk to assist with some anti-piracy missions. This involved adapting our low bandwidth capability for cost savings but also dialing into existing CCTV systems. That led to parties asking us to build CCTV systems for maritime environments for their ships. One of the unique things that we have is the ability to compress entire transmissions of video/audio with encryption. It works extremely well with fleet broadband."

DigiGone's unique system leverages their extremely robust encryption (important for HIPAA privacy reasons) and crunches the video/audio package into a very small stream to

go across any communication medium.

The system is completely provider agnostic. DigiGone does not have an exclusive agreement with any satcom supplier, but has reseller relationships with several of them. For example, DigiGone is an INMARSAT certified business partner, and does business with Thuraya.

Dunleavy adds, "The unique thing about our service is that it is user controlled – the user controls how much bandwidth they want to use. At the point that we need a really detailed picture for a tight image of a procedure, the user can dial that up – to 150 or more kbps, which will give them a crisp picture of whatever the doctor wants to see."

Low Cost – in more ways than one

DigiGone's medical access program with MMA has always been a subscription based system with unlimited use and they intend to stay that way. Betz says, "In fact, when we sign on a new client, we give them information to post around the ship to encourage them to call us. We want to be a resource for these mariners because if they can call us early and know there won't be any extra fee associated with it. Our interest is to help the company control costs."

Dunleavy takes it a step further. "The user can dial bandwidth consumption up or down – depending on whether you need the video and audio or just audio – which is pennies compared to a standard satellite call. An ounce of prevention is worth a pound of cure. If it was something that could have been addressed and prevented ahead of time, you are preventing a diversion. It's the same thing with diagnostics. When you are using video, it enhances the level of care."

DigiGone wouldn't discuss fleet numbers or client lists, but Betz says that they fielded well over 2,000 calls, including E-mails, video consults, as well in the past calendar year. Fully 90 percent of DigiGone's business involves maritime traffic as opposed to remote, shore-based needs. It's also the area that seems to derive the most benefit from the service, because of the cost of ship diversions, evacuations and that sort of thing. Getting a crewmember off really impacts the shipowner's bottom line.

Crewmembers can take the kit down to the engine room to photograph or video the engine and thereby enable consultations with shoreside technicians. Quick to send and easy to install, operations personnel often use the audio portion at a fraction of the cost of a normal satellite call. The anti-piracy portion of the system employs handheld cameras to assist with that, should it come to it. And, as an engine technician dials in, the operator's shoreside personnel can all dial in at the same time to diagnose an engine problem – at no additional cost for the bandwidth. In fact, says Dunleavy, four or five different persons can be looking at the same video feed.

The User's Perspective

Chris Fertig, General Manager of Maritime Technical Services at Maersk Line, Limited says Maersk has found many uses for DigiGone. "We began the process of installing these kits and using DigiGone Secure Chat to communicate with the physicians at GWU-MMA about two years ago, as a part of a larger project to outfit our vessels with CCTV systems for Piracy Interdiction and other applications. Prior to testing DigiGone Secure Chat on our vessels, we could find no video product which would allow us to remotely access cameras on each vessel using the limited Inmarsat Fleet Broadband satellite bandwidth available, and at an acceptable quality and cost. DigiGone not only let us access the cameras, but left enough bandwidth to simultaneously run our other mission critical applications. DigiGone literally allows us to do more with less."

Maersk's initial push for the relationship with MMA was an effort to properly care for crewmembers and to exceed the Jones Act requirements for its US Flagged Vessels. Interestingly, crews were initially reluctant to have cameras on board the vessels. An effort to explain the purpose of the services and devices being placed on board and to educate the crew on the benefits of the technology eventually won them over. Fertig adds, "Now, crews lobby their vessel managers to be the next ship to be outfitted with the cameras and kits."

Indeed, the cost savings from one just incident can be enough to cost justify the implementation of the software and hardware on all the vessels. MLL now uses the software and cameras for Telemedicine for Crew injuries and illness, Remote Technical Support, Crew Video Communications with loved ones, Vessel Manager to Master/Chief communications and many others. Fertig explains further, "The fact that we can control the amount of bandwidth used for each session gives us the ability to make value versus cost decisions for each application on an on-going basis."

All that's needed for shipowners to take advantage of Digi+Doc is to install the DigiGone software on a shipboard computer, and sign up for an annual subscription to the Maritime Medical Access Service at GWU.

www.DigiGone.com
www.gwemed.edu/maritime

Training

MAN DIESEL & TURBO

MAN to Customer: Transferring Know-How

MAN Diesel &Turbo doesn't just produce engines. Through their PrimeServ Academies, they deliver a lot more than hardware. They transfer knowledge.

By Peter Pospiech

For Dr. Stephan Timmermann, whose executive responsibilities at MAN Diesel & Turbo include Marine Systems and After Sales, training is a key issue. During the official inauguration of the Copenhagen PrimeServ Academy, held in June of this year, he said, "Our pledge is to offer our customers all over the world a consistently high standard of quality. This self-imposed obligation is one we can only live up to if our employees and also, very important, our customers undergo regular training and are familiarized with the latest technical details. Training is a prerequisite for optimizing the performance of a plant and safeguarding customers' investment. In addition, MAN's global after-sales organization, the MAN PrimeServ network, promotes a constant and direct exchange of knowledge among customers, suppliers and our Research & Development organization. This helps us to continuously increase our market orientation and our customers' satisfaction with our performance."

MAN Diesel PrimeServ

Today, MAN Diesel PrimeServ is comprised of a network of the company's own service centers, supported by authorized partners. The focus of the MAN Diesel & Turbo PrimeServ Academy therefore lies partly in the internal advancement of the company's own service engineers, who regularly arrive from all over the world at the various training facilities in order to increase their expertise. The Academy also gears its training portfolio towards marine and power plant engineers, who are brought up to speed about diesel engines from MAN through basic, advanced and expert courses. Whenever an engine is sold, the customer is offered the opportunity to send engineers to one of MAN's twelve, strategically located academies for training. The vast majority of MAN customers do just that.

Tommy Rand Olsen is head of the MAN Diesel PrimeServ Academy in Copenhagen. Olson has been with MAN Diesel & Turbo since 1994, where he started in the small bore engine design department. In 1997, he was promoted as to superintendent engineer in the after sales department and eventually served in several countries such as Singapore, Dubai, Houston and Copenhagen, where he was involved in all manners of

The Primeserv Academy in Copenhagen was officially opened in June 2013

troubleshooting and maintenance on 2-stroke engines. From 2007 to 2012, Olson was responsible for the after sales service department. In May of 2012, he was promoted to be the Head of the Academy. Olson says, in addition to those invited by MAN, customers also come directly to them. "Very often, customers come to us and ask us to provide training courses for their staff. The first courses in our new Academy in Copenhagen took place in September of 2012. Since then, MAN has trained more than 800 participants in our newest academy and we expect more than 1000 annually, going forward. These students range from mechanical fitters, electricians, marine engineers, Chief Engineers and Superintendent Engineers."

MAN Training: Focused, High Tech and Real World, too

The specific focus and core competencies of the MAN Academies include propulsion plants, aft-ship solutions, propellers and control systems. According to MAN, the training sessions will range from basic, standard training programs and tailor-made sessions with simulator drills, hands-on full-scale products. Training can also take place on site at a ship-owner's premises or aboard a specific vessel. As Olsen explains, the practical courses are limited to a maximum of twelve participants; other courses have space for between 8 to 30 participants.

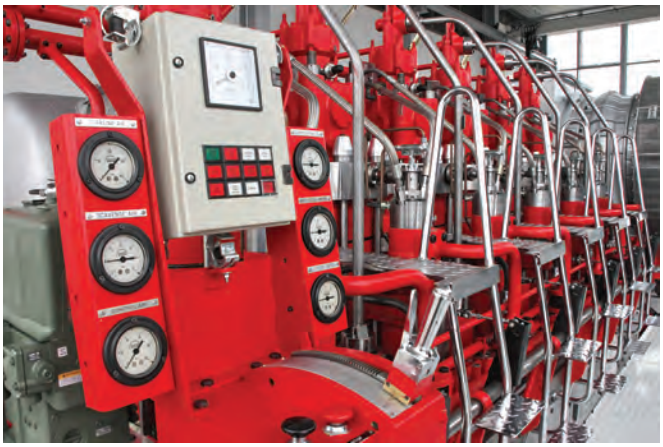
Olsen continues, "As our Academy is located next to our 2-stroke head office, where all development and design work takes place, we are working closely with these departments in order to keep our customers up to date about the latest techniques and service experiences from our engines. Our courses, therefore, are constantly developing so that the participants always receive the latest information about our engines. A well-trained and experienced operation, and experienced maintenance personnel are essential to minimize the operating costs and maximize the service life of an engine."

Olsen is clearly enthusiastic about the new training facility. "The New PrimeServ Academy in Copenhagen is the only engine school in Europe equipped with a full size 2-stroke engine of type 6S35MC, which has been built at Alpha Diesel in Frederikshavn. The engine is fully equipped with all of our retrofit products, turbocharger cut-out, bearing wear monitoring system for training proposes and a showroom for our customers. Furthermore, the engine is equipped with used parts, such as cylinder liners with different wear conditions, which shows the student a realistic picture of the daily life on board a vessel. Damaged bearings are also a part of our training equipment. Participants can learn how to evaluate the condition of bearings."

The new Academy is intended to provide training for both internal colleagues and customers. Located in Copenhagen, the 800 square meter facility consists of three auditoria (20 seats, 23 seats and 30 seats) and a standard classroom for up to 30 persons. Apart from this, the Academy can be used for seminars and conferences with up to 175 participants. MAN also rents out the facilities to customers and other companies. As an

Dr. Stephan Timmermann, member of the board.

example, the first major event organized by the Academy was the general meeting of the Danish Marine Engineers Union. The individual rooms are equipped with the latest and most modern learning equipment and MAN selected an interactive software to be used at the academy as a teaching tool to show students how to manage and optimize the process of maintenance, inspection and spare part purchase on board vessels (CMMS = Computerized Maintenance Management System). As the role of electronics grows, more and more this is an essential subject which has to be addressed in the training regimen.For electronically controlled engines; simulators, which contain authentic parts, are used to show the function of the control system. Additionally, for the Alpha lubricator course, a complete system setup is used. The staff in PrimeServ Copenhagen Academy consists of one manager, seven instructors, all of whom are long-serving employees of the company.



The New PrimeServ Academy in Copenhagen is the only engine school in Europe equipped with a full size 2-stroke engine of type 6S35MC, which has been built at Alpha Diesel in Frederikshavn

MAN to Customer

It all comes down to transferring knowledge and know-how – both internally and externally to MAN customers. After all, technical advances are always ongoing, with diesel engines being just one part of those efforts. MAN, the global producer of a respected line of engines, also recognizes that those engines will only be as good as the technicians who operate and maintain them. That's where the MAN Diesel PrimeServ Academy comes in. And, that's where the know-how is transferred; MAN to Customer.

Maritime Professional

2014 Editorial Calendar

Q1 The Energy Edition: Exploration, Production & Transportation

Ad Closing: Feb. 24

Publish: **March 2014**

Whether it's oil, gas, wind or tide, no market sector endures more scrutiny or enjoys greater rewards than does offshore energy.

- **The Global Energy Boom:** Is gas the question, the answer, or both?
- **Cruise Control:** Changing business models
- **Classification & Registries:** Evolving roles & responsibilities
- **Software Solutions:** Modern command & control

CMA Shipping / Mar. 17-19 / Stamford, CT
Capital Link 8th Annual Invest in Intl. Shipping Forum / Mar. 20 / New York
Marine Money Houston / May 7 / Houston, TX
Cruise Shipping / Mar. 10-13 / Miami, FL

Q2 Maritime Risk & Shipping Finance

Ad Closing: May 1

Publish: **May 2014**

Identifying, mitigating and managing risk and finance is the cornerstone to a successful maritime operation.

- **Security:** Technology & techniques to keep ship, crew and cargo safe
- **SATCOM & Ship Management:** Linked up and online
- **Marine Salvage & Response:** When prevention isn't enough
- **Marine Insurance:** Protecting your business

Posidonia / June 2-6 / Piraeus, Greece
Capital Link 2nd Annual CSR Forum / May / New York
Marine Money Week / June 17-19 / New York

Q3 Power & Fuel Management

Ad Closing: July 29

Publish: **Sept. 2014**

As mariners at sea are increasingly tasked to pull double duty, MarPro examines the products, systems and technical solutions designed to lighten the load.

- **Emission Control:** Regulations tighten ... again
- **Training & Security:** Life after MLC 2006
- **Naval Architects:** Driving change by design
- **Bunker Fuel:** Selection, management & operations

SMM 2014 / Sept. 9-14 / Hamburg
SNAME / Oct. 22-24 / Houston
SHIPPINGInsight / October / Stamford

Q4 Shipbuilding & Repair Edition

Ad Closing: Nov. 7

Publish: **Dec. 2014**

Blue water, Brown water, Deepwater & Offshore Oil & Gas: Shipyards are the bellwether of market trends.

- **The Power Struggle:** LNG, distillates or diesel
- **Ballast Water Treatment Systems:** Are you ready?
- **Shipboard Technology:** Efficiency & emissions drive equipment change
- **Recruitment, Retention & Training:** * Bonus: MaritimeJobs.com *

International Workboat Show / Dec. 3-5 / New Orleans, LA
ASNE Day / Feb. 2015 / Arlington, VA
Sustainable Ocean Summit / Feb. 24-26, 2015 / SFO

** The publisher reserves the right to alter this calendar. All features are subject to change in light of industry trends and developments.*

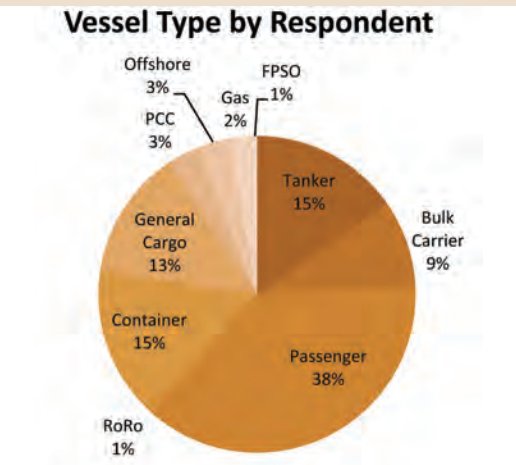
MLC 2006: Will it Drive Crew On Board Comms?

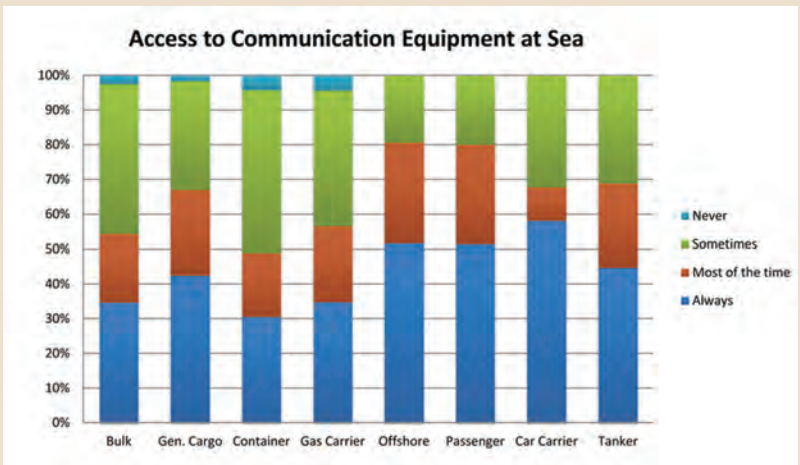
Astrium Services, a global communications provider of commercial satellite networks in the maritime sector, recently took a survey of seafarer's usage of crew communication solutions in the commercial shipping sector. The survey involved two Philippine crewing agents handling approximately 47,000 seafarers annually for more than 1,000 vessels in the cargo and passenger sectors. With the objective of establishing a clear picture of mariner communications requirements and other metrics, the survey was illuminating in more ways than one. By the Numbers, future results will be impacted by the now in-force MLC (2006) Code.

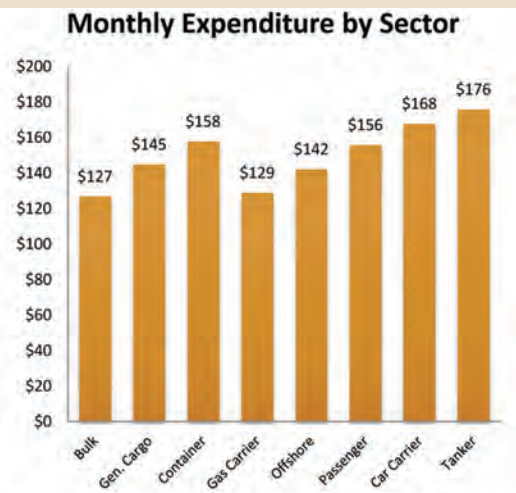
The 2010 BIMCO / ISF Manpower update revealed that the worldwide supply of seafarers is about 1.37 million; with – for the first time in 15 years – overall supply and demand for seafarers reaching equilibrium. The total market size for satellite based crew communication solutions comprised about 925,000 seafarers, employed on board 45,000 vessels of 1,000 GT. The survey was completed by 960 Filipino officers (12%) and ratings (88%).

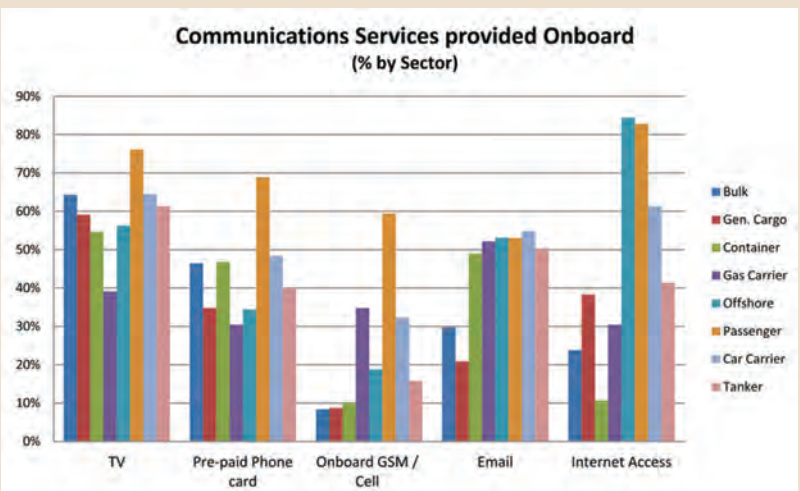
Access: Increased levels of access to communications infrastructure onboard are clearly demonstrated by the survey. 68% of seafarers can now access use some form of crew communication while at sea, hence approximately 629,000 seafarers have access to crew communications. MLC 2006, in theory, should increase those numbers, meaning that this market is wide open for providers who can deliver the right package to shipowners. Only 2% of seafarers currently never have access to crew communications. Text only email with no attachments was the free crew communications solution most widely provided, but this was only provided to 20% of respondents. The Passenger sector provides the lowest levels of free crew communication of any sector and Officers were provided more free communications than ratings.

Service Delivery & Methods of Access: In service delivery terms respondents rated call quality most important followed by price, security and privacy. The preferred method of accessing pc-based crew communications solutions was via the respondents' own laptop using a wireless connection.





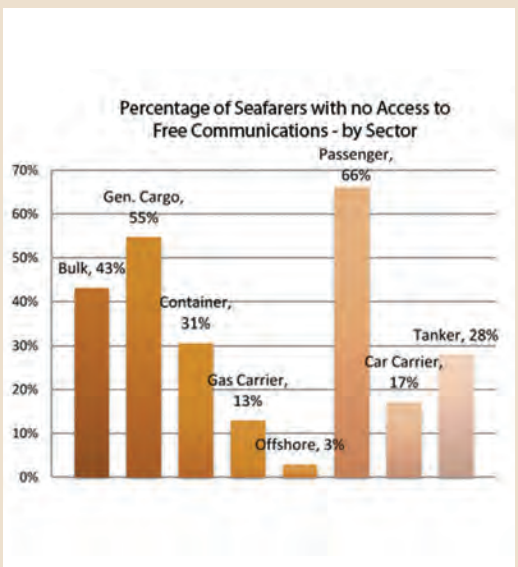


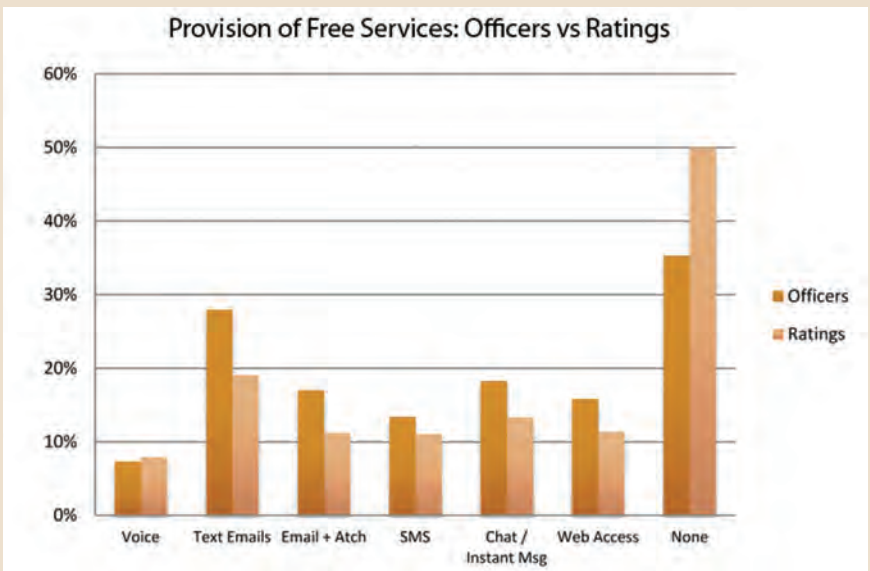


Current Spend on Communications on communications was $150/month. The figures for expenditure varied significantly between officers and ratings with officer's expenditure more than twice that of ratings. Highest levels of expenditure on crew communications were made in the Passenger, Tanker and Car Carrier sectors. 15% of the crew interviewed for Astrium Services' crew communications survey in 2012 stated they had at least some free use of the internet on board – meaning that the huge majority, 85%, don't. Nearly 70% of all respondents were prepared to pay to access on-line content.

Increased Usage = Increased Cost? Not necessarily. Naturally, satellite provider revenues will probably increase with great consumption at sea. That said; an increase in volume for an existing user does not lead to a proportional increase in cost. In principle, the greater the consumption in volume is, the lower the price per unit. The initial focus of on board broadband was based on corporate usage. Security concerns and probably most of all, the cost per Megabyte, discouraged ship owners from establishing personal web usage onboard. Nevertheless, a company with a substantial bandwidth needs will be most inclined to add capacity and cater for the crew needs without significant additional monthly cost. The smart operator reduces cost when he starts sharing his airtime commitment between crew and corporate usage. Quite typically, airtime commitments are not fully used by corporate usage alone. When he starts "re-selling" data to crew by giving them access to VoIP telephony, web access and/or email, he gets some of his money back. Meanwhile, crew are happy to get a means of communications they previously did not have on board. A win-win situation.

MLC & Your Crew: The majority of crew still have no access to the web at all. The MLC asks for; "reasonable access to ship-to-shore telephone communications, and email and Internet facilities, where available." MLC does not strictly dictate that all crew must have an opportunity to send and receive private emails on board, have access to a phone whenever they wish or connectivity to the web or chat with their friends via Facebook. Pressure from seafarers for better on board comms is growing and will likely be a bigger driver than MLC. Ship owners will have to react. The desire to be able to access the web on board – ideally for free – is at the top of crew's wish list. Significantly, the lack of qualified officers continues to grow with the gap widening to 13,000 in the period 2005-2010. Hence, a job with free on board internet usage has strong appeal and will benefit employers competing for scarce resources.





Final Word

MLC 2006 & You

"An ounce of prevention is worth a pound of cure"

By Greg Trauthwein

I must admit, I am a little bit confused. Through the course of more than 20 years covering the global commercial maritime industry which entailed thousands of interviews and discussions with top executives in shipping companies of nearly every size, shape and nationality, I can say without hesitation that when I ask the question "what is your biggest challenge?", more than 90% of the time the answer is, "the attraction and retention of qualified, capable individuals to run my vessels."

With that as a backdrop, please explain why there would be resistance to MLC 2006.

Before you answer, and to be fair, my opening line said I'm confused, not stupid. I know that there is an onerous level of new regulation from the international, national and regional levels, a myriad of new rules and regulations regarding the design, outfit, operation and disposal of commercial vessels that is placing a hefty dent in ship owner's bottom lines.

But here we have in MLC 2006 a statutory guideline that, if it operates as it is intended, will help to protect what is claimed to be a ship owner's greatest asset: experienced, healthy and happy mariners. There already are many five-star quality ship owners that are in the maritime business for the long haul and not simply as an exercise in wealth creation; ship owners that already treat their mariners in a manner that exceeds the mandates of MLC 2006. Working onboard a commercial vessel is a physically and mentally challenging event in the best of times, as the sea is often unpredictable and unforgiving, and seafarers who are away from the comforts of home for extended stretches deserve health care management and benefits equal to what they would find ashore.

"An ounce of prevention"

In our pages print and electronic we often write of new technology, as it is a topic of universal interest to those that design, build, own and operate commercial vessels. One topic that is a recurring theme for the last few years is the trend toward automation, or more succinctly the melding of communication, software and sensor technologies that allow real-time, 24/7 condition based monitoring of equipment and systems that allows for optimal operation and preventative maintenance of critical systems. Using that same logic, it would seem that the monitoring and preventative maintenance of the seafarer's health would rate a higher magnitude, as I assume that most ship owners would agree that it is easier and cost efficient to swap out a broken down diesel engine than a highly valued mariner.

I had the opportunity earlier this year to meet with Christina DeSimone, CEO of Future Care (New York), a company that delivers medical service exclusively to the maritime industry working directly with ship owners, ship managers and with P&I insurers for larger medical issues. Its pioneering "Caring for the Crew Program," which has been around for eight years, is first and foremost a provider of tele-medical service so that onboard officers have assistance from trained physicians skilled at remote diagnosis, to help render a guided treatment plan.

"First and foremost, Future Care is a medical managed care and medical cost containment company," DeSimone said. "We have chosen to work our medical care managed techniques within the unique environment of seafarers that work and live onboard vessels traveling the globe, individuals who are out to sea from a few weeks to a few months."

For those who have not met her, DeSimone is a passionate, compassionate and driven individual, and not simply so to increase the reference numbers for Future Care, which already stand at an impressive 650 blue water ship and 25,000 crew under the Future Care managed health care umbrella. DeSimone is determined, and doggedly pursues a course of education in the maritime community, an education that she said proves to ship owners through statistical analysis that it is far more efficient and cost effective to report and record every single incident of illness or injury, no matter how small.

"That is a leap of faith for many ship owners, because they first ask: 'what is this going to cost me?," DeSimone said. "But we have proven to our ship owners that the average cost to

40%

While inpatient services accounted for only 2.4% of the bills, it accounted for 40% of all charges

More Numbers from the study of Seafarers, (2008-2012)

6,724	Number of cases, including
76.7%	Seafarers under 50 accounted for the greatest % of medical events
54.4%	Illness
46.3%	Asians accounted for the greatest % of medical events
13%	Dental
4.8%	Were cardiovascular disease, with an associated direct cost $5m+

medically manage small incidences is the most cost-effective."

The rationale behind DeSimone's claim is logical, as she contends that early intervention by qualified medical personnel and continuous monitoring through recovery is preferable to leaving seafarer medical care in the hands of the officers onboard, officers whose primary responsibility is running the entire ship, and who at times may have more than one ill or injured seafarer with which to deal.

And MLC 2006 makes her case even stronger, as ship owners could be open to liability if medical care is mismanaged. The surest bet to mitigate and manage this risk is through the involvement of qualified medical staff from the outset.

"Historically, a captain might only use a medical call line in the sole case of emergencies, so they were treating the small medical care onboard vessels themselves," DeSimone said. "That simply is not appropriate any longer, as there are so many different antibiotics to choose, so many medications, and there is now a legal responsibility implied in the MLC that gives crew the right to have a medical specialist consider their illness.

Future Care & Yale

Earlier this year the Yale University Occupational and Environmental Medicine Program, in collaboration with Future Care, Inc., reported initial results of a pilot study on the health of seafarers internationally. Quite simply, the study is unique in that collective information regarding the health, well-being and medical treatment of seafarers at sea is scarce, given the global and mobile nature of the industry and the lack of a central reporting procedure or authority for such matters. In total an estimated 1.3 million people who spend their time traveling, working and living on vessels far from home, at times working under stressful and dangerous working conditions in an environment that puts them at risk for a range of illness and injury not so common on land-based occupations.

"This unique environment is really an amazing place to study how an early intervention managed care program might assist such a unique group," said DeSimone.

Future Care's experience via its Caring for the Crew Program was essential to the core essence of the study, as the premise of the program is to record and track every single medical incident, large and small, as DeSimone said it has been proven time and again that willingness to report and ability to treat illness in the formative stage is a critical factor in helping to drive crew health costs down.

The Yale study was premised on the analysis of Future Care data documenting 6,724 cases of illness and injury over a span of four years. Data obtained from six years of case management and medical claims derived from Future Care Inc.'s Caring for the Crew Program, covering 5,6000 seafarers on more than 1500 ships owned by 106 companies were evaluated. Results were analyzed based on a number of variables, including age, rank, nationality and type of illness/injury. Average cost per case and type of medical incident were also presented along with statistics on resource utilization and type of medical care rendered. Among the findings:

Christina DeSimone, CEO of Future Care

* Illness and dental claims comprised 66.7% of the total
* Illness alone, as distinguished from injury claims, accounted for almost half of all medical events (49.8%) with an associated direct cost of $18.5m; 56.4% of the total direct costs of $32.8m.
* Cardiovascular disease, while accounting for only 4.1% of claims, has an associated direct cost of $5.7m (17.3% of total direct costs)
* With regard to point of service, hospital admissions accounted for only 2.4% of all medical encounters, but 56.8% of all medical costs.

According to the report, "Future Care Inc.'s rich dataset on seafarer illness and injury provide a unique opportunity to learn more about the health of seafarers and modifiable risk factors for adverse health events and outcomes; information key to both improving the health of these workers and also for reducing the substantial related costs."

Additional statistical analysis of the study can be found below, but the findings of the study are expected to lead to better preventative and diagnostic strategies, improved delivery of health care as well as reduced costs for the maritime industry.

Lest you opt not to support a healthier crew and a fatter bottom line, there should be little confusion at all.

www.FutureCareInc.com

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