

December 2010

MARITIME REPORTER AND ENGINEERING NEWS

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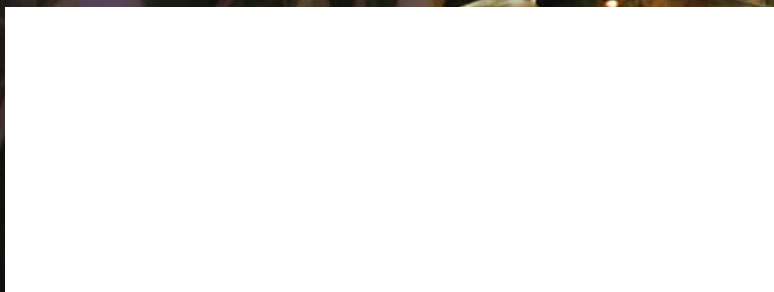
Great Ships of 2010

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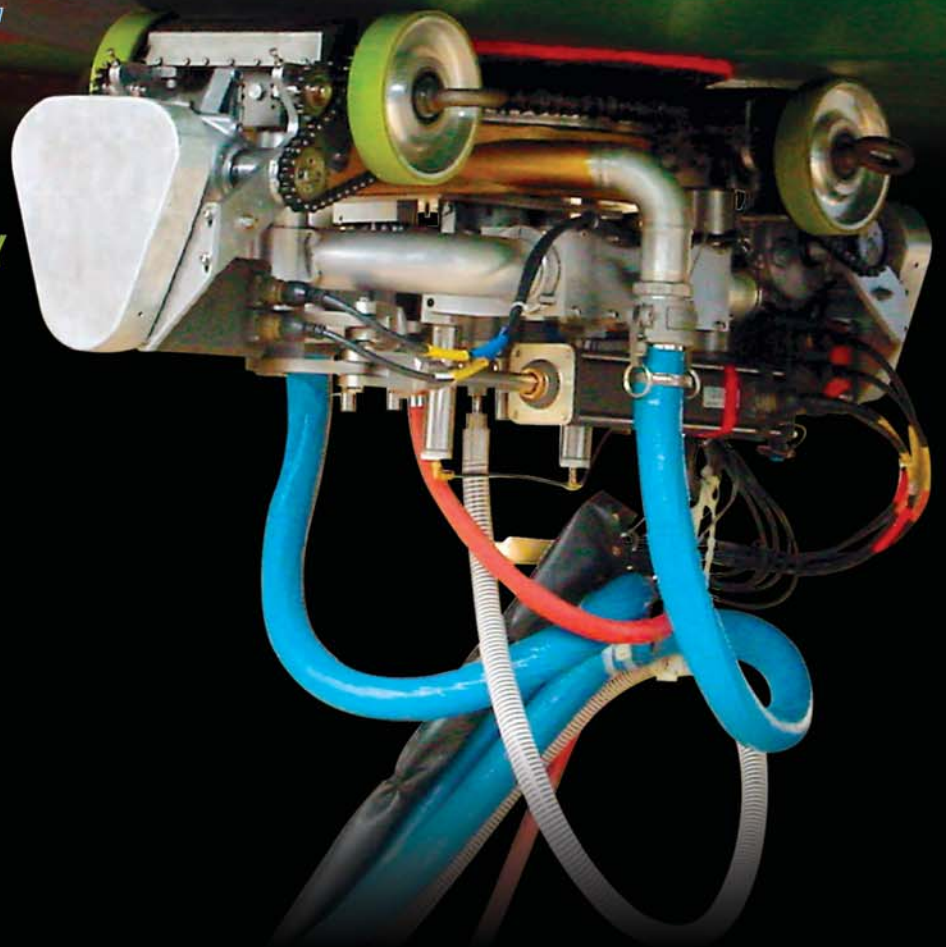
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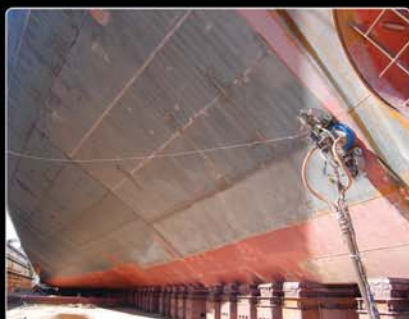


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COVER STORY

GREAT SHIPS OF 2010
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The evolution of the cruise shipping industry culminates in Allure of the Seas, Royal Caribbean's 225,000 gt, 1,184 ft., 6,360 passenger encore to last year's Oasis. Built in STX Europe's Turku, Finland shipyard, full details of Allure, and 10 additional "Great Ships," starts on page 12.

(Photo Credit: Royal Caribbean Cruises Ltd.)



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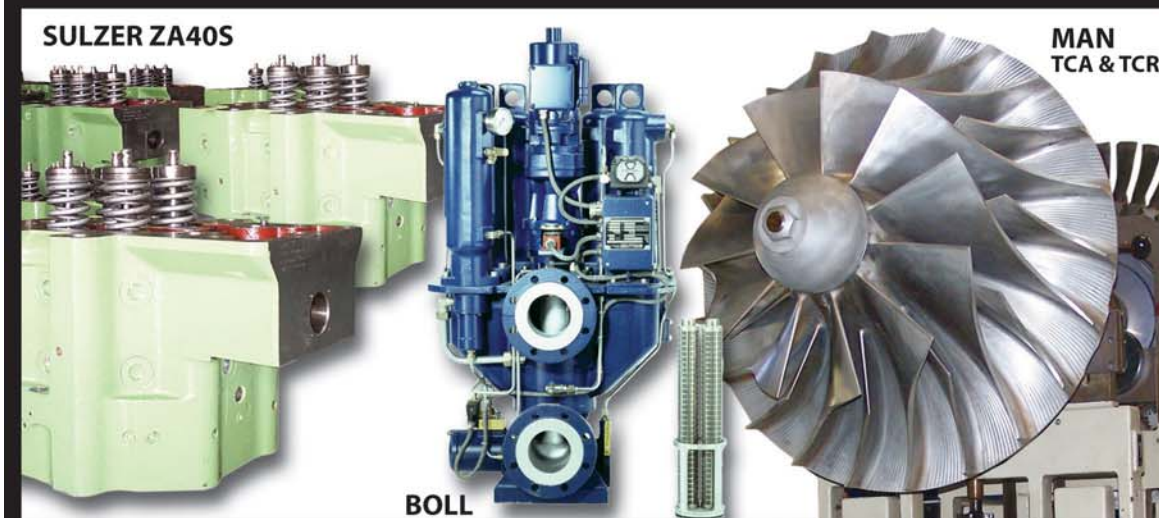
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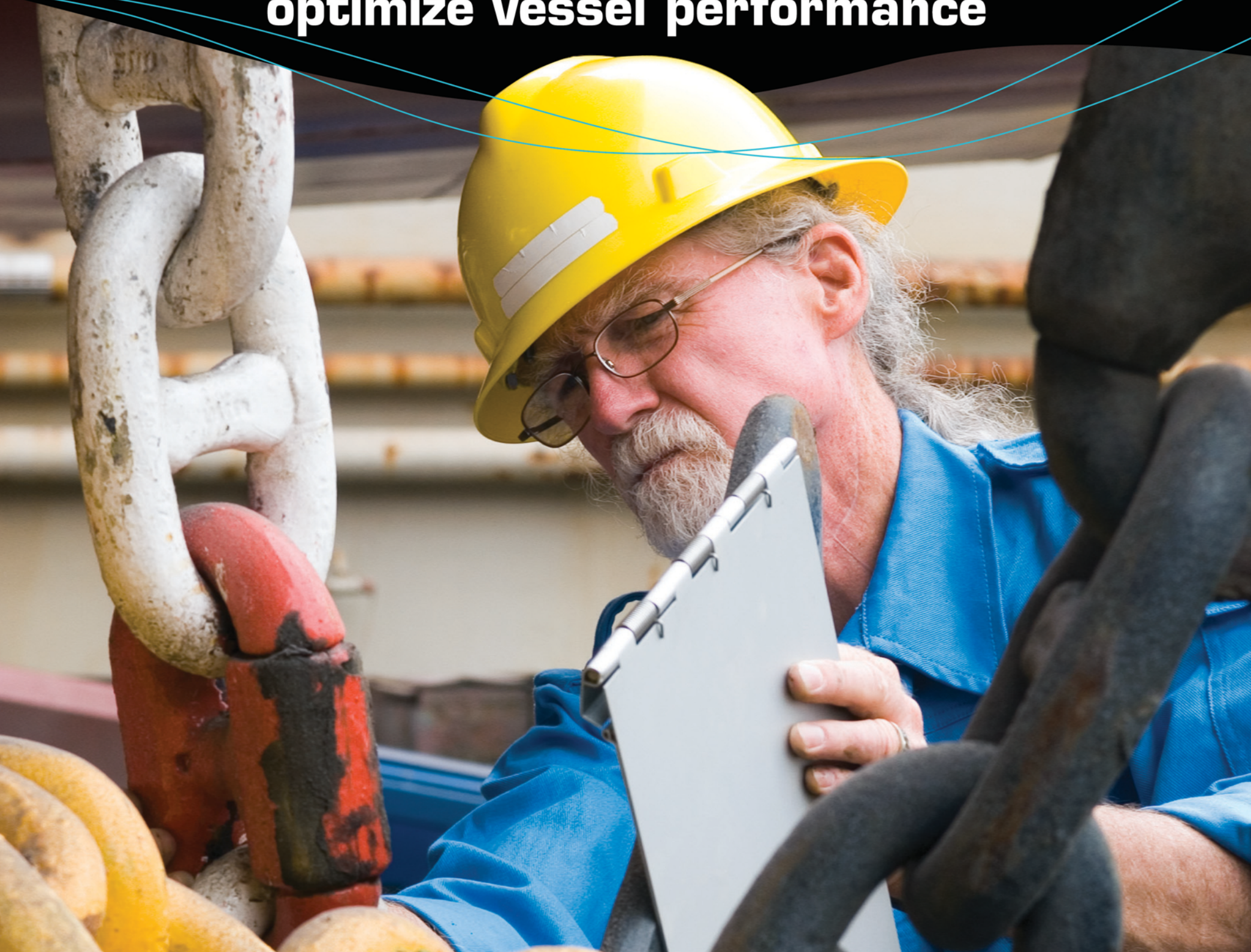
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Royal Caribbean's *Allure of the Seas* graces our cover, gratis of it headlining position among our Great Ships of 2010, coverage which starts on page 12. The STX Europe-built, 225,000-ton, 1,184-ft., 6,360-passenger *Allure of the Seas* is nothing short of spectacular, particularly when positioned next to its sister-ship, *Oasis of the Seas*. While the evolution of the cruise shipping industry and the ships that serve it are hardly 'news' to our readers, when you sit back and examine the progression of marine technology in this one sector, it is astounding to say the least. Starting in the early 1970s and the delivery of the 18,400-gt, 551-ft. Song of Norway, *Allure of the Seas* is larger by a factor of 12, and features an array of onboard amenities — all made possible and supported by tremendous strides in the marine technology infrastructure — some of which only two decades ago were pure fantasy.

While the passenger vessel industry garners the lion's share of public interest and recognition, advances across the maritime sector in less 'high-profile' industrial roles are equally impressive.

Analyzing and reducing one's "carbon footprint" is the mantra for the foreseeable future, and the marine industry — though already with an enviable record in the correlation between cargo moved and emissions generated — is pushing to make its ships and boats more energy efficient and environmentally friendly.

Earlier this month on www.MaritimePropulsion.com, lead commentator **Keith Henderson** reported on the latest advances in tanker transportation. Specifically, DNV unveiled its **Triality VLCC concept vessel**, so called because of the three features of its design: the vessel is fueled by liquefied natural gas (LNG), it has a special hull shape that does not require the use of ballast water and it virtually eliminates harmful exhaust emissions. A further bonus is its attention to the problem of vapors emitted by the cargo and providing a solution to use them.

Although the vessel introduces new concepts in design, it uses currently available technology and in DNV's opinion offers an alternative to conventional crude oil tankers using heavy fuel oil that is financially attractive. For more see: (<http://articles.maritimepropulsion.com/article/New-Era-for-Tanker-Shipping-2012.aspx>).

In June 2010 we reported on the untimely death of *Maritime Reporter's* and *Marine-News'* long-time contributing writer and photographer extraordinaire, Don Sutherland. Ironically, the story that Don was working on — but never finished — was an in-depth report on the Eastern Shipbuilding built fireboat Three-Forty Three, a boat built for the New York Fire Department and named to honor the 343 NYFD firemen lost in the terrorist attacks of September 11, 2010.

While Don was not able to file that article, 343 is included in this year's "Great Ships," featured on page 14. Don's legacy will live on, too, in our pages, as I am particularly proud to announce the First Annual "Don Sutherland Memorial" Maritime Photo Contest (www.maritimephotographs.com). Set to kick-off January 4 and run through May 10, 2011, we look forward to receiving amazing maritime images from around the globe, publishing the winners in a special edition, in conjunction with the June 2011 edition of *Maritime Reporter & Engineering News*. Full details on the contest can be found on page 38 of this edition.



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SNAME 2010 "A Success"

Held in early November in Bellevue, Washington, the 2010 SNAME Annual Meeting was by all counts a success for participants.

"In all aspects, the 2010 SNAME Annual Meeting was a wonderful success," said Michel R. Keith Michel, President of the Society of Naval Architects and Marine Engineers, commenting on the event held in early November 2010 in Bellevue, Wash. "I would like to express my sincere appreciation to those who attended the meeting, the many SNAME volunteers who organized the technical programs and social events, the meeting sponsors, and those that exhibited at our EXPO. We look to build on this success, and promise an exciting and stimulating meeting in Houston in 2011." Initial attendee numbers confirm Michel's findings; the first count indicates more than 1,000 members and non-members of the Society attended and participated, exceeding expectations. Highlights of the society's three days in Bellevue included:

- More than three dozen technical paper presentations, special sessions, and panel discussions;
- Presentation of prestigious awards and medals, including:
 - Presentation of the Vice Admiral "Jerry" Land Medal to Joseph J. Cuneo,
 - Presentation of the Davidson Medal to Apostolos D. Papanikolaou



- Presentation of the David W. Taylor Medal to Peter Tang-Jensen,
- Presentation of the Elmer A. Sperry Award to Takuma Yamaguchi
- Annual Meeting Banquet keynote address by Fred Harris, President of General Dynamics, NASSCO.

Arctic Shipping: Security & Logistics

The topic of global climate change and the shrinking polar ice cap has caught the attention of the world. Arguably, the marine and offshore industries together stand at the forefront of harnessing the Arctic for business, as a more accessible Arctic has vast ramifications for both.

"The Arctic is the show stopper," said Peter Noble, Chief Naval Architect, project development, ConocoPhillips. "About 50 percent of my time, right now, is spent on this challenge."

On the shipping front, less ice means greater access to more efficient navigational routes; for offshore energy, the potential to discover and recover natural resources is a strong pull. But while a shrinking and thinning ice cover unveils a wealth of possibilities, for every "pro" there appears to be a dozen or more "cons", chief among them the physical – both machinery and human – constraints that must be considered when doing business in the Arctic. Kicking off the second day of the SNAME Annual Meeting was a panel discussion entitled "Arctic Shipping: Security & Logistics," a panel session co-chaired by Dan McGreer and Peter Noble, and featuring presentations from Mikko Niini, President, Aker Arctic Technology, Finland; Jim Sandkvist – Vice President, SSPA, Sweden; and Commander David Soul, Project Director, AOPS PMO, Canada.

Mikko Niini, situated in Helsinki, Finland and the head of one of the world's premier testing

Michel R. Keith Michel, President of the Society of Naval Architects and Marine Engineers & Erik Seither, Executive Director, SNAME, before the Annual Banquet.



(LtoR): Erik Seither, KP76, Executive Director, SNAME; Braxton Scherz, TMA76, Business Development Dir., DNV; John Hatley, KP76, Vice President Ship Power, Wartsila North America, Inc.; Steve Maguire, KP76, Manager Production Engineering, Northrup Gruman Ship Building - Gulf Coast; Mike Holcomb, KP76, President, Keppel Marine Agencies International, LLC (Houston)

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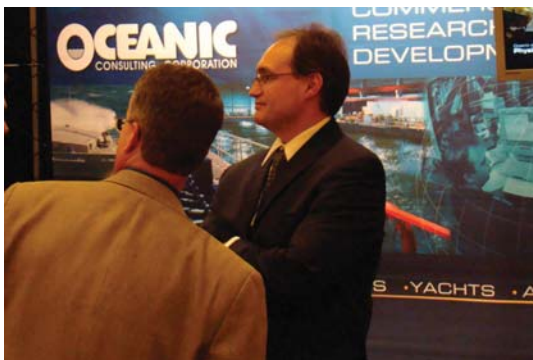


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The exhibition hall was busy with technical and business discussions.



“The Arctic is the show stopper,” said Peter Noble, Chief Naval Architect, project development, ConocoPhillips. **“About 50 percent of my time, right now, is spent on this challenge.”**



Left: Mikko Niini, President, Aker Arctic Technology; & Jim Sandkvist, Vice President, SSPA.

grounds for ice technology, knows a thing or two about ice and marine structures.

“As the heavy polar ice gets thinner, and if the trend holds, (maritime) traffic patterns will undoubtedly change, as 1.5 m of ice thickness is very navigable.” But he is quick to point out that there are many challenges, chief among them Arctic Search & Rescue protocol and capability; the ability to respond to and control an oil spill; as well as tracking and monitoring of vessels in the region for security purposes. Niini’s company is involved in a number of interesting projects, including the refinement of the ARC 100 design for a Russian oil major, which is intent on showing the oil community the ability to respond to a major Arctic oil spill. According to Sandkvist of SSPA, operating in the Arctic essential comes down to two core topics: Risk and Tolerance. He maintains that to be successful in the long term, operators must identify, quantify, handle, avoid and minimize, and ultimately decide how much risk it can tolerate.

SSPA has developed the Transatlantic Icemaster, best described as ‘a toolbox for the planning of arctic offshore operations.’ The IceMaster is a risk-based decision support tool for the dimensioning and safe delivery of customized services for offshore operations in the Arctic. IceMaster supports the decision maker in choosing the right options and efficient solutions for Arctic operations. Different activities and tasks have to be conducted, such as anchor handling and ice-breaking. One very complex topic is the environmental conditions on the site. Drifting ice, ice pressure, fast changing winds, among other things, can affect the operations and interrupt drilling processes.

According to Commander Soul, the Canadian stance on the Arctic is fairly straight forward: “Use it or lose it.” Canada possesses one of the most vast ‘front row seats’ to the Arctic, and as such has started to address the challenge of providing a permanent vessel and human presence in and around the waters for matters of commerce and national security.



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Allure of the Seas

225,000-gt • 1184 ft. long • 6,360 passengers

In late October 2010, the latest of the world's most spectacular large cruise ships was delivered from the hands of STX Europe's Turku, Finland, shipyard, Allure of the Seas delivered to Royal Caribbean International. Allure comes nearly a year to the day after sister-ship Oasis of the Seas, a tandem unique to the world of cruise shipping.

The Allure of the Seas and the Oasis of the Seas can be termed the most powerful and sophisticated cruise ships in the world. The 225,000-gt Oasis class vessels are 1184.4 ft. (361m) in length, and Allure of the Seas can accommodate 6,360 passengers at maximum. In comparison, the Song of Norway delivered to the same customer in 1970 was 551 ft. (168m) long with a gross tonnage of 18,400. To put it simply, Allure of the Seas is approximately 12 times as large. The building contract was signed on April 2007, and production was launched on February 4, 2008. The keel laying of the Allure of the Seas started on December 2, 2008, and the vessel was launched for the first time on November 20, 2009.

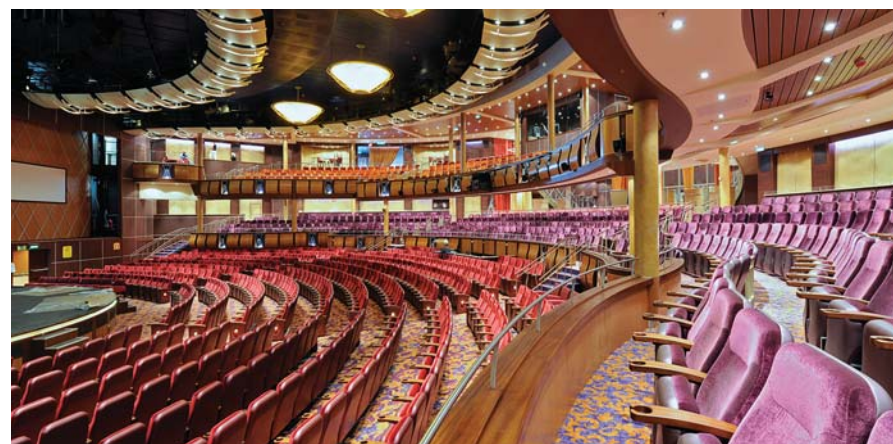
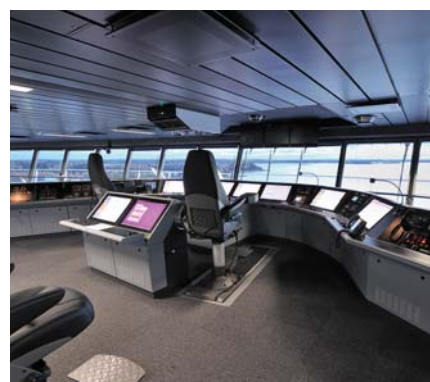
Along with the massive size of the ship comes a parallel portion of activities and function, a development premised on the expectation of the cruising public as much as the technical capability of marine designers and suppliers. Allure of the Seas has a number of new restaurants and shops, including the first onboard interactive gallery and sales outlet of the pop artist Romero Britto; Guess, a famous fashion brands, is opening its first onboard boutique in the Allure of the Seas; and the ship is home to the first-ever "Starbucks" at sea. The novelty of the Allure of the Seas is a 3D movie theatre. The Amber theatre in the Entertainment Place opens up a new dimension with 3D movies. The Entertainment Place also organizes musical evenings, dancing classes and competitions.

A key requirement for any large passenger vessel is that evacuation of the ship must be as easy as that of smaller vessels. The Allure of the Seas was built to conform with the latest international safety rules. Following the "Safe return to port" principle, evacuation of the vessel can in most cases be avoided. In other words, the ship will remain functional even in case of an accident, and it will be able to return to port under its own power. Oasis class ships feature a Safety Center which is built as a separate space on the bridge to enhance the efficiency of emergency response.

Allure of the Seas has 18 lifeboats. On the largest cruise ship in the world, the



Photo: STX Europe



lifeboats are 55.7 ft. (17m) long and can accommodate 370 people each, providing space for every passenger onboard. Two independent engines and rudders are used to power and steer the lifeboats, which also have features such as a GPS system and toilets. In addition to 18 lifeboats, the ship has two fast rescue boats and four MES evacuation chute points.

Great Ship = Green Ship

STX Europe has made green values a priority, which are showcased in the Allure of the Seas. An important role is played by correct decisions related to hull shape, selection of machinery, or the fuel, electric, heating and ventilation systems made from the design stages on. Special attention was paid to energy efficiency, minimization of emissions, water purification, waste management and lifecycle approach alike. Despite its large size, the fuel economy of the ship is top class.

The Allure of the Seas has four bow propellers with a diameter of 13.1 ft. (4 m) each. The output of each propeller is 5.5 MW. The main thrust is provided by three electric Azipod propulsion systems, which guarantee top class maneuverability and fuel economy despite the large size of the ship. **The combined output of the ship's powerplant is approximately 100 MW, which equals the electricity needs of a city the size of Turku, Finland (population more than 175,000).** The six engines supplied by Wärtsilä feature a Common Rail direct fuel injection system, which reduces exhaust gases generated by the engines and minimizes visible black smoke from the engines under any loading conditions. This technology facilitates adjustment of the combustion process and significantly reduces the environmental load caused by exhaust gases. In February 2009, STX Europe registered a new international trademark, Ecorizon. This is a shared

The Allure of the Seas, Facts and Figures

Name	.....Allure of the Seas
Builder	.....STX, Turku Shipyard
Owner	.....Royal Caribbean International
Registry	.....Bahamas
of Suppliers	.....900
Length	.....1184 ft. (361 m)
Breadth, w.l.	.....154.2 ft. (47 m)
GT	.....225,000
Crew	.....2,100
Passengers	.....5,400 passengers, maximum 6,360
Height from sea level	.....213.3/236.2 ft. (65/72m)
Draft (max.)	.....30.5 ft. (9.3m)
Total power	.....97,000 kW (130,000 hp)
Propeller power output	3 x 20,000 kW (3 x 34,460 hp)
Propeller diameter	.....20 ft. (6.1m)
Bowthrusters	.....4 x 5.5 MW (7,500 hp) each
Bow propeller diameter	.....13.5 ft. (4.1m)
Cruise speed	.....22 knots
Bunkers, Heavy oil	.....4700 cu. m.
Main engine(s)	.....6x Wärtsilä
	.....V12 (3) and V16 (3)
Output of each engine	.....13860 kW/18480 kW
Main-engine driven alternators	.....6 x ABB
Boilers	.....2x Aalborg Industries
Radars	.....5
Fuel load	.....4,000 tons

Passenger Areas

Staterooms	.....2,704
Balconies	.....1,956
Passenger decks	.....16
Passenger elevators	.....24
Lifeboats	.....18, 370 persons/per

Structural Fast Facts

- 181 grand blocks, maximum weight up to 600 t
- A total of 500,000 hull components
- Deck area of 25 ha, or 250,000 sq. m.
- 90,000 sq. m. of fitted carpeting
- 250 km of pipes with a diameter exceeding 25 mm
- 2,400 km of welded seams
- 16,000 sprinkler nozzles and 100 km of pipes
- 5,310 km of electric cabling
- 158,503 gal. of paint
- 4,100 cu. m. of drinking water produced in 24 hrs
- 50 tons of ice cubes produced daily
- 21 pools and Jacuzzis with 2,300 cu. m. of water

The Turku Shipyard

The Shipyard was established in 1737, originally on the River Aurajoki in Turku town center.

group-wide strategic environment plan based on STX Europe's latest innovations and continuous R&D efforts aiming to protect the sea and its ecosystems, preserve the globe's natural resources and limit the harmful impacts of human activity. Central to the design and construction efficiency of a vessel of this magnitude is the camaraderie found in the Finnish maritime cluster, a group of maritime professional and companies that has, for several generations, sought to perfect the means in which the world's most spectacular cruise ships are designed built and outfitted. The domestic content of the Allure project is high, and it has had a significant impact on employment rates in the entire region of Southwest Finland. It has been calculated that the Allure of the Seas project has provided the shipyard and the maritime cluster with 12,000 man-years worth of employment.

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World Class Ships



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Three-Forty Three

In Honor of NYFD Firemen Lost on 9/11



NameThree-Forty Three
 TypeFireboat
 OwnerCity of New York
 BuilderEastern Shipbuilding Group
 DesignerRobert Allan Ltd.

Four MTU 12V4000 M70 diesel engines and the MTU Callosum ship automation system help to make the Three Forty Three “the most technically advanced fireboat in the world.”

Three-Forty Three

Boats and ships are personal. Much more than the sum compilation of metal, machinery and wire; boats and ships – perhaps more so than any other mode of transportation – have a distinct connection to the people who work, sail and live aboard them. Perhaps it’s the fact that, for the most part, many commercial vessels to this day are uniquely designed and constructed, purpose built for a certain task or region of operation, largely eschewing the pros and cons of mass production. Perhaps it’s due to the fact that boats are as dependent upon a quality crew as crew are dependent upon a quality vessel; each serving as protector against one of the harshest working environments on the planet. Named in honor of the 343 members of the New York City Fire Department who perished in the line of duty on September 11, 2001, the city’s newest fireboat, the Three Forty Three, is designed to reach fires quickly and pump huge quantities of water. For both propulsion and pumping capacity, the boat relies on four MTU 12V4000 M70 Series diesel engines totaling 8,980 hp. The fireboat is also equipped with the MTU Callosum ship automation system, which controls the propulsion system and continuously monitors various critical areas and functions of the ship. Measuring 140 x 36-ft. beam, the vessel has a top speed of 18 knots and can pump up to 50,000 gpm. The need for such tremendous pumping capacity was made clear in the aftermath of 9/11, when FDNY fireboats sup-

plied the only firefighting water available for many days following the attack on the Twin Towers.

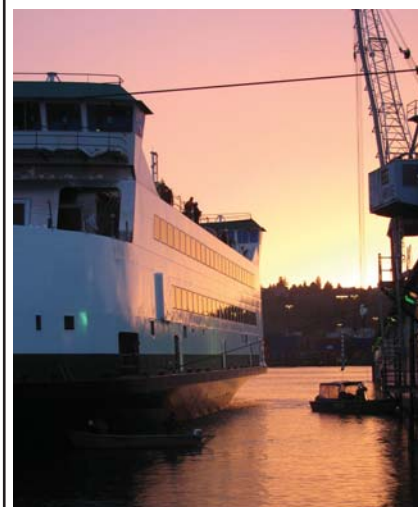
The Three Forty Three is the first of two such vessels to be commissioned by New York City officials. The second is named Fire Fighter II. The two new vessels replace the FDNY’s longest-serving fireboats, both of which are more than 50 years old. Designed by Robert Allan Ltd. of Vancouver, B.C., and built by Eastern Shipbuilding Group of Panama City, Fla., the new fireboats can carry 27 firefighters along with a seven-person operating crew.

The red MTU engines are designed with two sets of performance characteristics, depending on whether they are being used for propulsion or water pumping. Each engine is equipped with a fire-pump clutch and pump assembly driven off the front of the engine. Pumping capacity for each fireboat is 25,000 gpm on two engines (when the vessel is in motion while fighting fires) and 50,000 gpm on all four engines (when the vessel pumps water from a fixed location).

“The boat is tremendously fast,” said Edward Mauro, one of 14 pilots being trained on the Three Forty Three and a member of the fire department for 29 years. “We’re all firefighters from the beginning, but to pilot a boat like this is a thrill. The automation is unbelievable. Between the pumping power and maneuverability, the boat is twice as fast as anything we’ve had before and gets us where we need to be in a hurry.”

Chetzemoka

Kwa-di Tabil Class Ferry



(Photo Courtesy of WSDOT)

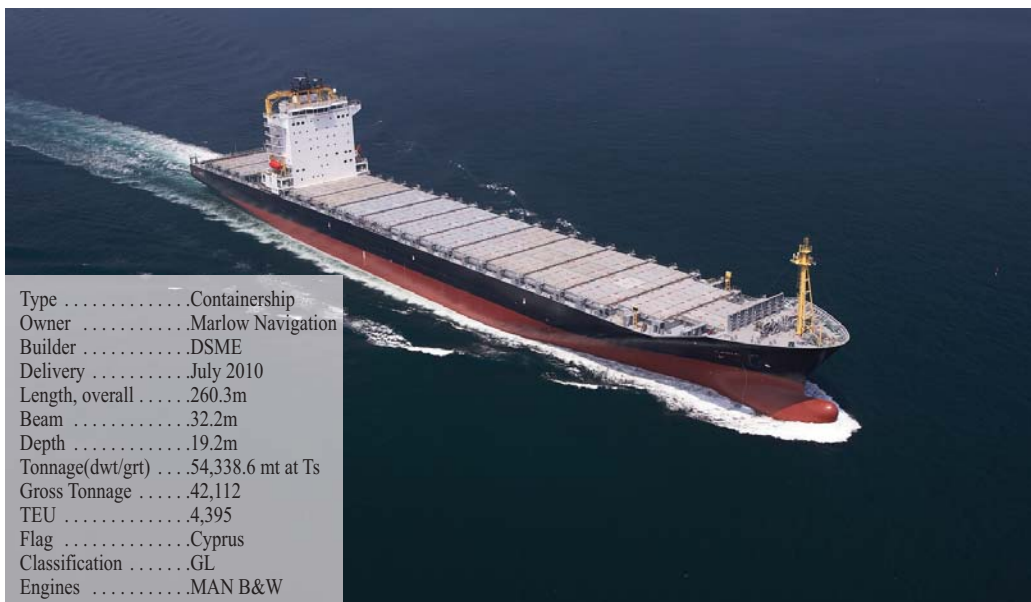
The first of three, potentially four Kwa-di Tabil Class (64-car) ferries for WSDOT Ferries Division (WSF) is the \$76.5m, 64-car Chetzemoka, delivered on September 15, 2010. Designed by Elliot Bay Design Group of Seattle and built at Todd Pacific Shipyard, Seattle. The 750-passenger Chetzemoka is the first of the Kwa-di Tabil Class (64-car) ferries, with two sisterships – Salish and Kennewick – underway. With its option for a fourth vessel, WSF will pursue procurement of a 144-car ferry instead of a fourth Kwa-di Tabil Class ferry if sufficient funding is available. Chetzemoka and Salish will be assigned to the Port Townsend/Coupeville route, restoring two-boat service. WSF has been leasing a ferry from Pierce County since January 2008 to serve this route until new ferries are built. The Kwa-di Tabil Class ferries are based on the Island Home, a ferry currently operating in Massachusetts. The 64-vehicle MV Chetzemoka, named after the late Klallam Chief Chetzemoka, and was christened by Gov. Chris Gregoire and recognized by the Klallam tribes. Chief Chetzemoka was known as a peaceful man and a wise diplomat who was believed to be about 80 when he died in 1888.

Principal Characteristics

NameChetzemoka
 ClassKwa-di Tabil Class
 Length, o.a.273.7 ft.
 Length, w.l.251 ft.
 Breadth (molded)64 ft.
 Depth (molded)17.5 ft.
 Draft (molded) at DLWL11 ft.
 Fuel oil capacity20,750 gal.
 Potable water capacity3,000 gal.
 Sanitary supply water capacity3,000 gal.
 Sewage holding capacity8,000 gal.
 Automobile capacity64 WSF standard cars
 Passenger capacity750
 Speed (on trials)15.5 knots

Argos

The ship is a compact Panamax containership, capable of carrying containers of 4,380 TEU, including 360 FEU and cruising approximately 18,200 nautical miles. The vessel is also applied flow-through method for ballast exchange and preemptively adopted Green Passport as an environmental consideration.



TypeContainership
 OwnerMarlow Navigation
 BuilderDSME
 DeliveryJuly 2010
 Length, overall260.3m
 Beam32.2m
 Depth19.2m
 Tonnage(dwt/grt)54,338.6 mt at Ts
 Gross Tonnage42,112
 TEU4,395
 FlagCyprus
 ClassificationGL
 EnginesMAN B&W



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Abdelkader

Tri-Fuel Diesel Electric LNG carrier



Hyundai Heavy Industries Co., Ltd. (HHI) delivered a 177,000 cu. m. Tri-Fuel Diesel Electric LNG carrier, the Atlantic Max LNG carrier that permits access to the majority of Atlantic terminals, to Mitsui Osk Lines (MOL) on Japan in February 27, 2010. Abdelkader is 298 m long, 46 m wide and 26.8 m depth with a designed draft of 11.9 m. Equipped with four Mark membrane cargo tanks, the vessel is designed and constructed as a type 2G ship specified in IGC code, suitable for carrying LNG of which vapor pressures are within the range from atmospheric pressure to 0.25 bar g. The vessel has continuous deck with trunk/without forecastle and to have a bulbous bow, lowered mooring deck, transom stern, open water type stern frame, single screw propeller driven by two electric motors. Tank insulation is of GTT Mark system which has a 270mm thick to satisfy the low boil off rate of 0.15 % by volume of the total cargo per day. A shore manifold is provided on each side of the upper deck between No.2 liquid dome and No. 3 vapor dome. A compressor room is arranged in the area in way of No. 4 tank. The cargo discharging is performed by pumps in tank having each capacity of 1,750 cu. m./hr. The supplementary gas during discharging is coming from shore or produced by onboard LNG vaporizer to maintain cargo tank pressure. An emergency cargo pump is used when cargo pump in tank is failed.

One LD compressor and one spray pump as fuel pump is running to supply

fuel gas to the engine room under normal sea going condition. The main propulsion machinery of vessel has four sets of main tri-fuel engines, two 50% reversible synchronous motors (each with power converter and associated transformers, control and excitation system), including one reduction gear (twin input/single output) with one propulsion shaft/propeller. The vessel has redundancy that failure of any motor drive auxiliary system shall not result in a total loss of propulsion motor.

The propulsion system is tri-fuel diesel electric, capable of burning a fuel gas (natural boil off gas (NBOG) and/or forced boil off gas (FBOG)) or Marine Diesel Oil or Heavy Fuel Oil. The power generating plant utilizes all available NBOG and makes up the required power by burning additional Heavy fuel oil or Marine diesel oil or FBOG. Main diesel engines are fitted with exhaust gas economizers as waste heat recovery system. A gas combustion unit is provided for periods when natural boil off gas (NBOG) cannot be burned in the tri-fuel diesel engines or when NBOG consumption is low and the cargo tank pressure rises. A fuel oil supply unit is provided for flexible operation of each Tri-fuel diesel engine. The Tri-fuel diesel engines are to be fully compliant with MARPOL Annex VI regulation 13 and the NOx Technical code. The machinery or engine control room and the cargo control room contain all facilities to permit centralized operation of the plant and equipment and allow unattended operation of the ma-

Name	Abdelkader
Type	LNG Carrier
Owner	Mitsui OSK Lines
Builder	Hyundai Heavy Industries
Length, o.a.	298m
Breadth, molded	46m
Depth, molded	26.8m
Draft, design	11.9 m
Deadweight at design draft	87,100 t
Deadweight, scantling	99,700
Ship's speed with sea margin 21%	19.6 knots
Width of Double Skin, side	2.65m
Width of Double Skin, bottom	3.3m
Bunkers, heavy oil	6800 cu. m.
Bunkers, diesel oil	480 cu. m.
Water ballast	65,000 cu. m.
Daily fuel consumption	161 tons/day
Classification	Bureau Veritas
Main engine(s)	Wärtsilä
Gearbox	Renk
Alternator	Converteam
Other cranes	Oriental Precision Co., Ltd
Special lifesaving equipment	Norsafe
Cargo pumps	Ebara
Cargo control system	Converteam
Bow thruster(s)	Kawasaki
Fire detection system	Consilium
Radars, IBS	JRC
Waste disposal	Kangrim
Sewage plant	Jonghap

chinery plant under all operation modes. The control console containing IAS (Integrated Automatic System) which is designed and implemented as to ensure a high level of fault tolerance such that the single failure of any component, power supply or device not to prevent normal system operation, nor compromise the integrity of the system. Besides, a Cargo Control Room (C.C.R) which is arranged in the accommodation deck allows the centralized control of loading, discharging, ballasting, de-ballasting and continuous monitoring and control of the cargo handling system including LD & HD compressors.

E.R. Brandenburg



The 180,000 DWT Bulk Carrier E.R. Brandenburg built at Hyundai Heavy Industries Co., Ltd. (HHI) was delivered to E.R. Schiffahrt, Germany on March 3, 2010. The ship has one continuous freeboard deck from stem to stern with f'cle deck, in way of the cargo space. Special attention has been paid to the ship's maneuverability resulting in a large rudder being fitted.

It is designed to carry coal and ore cargos. The ship to have nine cargo holds and water ballast tanks at double bottom, top side and peak tanks. No. 1, 3, 5, 7, and 9 cargo hold to be designed for ore cargo loading.

No.6 cargo hold may be used as water ballast tank for ballast voyage under heavy weather. The vessel is, among others, equipped with the highly advanced navigation system such as ECDIS for collision and grounding avoidance and navigation monitoring. The vessel has an overall length of 292m, width of 45m and depth of 24.7m with a design draft of 16.5m. It is powered by a Hyundai-B&W 6S70MC-C7 main engine with an MCR output of 18,660kW at 91 rpm, enabling it to sail at a service speed of 15.4 knots. Electric power is supplied by three main diesel generators with an output of 730 kW and one 130 kW emergency generator.

The ship is classed by DNV +1A1, Bulk Carrier, ESP, ES(S), CSR, BC-A (Holds 2,4,6 and 8 may be empty), GRAB[30], E0, BIS, TMON, HMON(C1, G4, A1), BWM-E(S), COAT-PSPC(B).

Type	Bulk Carrier
Owner	E.R. Schiffahrt
Builder	Hyundai Heavy Industries (HHI)
Length, o.a.	292m
Length, b.p.	283.5m
Breadth, molded	45m
Depth, molded	24.7m
Scantling draft, molded	18.2m
Design draft, molded	16.5m
Gross tonnage	93,186
Deadweight, Design	197,842
Deadweight, Scantling	178,978
Speed, service	15.4 Knots
Cargo capacity (cu. m.)	(Bale) 200,000
Bunkers (cu. m.) - Heavy oil	5,100

Onboard performance



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www.alfalaval.com/pureballast

Deepwater Champion

First Gusto P-10000 Drillship



Hyundai Heavy Industries Co., Ltd. (HHI) delivered its first Gusto P-10000 Drillship, the most up-to-date drillship, to TOI of Switzerland in November 16, 2010. The Deepwater Champion is a purpose built compact drillship design accommodating the combined operational know-how of the world renowned drilling contractor, Transocean, and of the world largest oil company, Exxon-Mobil. Deepwater Champion has full DP3 compliant station keeping capability with sufficient power to allow maintaining position in intact condition and emergency situations (such as fire or flooding of one engine room), even in degraded mode (maintenance on one generator set). Still, her environmental footprint in operation is the lowest for such vessel due to her low fuel consumption and her patented drains treatment system.

Deepwater Champion provides patented thruster canister design which allows in-site inspection and maintenance

of any thruster without relocation of the ship. This feature for deepwater operation can save time for continuous drilling operation. The unique enclosed riser hold provides an outstanding free deck area permanently available for tubular storage and third party equipments.

With such features, its compact and top notch position keeping capability, Deepwater Champion is the ideal drillship for deep sea drilling in the most remote areas. Presently outfitted for 10,000 ft. water depth, the vessel is designed and ready for upgrade to 12,000 ft. water depth with limited equipment additions or changes.

The comprehensive topsides outfitting such as active heave draw works, cutting-edge riser handling system, patented dual activity derrick (80 x 60 x 210 ft. full clear height) and complete dual mud system allows drilling up to depth of 40,000 ft through the large moon pool.

Deepwater Champion provides also an

Name	Deepwater Champion
Type	Drill Ship
Owner	Transocean
Builder	Hyundai Heavy Industries (HHI)
Length, o.a.	229m
Breadth, molded	36m
Depth, molded	18.2m
Draft, designed	11m
Displacement at design draft	70,000t
Ship's speed	12 knots
Complement (single & double)	210 pax.
Deadweight	34,000 tons
Speed, service	12 Knots
Classification	DNV
Azimuth Thrusters	Rolls-Royce
Diesel-driven alternators	STX-MAN B&W
Deck cranes	NOV Hydralift
Mooring equipment	Rolls-Royce
Lifesaving equipment	Fassmar
Ballast control system	Emerson
Bridge control system	Kongsberg
Radars	Kongsberg
Waste disposal plant	Hamworthy

165MT active heave compensated knuckle boom crane, located aft of the robust dual derrick, for e.g. off-line Xmas tree or subsea manifold handing, making her the true "triple activity" unit of choice.

Arcturus Voyager



The Arcturus Voyager is a crude oil tanker, capable of carrying 357,000 cu. m. of crude oil, and cruising approximately 25,500 nautical miles. The vessel offers double hull protection for fuel oil tank, preventing accidental outflow, and has adopted Pre-Swirl Stator of sole, which is patent of Daewoo Shipbuilding & Marine Engineering Co., Ltd., as an energy saving device.

Type	VLCC
Owner	Maran Tanker
Builder	Daewoo Shipbuilding & Marine Engineering
Length, o.a.	333m
Beam	320m
Depth	30.5m
Tonnage	318,400 dwt/162,400 gt
Classification	ABS
Engines	MAN B&W 6S90ME-C8

"Floatel Superior"



Keppel FELS delivered to Floatel International the first of two newbuild accommodation semisubmersibles (floatels). The DNV-classed Floatel Superior is reportedly the only new-build floatel in full compliance with all the latest rules and regulations for the Norwegian sector. Floatel Superior features accommodation for 440. The unit features full health, safety and environment (HSE) compliance including strict noise level requirements, free fall lifeboats and escape chutes. In particular, the unit utilizes a telescopic gangway for the safe transit of personnel and goods to and from a rig, with the ability to be extended or shortened by +/-7.5m, allowing the vessel to remain connected in severe weather.

This design combines and enhances the tried and tested DSSTM series semisubmersible drilling rig and Keppel's SSAUTM 3600 accommodation semisubmersible designs. Floatel Superior is equipped with both DP3 and 8-point mooring system capabilities.

Safmarine Sumba

Safmarine took delivery of a new Multi Purpose Vessel (MPV), the 18,000 dwt (1,052 TEU) Safmarine Sumba. This is Safmarine's first new MPV vessel since it became a member of the A.P Moller-Maersk Group more than 11 years ago. It is also the first of six new MPV vessels to be delivered to Safmarine to 2013. Safmarine purchased two MPV vessels, the Safmarine Sumba and her sister vessel, while they were under construction at the Jiangsu Sugang Shipbuilding in China. A further four new MPV builds, on order to Safmarine, are also being built at the Wuhu Shipyard in China.

"Safmarine's investment in this new tonnage is a clear indication of our long-term commitment to the breakbulk trade to West Africa," said Safmarine's Head of MPV, Grant Daly. Safmarine currently offers six regular MPV services linking West Africa with Europe, Asia, North America and South Africa. Direct calls are made at more than 60 ports on Safmarine's MPV services, which accommodate the full range of cargoes, including containers, breakbulk cargoes (principally cocoa and coffee)/neobulk (timber, steel), project modules and oil and gas-related cargoes. The new, owned vessel joins Safmarine's existing MPV fleet of 14 chartered vessels.

DAR SALWA

The vessel has a fully welded upper deck with aft sunken deck, a raked stem with a bulbous bow, a transom stern with open water type stern frame, a semi-balanced rudder and a fixed pitch propeller directly driven by a slow speed diesel engine with Pre-Swirl Stator. It is equipped with various optimum, high quality, efficient and environmental friendly systems, such as:

- Electronically controlled M/E (MAN B&W 7S80 ME-C8 x 1 set) with a Pre-Swirl Stator to achieve energy saving;
- Various energy saving monitoring systems such as centralized control system, shaft power measuring system, ship's performance monitoring system, and M/E & G/E cylinder press monitoring systems;
- Design for environmental friendly ship with clean design, use of low sulfur FO and emission control;
- Design for crew comfortable with severe vibration and noise requirements defined DNV class and various entertainment equipment including satellite TV system;
- Design for safe ship with hull stress and tail shaft monitoring systems;
- Design for anti-piracy system;

- for anti corrosion in water and ballast tanks by using anti-abrasive epoxy paint;
- Easy ship's operation by one man bridge equipment and arrangements; and
- Optimum design for operating at severe tropical condition (50 °C design in E/R).



Type	Crude Oil Tanker
Owner	Kuwait Oil Tanker Company (S.A.K)
Shipbuilder	Daewoo Shipbuilding & Marine Engineering (DSME)
Model test	SSPA in Sweden
Flag	Kuwait
Length, oa	333m
Length, bp	320m
Breadth molded	60m
Depth molded to upper deck	30.5 m
Draft, scantling	22.5m
Draft, design	21m
Gross	162,625.0MT
Displacement	363,843.7MT at scantling draft
Lightweight	44,083.2MT
Deadweight, design	293,046.2MT
Deadweight, scantling	319,760.5MT
Speed, service	16.2 knots
Cargo capacity	358,484.3 cu.m.
Bunkers, Heavy oil	7,872.7 cu.m.
Diesel oil	1,139.8 cu.m.
Water ballast	97,779.2 cu.m.
Daily fuel consumption (tons/day)	
Main engine only	approx. 124.9
Classification	DNV +1A1, "Tanker for Oil ESP", EO, CSR, PLUS, HMON(G4, A1), UMS, CLEAN, VCS-2, TMON, SPM, BIS, NAUT-OC, NAUTICUS(Operation), COMF-V(3)
% high-tensile steel	55%
Main engine(s)	MAN B&W 7S 80 ME-C8
Output, MCR	29,260 kW X 78 rpm,
Output, NCR:	4,870 kW X 73.9rpm
Diesel-driven alternators	DooSan
Alternator make/type	Hyundai / HFJ7 638-8P
Boilers	Aalborg Industries
Mooring equipment	Rolls Royce
Remote valve control system	Nakakita
Complement	Officers: 23; Crew: 13
Bridge control system	Nabtesco
Fire detection system	Consilium
Radars	Japan Radio Co., Ltd.

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Banning of Substandard Vessels

by Dennis L. Bryant

Customary international law, as evidenced in the United Nations Convention on the Law of the Sea (UNCLOS) provides for reasonable freedom of navigation. With regard to foreign vessels wishing to enter the ports or territorial sea of a nation, UNCLOS provides that the coastal nation may adopt laws and regulations, in conformity with international

law, relating to (among other things) safety of navigation and prevention of pollution. These laws and regulations, though, shall not apply to the design, construction, manning, or equipment of foreign ships unless they are giving effect to generally accepted international rules or standards. Port states have very clear rights (indeed, obligations) under various international conventions to exercise con-

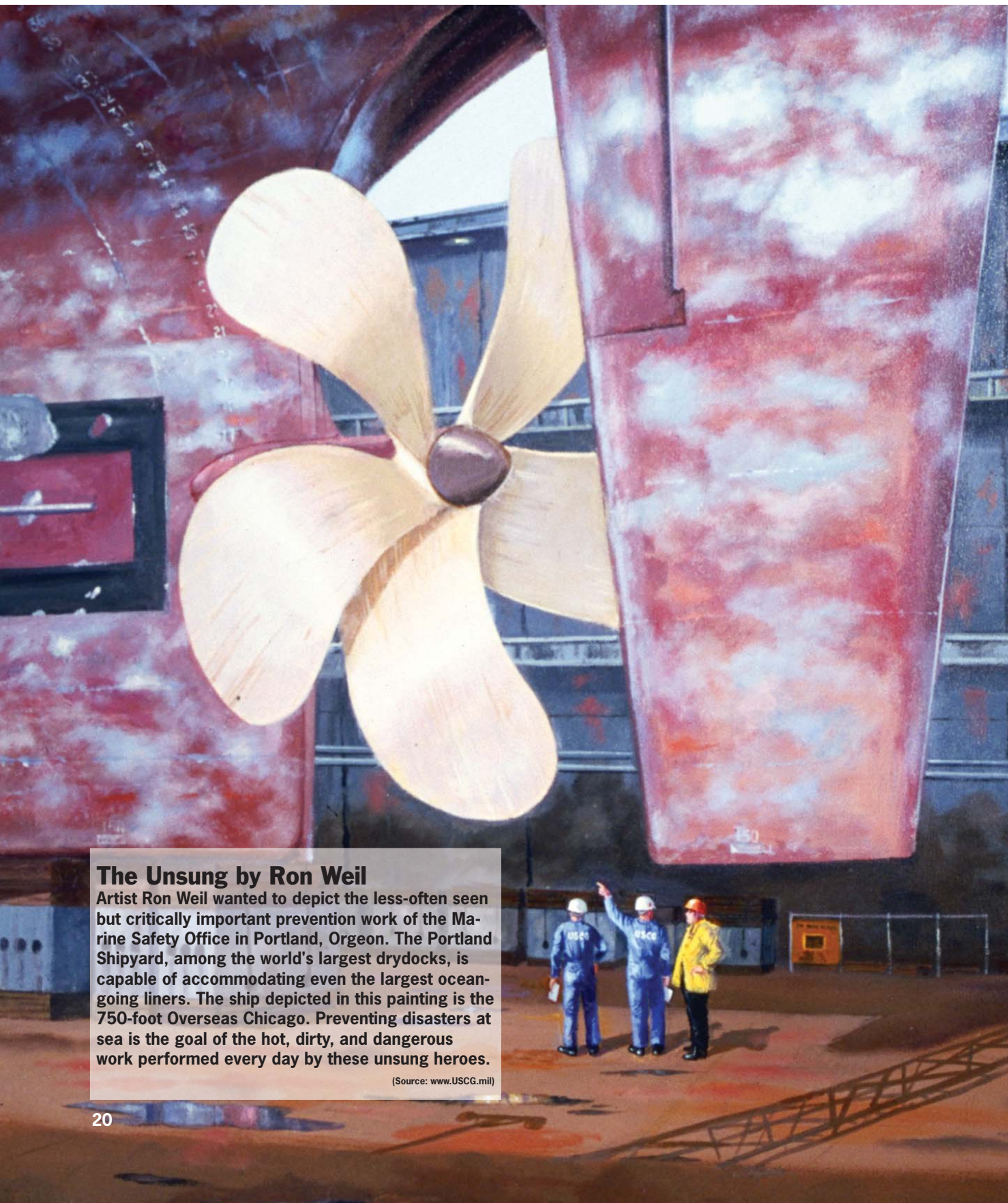
trol measures, up to and including detention, with respect to any foreign vessel voluntarily in its waters the condition of which does not correspond substantially with the particulars of its certificates. The rules are less clear regarding the right of the port state to keep out (i.e., ban) from its waters a foreign vessel that wishes to make entry. Various port states have adopted protocols for examining

visiting foreign vessels to ensure compliance with applicable domestic and international requirements. These protocols are commonly referred to as port state control (PSC) programs. The most highly developed of the various national PSC programs is administered by the US Coast Guard. Many regional groupings have also been organized by port states to coordinate PSC programs. The two leading such regional groupings are the Paris Memorandum of Understanding (MOU) on Port State Control and the Tokyo MOU. Others exist in Latin America, the Black Sea, and the Arabian Gulf regions.

Paris MOU

The Paris MOU includes specific provisions for access refusal measures. Vessels subject to refusal of access consist of: (1) gas and chemical tankers; (2) bulk carriers; (3) oil tankers; and (4) passenger ships. Port state control authorities in a member state are to ensure that a ship in any of these categories is refused access if the ship either: (a) flies the flag of a state appearing on the Paris MOU black list and has been detained more than twice during the preceding 24 months in a Paris MOU port; or (b) flies the flag of a state described as "very high risk" or "high risk" by the Paris MOU and has been detained more than once during the preceding 36 months in a Paris MOU port. In order for the access refusal order to be lifted, the vessel owner or operator must address a formal request to the authority of the state that imposed the order.

The request must be accompanied by a certificate from the flag state administration showing that the vessel fully conforms to applicable provisions of the international conventions. The request must also be accompanied, where appropriate, by a certificate from the classification society showing that the vessel conforms to stipulated class standards. The access refusal order may only be lifted following a re-inspection of the vessel at an agreed port by inspectors of the authority that imposed the order and if evidence is provided to the satisfaction of the authority that the vessel fully complies with applicable international requirements. The re-inspection shall consist of an expanded inspection as provided for in the MOU. All costs of the expanded inspection are to be borne by



The Unsung by Ron Weil

Artist Ron Weil wanted to depict the less-often seen but critically important prevention work of the Marine Safety Office in Portland, Oregon. The Portland Shipyard, among the world's largest drydocks, is capable of accommodating even the largest ocean-going liners. The ship depicted in this painting is the 750-foot Overseas Chicago. Preventing disasters at sea is the goal of the hot, dirty, and dangerous work performed every day by these unsung heroes.

(Source: www.USCG.mil)

the owner or operator.

USCG

The US Coast Guard recently issued a Policy Letter on the banning of substandard foreign vessels. Such banning has been ordered intermittently in the past, but a more formal protocol has now been established. A foreign vessel that has been detained three times within the previous twelve months will be subjected to an International Safety Management (ISM) Code expanded examination if it is determined that failure to effectively implement the vessel's Safety Management System (SMS) is a contributing factor for the substandard conditions that led to the detentions. If the vessel fails its expanded examination following three detentions within the previous twelve months, a Letter of Denial will be sent to the vessel's Owner and Company informing them that the vessel will be denied entry into any port or place in the United States unless specific actions are completed to the satisfaction of the US Coast Guard. The vessel's flag administration and appropriate Memorandum of Understanding (MOU) secretariats will be notified of this action. These requirements will not be impacted regardless of whether the vessel is sold, placed under new management, reflagged, or renamed. Upon satisfactory review of all the submitted information required by the Letter of Denial, the Coast Guard will issue a Letter of Acceptance. Upon the vessel's return to a port or place in the United States, it will be subjected to a Priority I Port State Control (PSC) Examination prior to entry. Only after satisfactory completion of the expanded examination will a previously banned vessel be allowed entry into a port or place of the United States.

Previous instances where a vessel has been banned from entry into a port or place of the United States have generally been based on the order of a federal court following conviction of the owner or operator of a maritime-related criminal offense, such as falsification of an oil record book (ORB). Coast Guard records show that, as of September 1, 2010, three foreign vessels are currently banned from operating in the United States: (1) Cosette (IMO 6617025), a ro-ro cargo ship operating under the Bolivian flag; (2) Wilmina (IMO 9151840), a crude oil tanker operating under the Norwegian International Ship Register; and (3) Island Intrepid (IMO 7033161), a container ship operating under the flag of St. Vincent and the Grenadines. This list is subject to change without prior notice.

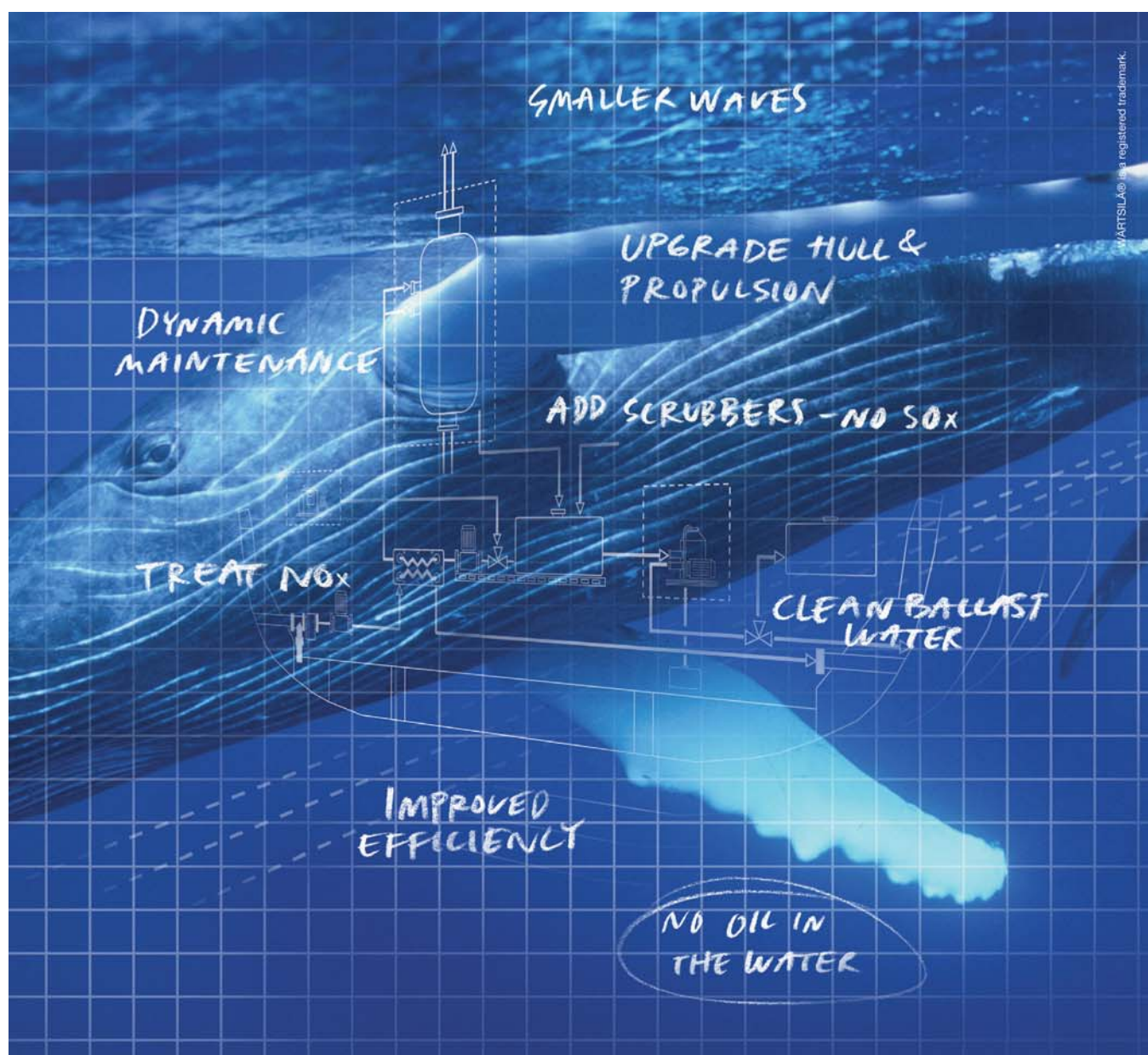
Examination has not revealed any other

port states or regional port state control organizations that have established formal protocols for the banning of substandard vessels. All of those states or organizations, though, have taken measures to increase the level of inspections to which previously detained vessels are

subjected upon re-entry into one of their ports.

Measures for the banning of substandard vessels are a natural progression in the evolution of port state control programs. When accompanied by adequate safeguards to ensure that the measures

are targeted at vessels truly being operated in a manner that places the crew, cargo, ship, and the environment at an unacceptable risk, these steps will provide reputable owners and operators a level playing field in their commercial endeavors.



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Chariot Robotics

Hull Stripping Robots for Efficiency, Environment

Traditionally, the process of preparing a vessel for painting has been a laborious task, fraught with potential hazards to workers and the environment alike. Chariot Robotics – with its ENVIROBOT™ Ultra High Pressure (UHP) Robotic System – is on a mission to change all of that, forwarding the development and implementation of its patented robotics technology one shipyard at a time.

– by Greg Trauthwein

Robotics are increasingly penetrating all walks of life, from the military use of Predator drones and land-based bomb defusing systems; to subsea units designed to work safely and efficiently in depths off-limits to man; to consumer's adoption of innovative floor sweeping and cleaning units. The common denominator is removing humans from jobs that are potentially perilous and dirty, or otherwise undesirable; providing a mechanized means to work more efficiently, safely and effectively, regardless of surrounding conditions.

Enter Chariot Robotics, which is rapidly working to sow the seeds of its mechanized means to strip paint from ships and prepare its surface with a robotic system that can perform the task more safely and efficiently – according to the company's estimation – than 10 men combined.

Stephen R. Johnson, CEO of Chariot Robotics, is no stranger to the challenges inherent in shipyard operations. A veteran U.S. shipyard executive, much of Johnson's career was spent in the country's leading shipyards, more than 20 years with Bethlehem Steel Corp., and five years as the head of Atlantic Marine's ship repair and conversion facility in Mobile, Ala. For nearly the past decade, however, Johnson's efforts have been spent in the development and commercialization of a robotics system designed to increase the safety, efficiency and environmental soundness of ship's paint stripping and surface preparation.

"We truly understand what the shipyard's concerns are," said Johnson during a recent visit in the company's Palm City, Fla. Office.

Adopting New Technology

As with any new technology – particularly a new technology in the traditionally conservative maritime market, one that is capital intensive that helps to reduce labor – half of the battle in selling a system is simply getting in the front door. "It's new, and as with any new technology, you have to educate regarding the system and its capabilities," Johnson said.

Used today primarily on cruise ships, tankers and above ground storage tanks, the ENVIROBOT™ is equally appropriate across a range of marine vessels. Operated by an individual using a wireless joystick control, the robot uses magnetic air gap technology which allows it to sweep or full blast, back and forth across the hull's flat bottom, vertical sides, bow and stern shapes equally. The System cleans using the energy of water

striking the hull's surface, operating at pressures as high as 55,000 p.s.i. As no abrasives are used in the process, dust pollution does not occur and the need to dispose of spent abrasives is eliminated. It is the only device that will sweep and spot blast at the same time.

The power and flexibility of the Chariot

Robotics system is highlighted when working, for example, on a VLCC stationed pier side. "What's really nice about the VLCC is that, when it's light, the ship is riding much higher, giving an additional 60 feet or so of ship above the water while pier side. When we're done working on the pier side, because the system eliminates discharge into the environment, we can put the system on a barge and strip the opposite side without moving the ship," said John Odwazny, COO.

The Chariot Robotics units are not cheap, selling for up to \$1m per unit depending on the configuration, and Johnson admits that as the former head of a ship repair and conversion facility, he would cast a wary eye on anyone walk-

ing in the door selling a system at that investment level. But he and his team have meticulously built an analytical case for the investment, estimating that the system essentially pays for itself in as little as two years. In addition, while Chariot Robotics touts the unit as a major labor saving device, he has encountered little pushback on this matter from labor, because the robotic system helps to replace one of the least desirable jobs in any shipyard. In addition, with growing pressure on industries worldwide to 'clean up their act' and become better stewards of the environment, the cleanliness – via its closed-cycle waste removal system, with antifouling waste completely contained in vacuum boxes – of the Chariot Robotics operation is a major selling point.

While gaining acceptance of new technology is a challenge, Chariot Robotics has met the challenge by building its own fleet of robotic systems and hitting the road, literally to shipyards around the globe, to put its system on display in real-world settings to prove the concept to potential clients.

Helping Gibdock Keep Ahead of Schedule

As Johnson and his experienced maritime crew know, nothing sells in the marine business like successful case studies, and the Chariot Robotics team is busy traversing the globe to build awareness and support, proving the value of the system in helping to get vessels out of dock more quickly.



Stephen R. Johnson, Chief Executive Officer, Chariot Robotics.

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“When we meet owners and shipyards from around the globe, it is more of a matter of getting the word out to ensure that companies are aware of the system and its capabilities,” said Eric Johnson, Executive Director Sales and Marketing.

Joe Corvelli, CEO of Gibdock, the Gibraltar-based ship repair and conversion company, could be considered the ‘new guard’ in ship repair and conversion. Corvelli, a Long Island, NY-native and Webb Institute graduate, has in three short years helped to foster a safety and quality management culture on this growing company. First use of the Chariot Robotic’s advanced blasting technology enabled Gibdock to redeliver three Danish-owned containerships that required full hull blasting and coating ahead of schedule. The Gibraltar yard undertook blasting and painting for all three ships within the owner’s time requirements of 29 days. However, Corvelli said that the introduction of ENVIROBOT™ Ultra High Pressure (UHP) Robotic System from Chariot Robotics on the third ship made a discernable difference to work-rates. “The way the Envirobots work in any position on the hull offers clear scheduling advantages,” said Corvelli.

The UHP ENVIROBOT™ was used to blast 2,000 sq. m. of hull underwater in the ship’s mid-section, with wetblasting used on the curved bow and stern sections.

“The UHP standard is perfect and there is no flash rust due to the combination of vacuum and warming of the steel during the process, which causes the residual water to evaporate quickly,” said Corvelli. “What impressed us was the reliability of the Chariot Robotics equipment. This has been an issue with some UHP systems in the past.”

Earlier this summer the company was able to demonstrate its system to a very important potential client, the U.S. Navy, in a Navy sponsored event in Norfolk, VA. From that demonstration, and through Stephen Johnson’s and John Odwazny’s longstanding contacts with executives at the BAE

shipyard in San Francisco, the company recently completed a job stripping the paint and preparing the steel on the USNS Tripoli, which was built in the 1960s but is currently used as a missile launching platform.

While opportunities abound in their home country, Chariot views the international ship construction and repair market as most promising.

“We see the Middle East as a growth opportunity for us,” said Stephen R. Johnson, CEO of Chariot Robotics. “We already have four systems in place at Dubai World Drydock, and they are using the systems on some very large ship projects. To date we have done more than 80,000 sq. m. of blasting work with our systems.”

“We are pleased to have selected this technology for its beneficial environmental factors and to enhance our own productivity,” said Mr. Mohammad Rizal, Director – Production of Drydocks World –Dubai. “As we become increasingly at home with the operating systems, we will consider upping the number of units.”

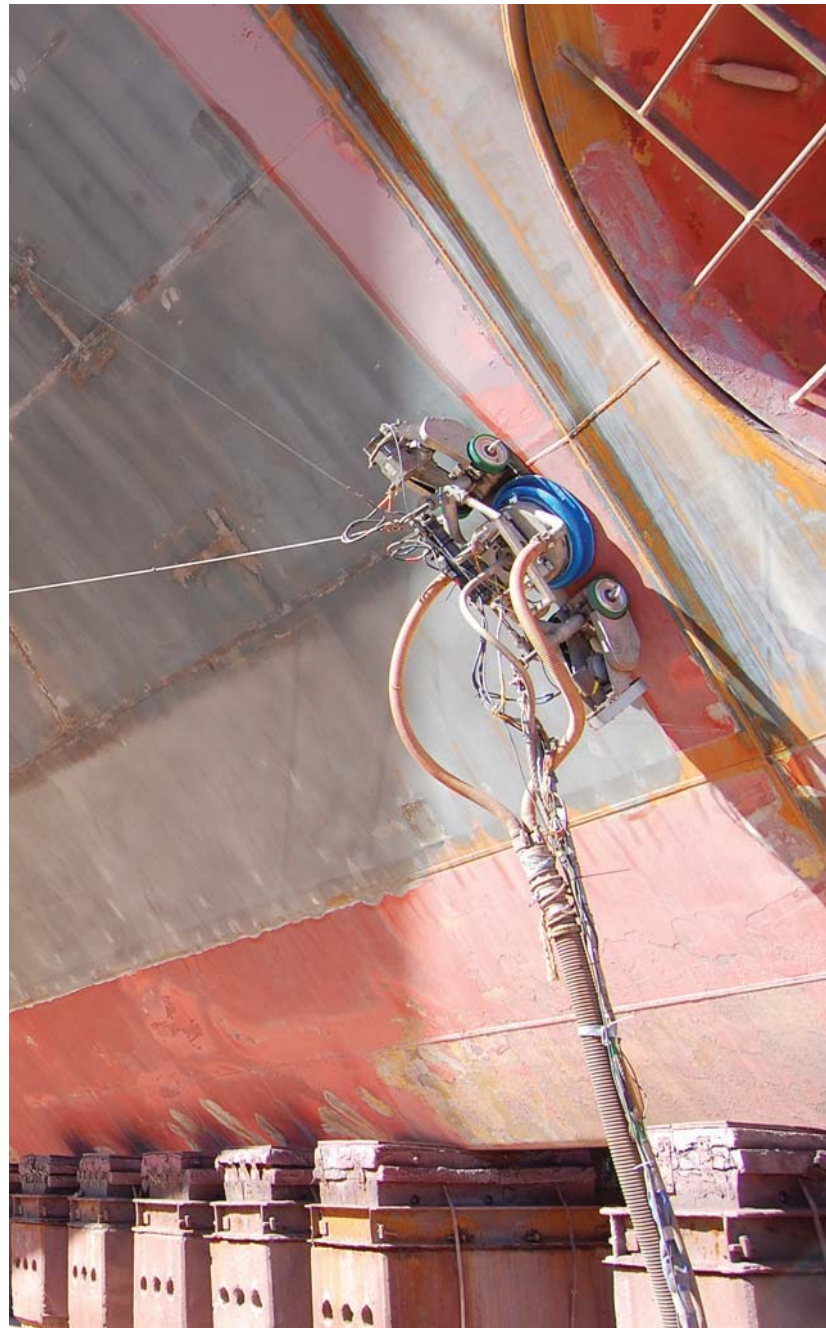
Singapore has also proven to be fertile ground.

“We are in the hull treatment specification for Petrobras ... we are in their paint and coating manual,” said John Odwazny, COO. “The company is progressing on some very large FPSO conversion projects, and our Singapore JV operation recently stripped the hull of the P-58, a job that literally saved the owner and the yard 10 docking days. In addition, we have several interesting projects coming up with Princess and Costa cruise lines.”

Ultimately, Chariot envisions itself working in tandem with shipyards to help attract new and long term work by helping to save man hours, drive down the cost of steel stripping and prep per square foot, ultimately helping to return the vessel to service more quickly. Chariot Robotics has begun working on new prototype systems that will achieve production rates even higher than their current standards.

“Paint stripping robots magnetized to the bottom of the ship ... How cool is that?”

– Sean Riley, Host of National Geographic’s television series “World’s Toughest Fixes”



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* Depending on application and in service conditions

Sherwin Williams



U.S. Navy Rear Admiral Wendi B. Carpenter, Commander, Navy Warfare Development Command, Norfolk, Va., was the recent guest of Sherwin-Williams during Cleveland Navy Week. The U.S. Navy, through its Office of Community Outreach, included Sherwin-Williams in its Cleveland Navy Week schedule. Carpenter met with Sherwin-Williams Chairman & CEO Chris Connor and senior management of the company's Protective & Marine Coatings business for 90 minutes. Among other projects, Sherwin-Williams is the principal supplier in the current dry-docking and maintenance cycle of the U.S.S. Theodore Roosevelt, providing the coatings for the underwater hull, freeboard, topside and tanks at

Northrop Grumman Shipbuilding in Newport News, Va. In addition, the aircraft carrier Gerald R. Ford is being built utilizing Sherwin-Williams coatings technologies.

Sherwin-Williams manufactures coatings systems for maintenance and new build programs that require fewer coats and rapidly return to service, which reduces application costs and shortens required schedules. In ballast tanks, where the vulnerable edges can fail prematurely, the company was challenged by the Navy to develop an anti-corrosion technology that could achieve enhanced film thickness over edges, corners and welding seams, be installed quicker and returned to service faster. This year, a milestone for responsiveness was achieved when Sherwin-Williams was awarded a \$24m, five-year contract to supply coatings to the Navy's yards at Puget Sound, Norfolk, Portsmouth, N.H., and Pearl Harbor on a just-in-time (JIT) basis. This was the first national comprehensive JIT coatings contract to be awarded by the Fleet and Industrial Supply Center based in Norfolk.

www.sherwin-williams.com

Hempel: Expands in U.S.

Hempel USA opened a warehouse and distributorship in Seattle, extending the company's commitment to providing customers with top quality products and services.

Hempel teamed with Rudd Company, who is also a paint and coatings manufacturer specializing in wood treatment. Rudd is located in downtown Ballard, with a 150,000 sq. ft. warehouse, manufacturing plant and retail store, and has been servicing the Great Northwest since 1912. Hempel's main products, such as shop primers, fouling release solutions, antifoulings, epoxies, and topcoats, among others, are stored in this location. In addition, on-site tinting will be available to provide for the timely supply of products required by the customer.



For more information, Email:

matt@hempel.com

International for NSCSA



National Shipping Company of Saudi Arabia (NSCSA) achieved fuel savings and emissions reductions since adopting Intersleek coatings technology on the hulls of eight VLCCs. The decision in 2006 by the National Shipping Company of Saudi Arabia (NSCSA), to apply Intersleek 700 on the hulls of eight VLCCs has resulted in fuel savings of more than 6% and CO2 emissions cuts running into many thousands of tons.

NSCSA which runs a fleet of more than 30 vessels including 17 VLCCs, took the decision to replace self polishing copolymer (SPC) biocidal antifoulings with International Paint's biocide-free silicone-based foul release coating, Intersleek 700, when the eight ships were

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docked successively through 2006 and 2007. The application involved blasting the ships' hulls and coating their vertical sides with Intersleek 700. Since then, detailed performance analysis onboard the VLCC MV Ramlah has reportedly proven the relative fuel savings and emissions reductions. The analysis covered the whole docking period prior to the application of the Intersleek 700 system (the previous 60 months) and the ongoing performance after (up to 54 months to date). The results demonstrate an overall 6.4% improvement in fuel efficiency which translates into a saving of more than 6,500 tons, equivalent to around \$3.2 million at \$500 a ton.

www.international-marine.com

ComCor Tech

ComCor Tech has grown to provide tank cleaning, surface preparation, and coating services to the commercial marine and cruise ship industries. ComCor Tech was formed in 1987 to offer services and products involved with corrosion and combustion technology. It has grown



to provide tank cleaning, surface preparation, and coating services to the commercial marine and cruise ship industries.

Many know ComCor Tech for the blasting and coating work. In the process of cleaning surfaces prior to blasting the company has developed procedures for cleaning and gas freeing areas that are designed to be cost effective to vessel owners. Services ComCor Tech provides includes: Clean for regulatory/ship inspection or gas free for hot work; Oil, sludge, galley and laundry tanks; Surface preparation and recoating of potable water tanks; and much more.

www.comcortech.com

Ecospeed Underwater Hull Coating

When a 294m cruise vessel came into drydock in the Bahamas last month after sailing with Ecospeed for two years, less than 1% of the underwater hull needed touch ups and no new paint layers were required on the rest of the underwater hull. As a consequence, the technical operations that needed to be carried out on the vessel were very easy to plan because no repaint needed to be added to the schedule. Moreover, the vessel could leave drydock earlier than would have been the case if an extensive repaint had been required. Marine consultant Mike Novak, who previously spent 10 years as vice president of marine operations at

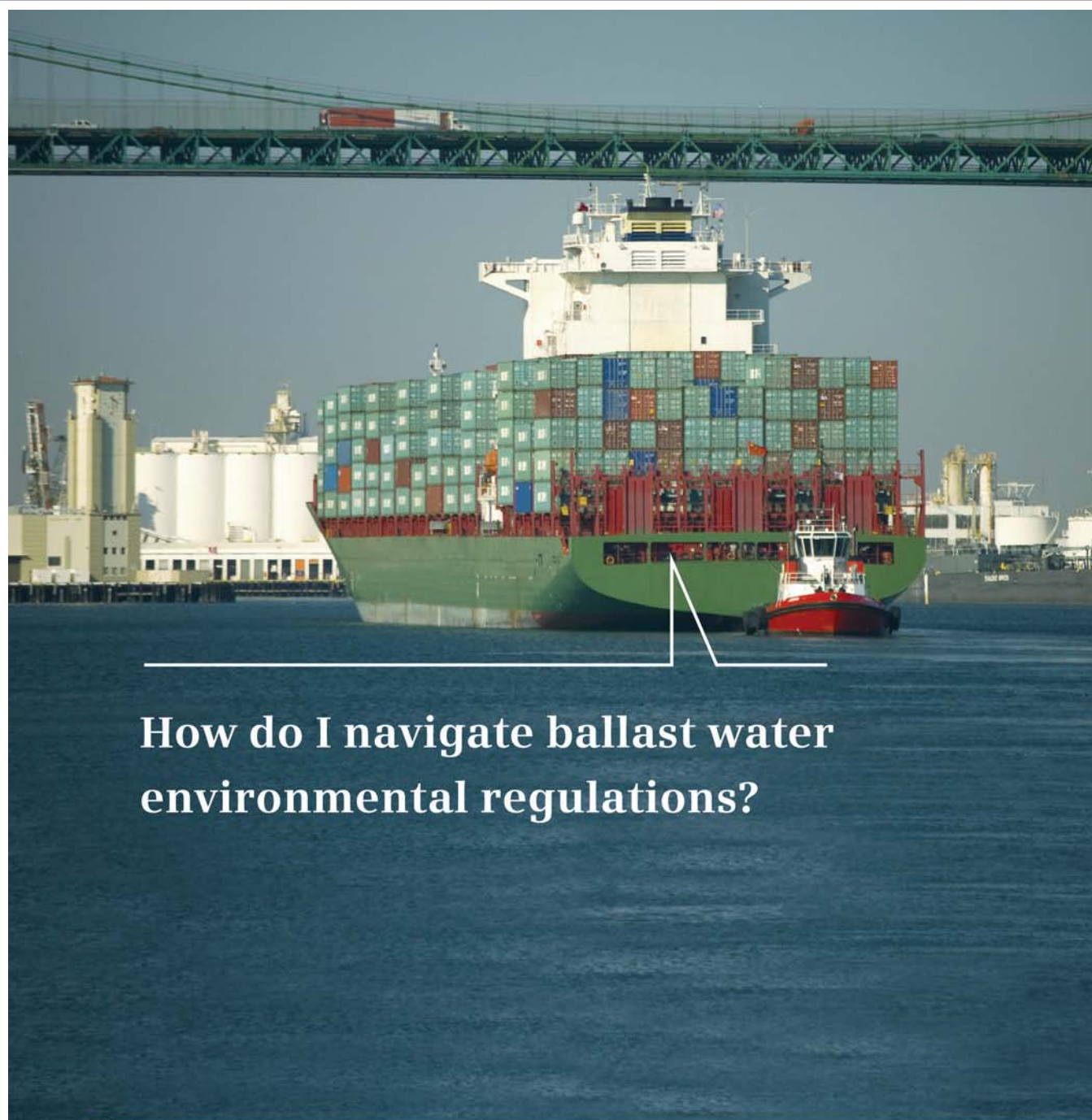
HAL, noted that he could clearly see that the required touch ups involved only 1% of the total surface. With all coating systems, a vessel's AHR (average hull roughness) will gradually increase due to the buildup of paint layers and the general deterioration of the paint system, resulting in increased fuel consumption.

Dalseide Shipping

Dalseide Shipping Services, developed a rust-removing system more than 30 years ago, machines that are based on a patented rotating chain link system that provides more than 200,000 blows per minute depending on the machines size. Rustibus machines have a capacity of ap-

proximately 200 sq. ft./hr. to 300 sq. ft./hr. Their latest machine is the electric hand tool, which is ideal for spot scaling and is several times faster than any known equipment on the market. This is a heavy-duty scaling machine for small horizontal and vertical areas.

www.rustibus.com



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Wärtsilä Exhaust Gas Scrubber Technology

The IMO's MARPOL regulations governing emissions of SO_x from the exhaust of marine engines and oil-fired boilers have created an urgent need to find an efficient means of compliance. Wärtsilä began developing its fresh water scrubber technology in 2005 and testing onboard a vessel began in 2008. The recently released results of these tests show the sulfur removing efficiency to be 100% under all operating conditions.

In 1997, the International Maritime Organization (IMO) adopted the MARPOL Annex VI Act, with ratification eventually being finalised in 2004. The revised MARPOL Annex VI entered into force 1

July 2010. The critical item within this Act is Regulation 14, which limits emissions of sulfur oxides in SO_x Emission Control Areas (SECAs) to a level that can be seen in **Figure 2** (IMO Sulphur limits for years 2008-2020 (% mass)).

Wärtsilä has worked on two fronts to enable ship owners to be compliant with these latest requirements. On the engine side the company has developed its dual-fuel technology to facilitate the use of gas and low-sulfur fuel wherever feasible. At the same time, development work has been focused on producing a competitive and effective fresh water scrubbing plant that could be installed, both in newbuilds and as a retrofit unit, for all marine applications.

Pilot project

Within the Finnish maritime cluster four companies, with Wärtsilä as the project leader, embarked five years ago on a program to develop a feasible marine scrubber. The project was seen as a challenging, cross-scientific R&D exercise that offered the parties involved opportunities to increase their knowledge in this field. It also opened possibilities for the companies to extend their co-opera-

tion with a number of research institutes and universities.

By autumn 2007, the project had reached the stage of being ready for a test installation. A tanker, the MT Suula, owned by the Neste Shipping division of the Finnish company, Neste Oil Oy, was made available, and the project-testing phase began in November 2008. The testing targets included the following: certification of the scrubber, exhaust gas cleaning performance measurements, analyses of the scrubber effluent and other liquids, testing of the effluent cleaning unit's operation and analyses of the sludge generated, measurements of the alkali and water consumed, scrubber noise attenuation, and exhaust gas plume observations. It was also necessary to validate the reliability of the scrubber under sea conditions. During the test period, which was completed in mid-2010, the Suula operated primarily in the Baltic Sea, but also visited many North Sea harbors. The testing did not interfere with or restrict in any way the normal everyday operations of the ship. In every respect, and in all areas of the targets established, the tests results were extremely positive. Most especially, the sulfur removal effi-

ciency was proven to be excellent and well within the IMO's most stringent limits. The measured sulfur dioxide removal efficiency was, in fact, 100% under all operating conditions, throughout the load range, and even when using high sulfur content fuel. Part of the overall testing procedure included a dynamic test to measure how well the scrubber works during engine power transients. This involved exposing the engine to artificially fast load variations in both directions. The engine load was increased from 200 kW to 440 kW, and decreased to zero, and at all times the sulfur dioxide concentration within the exhaust gas re-



Figure 1:
Exhaust gas scrubber onboard the MT "Suula".

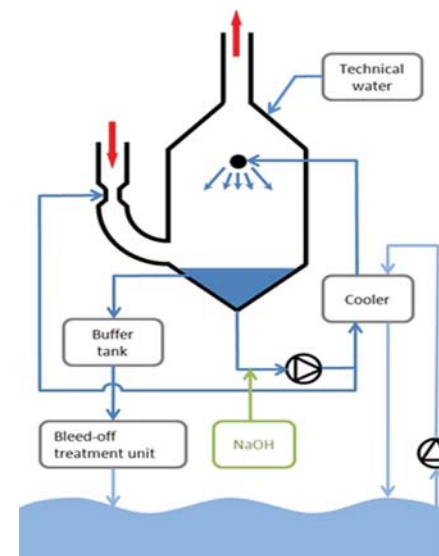





Figure 3:
Fresh water scrubber operational principle.



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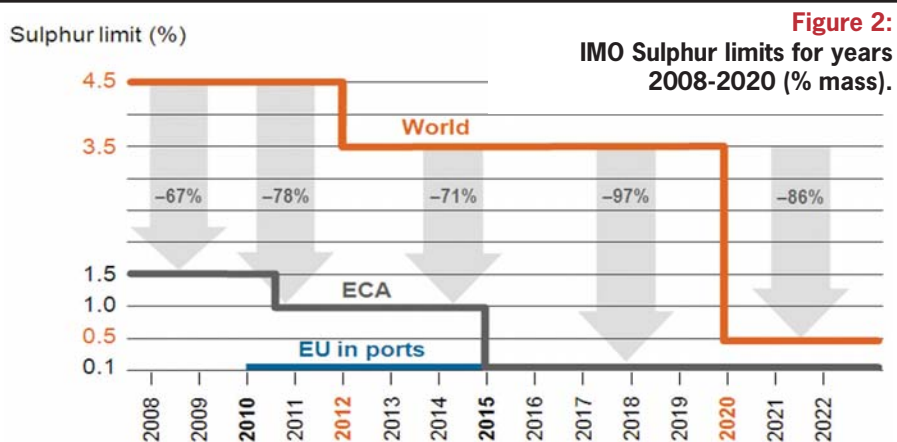
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Fuel type Not regulated = both HFO and distillate are permitted.
Exhaust gas cleaning Permitted alternative under Regulation 4 to achieve any regulated limit.
Particulate Matter (PM) No limit values.

mained virtually non-existent. The scrubber automation system was able to maintain stable parameters and 100% SOx reduction throughout all transients.

The system includes a bleed-off treatment unit that removes the accumulated impurities from the water used in the scrubbing process. The clean effluent from this unit is then discharged overboard. It was clearly necessary to carry out extensive water quality tests, and more than 70 samples were taken from the scrubbing water, effluent, and the technical water. Furthermore, these tests were carried out using fuel with various content levels of sulfur, ranging from 1.5% to 3.4%. Regardless of the fuel sulfur content, the reduction level of hydrocarbons C10-C40 and the PAH (Polycyclic Aromatic Hydrocarbons), was found to be almost 100%.

Thus, considering the effectiveness of both the emissions abatement treatment, and the cleansing of the discharge water, the tests demonstrated that the Wärtsilä SOx scrubber enables not only compliance with the IMOs MARPOL limits, but compliance by a very safe margin. As to the sludge generated in the scrubber process, it was found to be similar to other engine room sludge and can, therefore, be fed to the same tank. Based upon the test results, water reception facilities in Finland and Sweden have confirmed that sludge from the scrubber bleed-off treatment unit can be safely handled, and disposed of in ports in the same way as other ship engine room sludge. The other important goals of the tests were also successfully met. Noise levels were measured at different frequencies and found to be acceptable; dedicated testing of the exhaust gas plume was carried out and during all operating conditions, the plume was very good. Above all, the system performed very well.

Wärtsilä recently released a commercial version of this scrubber technology to the shipping market. Known as the Wärtsilä Exhaust Gas Scrubber the unit is designed to completely eliminate sul-

fur emissions and reduces particulate matter up to 60%. The engine feeds the exhaust gas to the SOx scrubber. The system is based on a closed-loop fresh water scrubber to which sodium hydroxide (NaOH) is added as a means of neutralizing the SOx emissions. Seawater is used for cooling. The small bleed-off extracted from the loop is cleaned, and thus all quality and monitoring requirements stipulated by the IMO are fulfilled. The cleaned effluents can be safely discharged overboard with no harmful impact to the environment whatsoever. Naturally, if zero discharge operation is necessary, the effluent can be led to a holding tank for later discharge. The scrubber unit consumes technical fresh water that evaporates into the atmosphere with the exhaust gas. This evaporation is minimized through the use of the scrubbing water cooler.

A major benefit is the fact that prior to the introduction of this scrubber technology, the only option was to use low-sulfur fuel. The price premium for such fuel is expected to rise as new sulfur limits are enforced, not only in SECA parts of the world but for global operation outside SECA. With effect from 2012, the global sulfur limit will be lowered to 3.5%, and from 2020 it will be further reduced to 0.5%. In Emission Control Areas, the limit is currently 1%, and this will be drastically reduced to a maximum of 0.1% in 2015. In EU ports, as from 1 January 2010, ships scheduled to be at berth for more than two hours are not allowed to use fuel containing more than 0.1% sulfur. This restriction applies for both diesel engines and oil-fired boilers. The Wärtsilä scrubber offers a very viable alternative to the use of such fuel. The Wärtsilä Exhaust Gas Scrubber enables cheaper heavy fuel oil (HFO) to be burned in all these areas as a low cost alternative to buying the increasingly expensive low sulfur fuel. The Return On Investment (ROI) is in the range of one to three years, and for larger installations, even less.

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VALVES FLANGES FITTINGS TUBING COUPLINGS EXPANSION JOINTS METALS

ECDIS: Countdown to 2012

While no one particularly likes a rules-mandated equipment upgrade, they are indeed a fact of life, particularly in the global marine market. When the IMO approved amendments to the International Convention for the Safety of Life at Sea (SOLAS) mandating the fitting of Electronic Chart Display Information System (ECDIS), it essentially means that all large passenger, tanker and cargo ships will be obliged to fit ECDIS on a rolling timetable that begins in July 2012.

While most of the marine electronics majors are ramping up to ensure full compliance, there are as many questions as answers in terms of availability of system and installation, as well as training and education.

Transas recently reported that the Transas Navi-Sailor is the first ECDIS in the market compatible with the new Admiralty Information Overlay, the overlay which includes all Temporary and Preliminary Notices to Mariners (T&P NMs) and provides navigationally significant information from UKHO's ENC validation program.

The overlay is displayed as a single layer on top of the basic ENC and it will be available within the standard Transas Admiralty Data Service (TADS) license, via the Transas Navi-Sailor ECDIS.

UKHO developed the new overlay to give seafarers an easy way to view the information that they need in addition to the standard chart, to navigate safely and compliantly.

The intent: shipping companies will be able to comply more easily with Port State Control (PSC) requirements by providing T&P NMs where they do not currently exist in ENC coverage today. It is also designed to help simplify their transition to digital navigation.

"We are using the Admiralty Information Overlay as an integral element of our ECDIS-based navigation within the Transas Navi-Sailor ECDIS," said Soren Andersen, Marine Superintendent, SQE at Nordic Tankers Marine A/S. "Used as

IMO's Mandatory Carriage Requirement for ECDIS

By mid-2018, every merchant vessel and passenger ship over 10,000 tons will need to meet IMO's mandatory carriage requirement for ECDIS. This indicates which ships, and when, will need to install a type-approved ECDIS, and use it as the primary means of navigation. Implementation of ECDIS carriage requirements follows a rolling timetable, shown here:

Ship type	Size	New ship*	Existing ship**
Passenger	500 gross tons	1 July 2012	No later than 1st survey after 1 July 2014
Tankers	3,000 gross tons	1 July 2012	No later than 1st survey after 1 July 2015
Dry cargo	50,000 gross tons	1 July 2013	No later than 1st survey after 1 July 2016
	20,000 gross tons	1 July 2013	No later than 1st survey after 1 July 2017
	10,000 gross tons	1 July 2013	No later than 1st survey after 1 July 2018
	3,000 gross tons	1 July 2014	Not required

* A new ship is defined as one in which the keel is laid on or after the cut-off date.
** Ships may be exempt from requirements if they will be taken permanently out of service within two years of the implementation date specified.

(Source: www.e-navigation.com, a website from Jeppesen on ECDIS news, technology and regulatory information)

a navigational and planning aid as part of the company's wider move to adopt ECDIS navigation, the Overlay is making passage planning and the task of keeping track of the latest ENC updates much easier. It will also make it easier for our crews to demonstrate compliance during PSC inspections. Overall, it has proved to be another important element in our efforts to continually improve the safety and efficiency of navigation."

"The marine environment is constantly changing," said Michael Causer, Deputy Chief Executive with responsibility for developing new Admiralty products and services. "The Admiralty Information Overlay is needed because many nations don't yet include important temporary or preliminary notifications of those changes in their weekly updates, and even when they are included, they can be difficult to identify within the ENC. The Admiralty Information Overlay provides this information on top of the ENC and displays it clearly and consistently so the mariner can instantly see the impact of changes on a route and can take appropriate action."

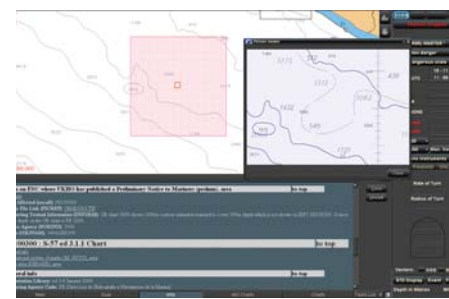
ECDIS Ltd. has taken delivery of six ECPINS terminals, which have been in-

stalled in their e-Navigation Center. The WECDIS systems are made by Offshore Systems Ltd. (OSL), an OSI Geospatial Company, and will be used to deliver both generic IMO 1.27 ECDIS training and ECDIS Ltd's 5 day WECDIS course. "The OSL ECPINS product is regarded by many as being at the forefront of commercial and military ECDIS performance," said Mark Broster, Managing Director of ECDIS Ltd.

"The ECPINS system provides a comprehensive and capable navigation aid that can really add safety to a vessel if used correctly. We are therefore very excited to be able to showcase their product in our e-Navigation center in Southampton. It will not sit idle however, as we will utilise the systems to deliver generic IMO 1.27 model ECDIS and bespoke WECDIS courses to a growing military market, therefore adding another string to our bow."

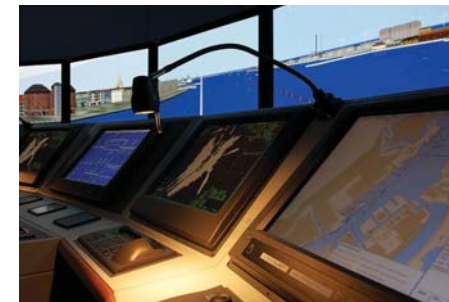
Earlier this year **Furuno** launched a new training concept and simulator solution called NavSkills, touted by the company as an expressway for ship owners and training centers to be capable of providing DNV SeaSkill-certified ECDIS and IBS/INS training courses to the nav-

Transas Navi-Sailor is the first ECDIS in the market compatible with the new Admiralty Information Overlay.



(Photo: Transas)

Furuno recently launched a new training concept and simulator solution called NavSkills.



(Photo: Furuno)

igators. The NavSkills solution consists of a full mission training simulator with ECDIS planning stations. The training package includes DNV SeaSkill-certified ECDIS training in accordance with IMO Model Course 1.27, DNV SeaSkill-certified IBS/INS Operator training course in compliance with IMO Model Course 1.32, Bridge/Engine Resource Management training and Bridge Team Management training. "Since the past 10-15 years INS and ECDIS have been introduced onboard the merchant fleet and today we find INS and ECDIS on all types of vessels.

Also, and the equipment have become a part of the daily work for many navigators. During this period the technology and sophistication of INS and ECDIS has developed rapidly and has put a new challenge to the navigators who are used to operate a conventional navigation system and using paper charts. A short familiarization training course provided by the maker might not be enough, unless the navigators are experienced ECDIS and INS operators. Hence, to ensure proper and qualitative training, and thereby contributing to less accidents and casualties, Furuno has taken on the challenge to share our experience and knowledge, both as a manufacturer and a training provider, with the maritime training centers and ship owners enabling them to conduct sufficient training," Mads Friis Sorensen said.

Todd Chart Agency, a Northern Ireland-based marine navigation data and service provider, launched a new brand identity and commercial website as it gets set to guide its customers through the ECDIS revolution. Launched under the banner 'Intelligent Navigation,' the

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ECDIS Ltd. have taken delivery of six ECPINS terminals, which have been installed in its e-Navigation Center.



(Photo: ECDIS Ltd.)

Todd Chart Agency launched a new brand identity and commercial website.



(Source: www.intelligentnavigation.com)

agency formerly known as Todd Chart Agency will now trade as 'Todd.'

"At Todd, we combine our industry experience with the supply of leading chart management techniques," said Capt William Todd, Todd's founder and owner. "We believe in working closely and collaboratively with each customer to ensure that we can provide the most relevant products for their needs from our extensive range of electronic charts, digital publications, navigational data and hardware."

Todd's product range includes ECDIS hardware from a number of manufacturers and a global portfolio of electronic charts and digital publications including the full range of Admiralty digital and paper products. Earlier this year, Todd signed a partnership agreement with ECDIS Ltd., one of the industry's largest specialist ECDIS Training outfits to provide IMO-approved ECDIS Training courses to all its' customers, either at ECDIS Ltd's purpose-built training facility in Southampton, or at a number of sites around the world. Todd offers a full, global, IMO-compliant range of digital products and systems, including e-Navigator, UKHO's newest product - one which looks set to change the face of navigation. Todd was one of the first UKHO distributors to trial e-Navigator with one of its customers: a large dry cargo transporter.

Kelvin Hughes used SMM 2010 as a backdrop for the launch of its new ECDIS service: ECDISPLUS, which was developed by navigation specialists to provide a solid solution to the confusion surrounding ECDIS and enables customers to put together a bespoke package with the added benefit of world-class

support, training and expertise. ECDIS-PLUS is flexible and designed to meet the requirements of shipowners and operators both for paperless operations and for those operating with paper charts and migrating to ECDIS with a paper back-up. At the launch of ECDISPLUS, Kelvin

Hughes' own navigational data specialists revealed the full ECDISPLUS package, which includes ECDIS hardware supply and installation, initial official ENC chart data supply, chart licence management and ChartCo updates.

They also revealed the power behind

the new service: the ability to enable each customer to tailor ECDISPLUS to their individual vessel or fleet requirements – from the supply of world-class ECDIS hardware through to the complete ECDIS data package including ENCs and voyage management software.



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Focus on Partnerships; Support to Warfighters

Science & Technology: A Priority for the Navy

By Edward Lundquist

"A U.S. Navy Sailor should never be in a fair fight."***Chief of Naval Operations Adm. Gary Roughead***

Science and technology are America's secret weapon, according to Navy leaders presenting at the 2010 Office of Naval Research (ONR) Naval Science and Technology Partnership Conference Nov. 8-10 at Crystal City, Va. "A U.S. Navy Sailor should never be in a fair fight," said Chief of Naval Operations Adm. Gary Roughead.

The Navy's top officer said that technology and innovation will ensure that Sailors will have the upper hand in a battle. "It's important that we have a dialogue with those involved in innovation and vice versa. That dialogue must take place at the tactical level with our Sailors on the deckplates."

More than 2,000 leaders from industry, military and academia attended the conference, which was sponsored by ONR with support from the American Society of Naval Engineers (ASNE).

"Secretary Ray Mabus and I are honored to lead a Navy and Marine Corps that is without peer in the world," said Under Secretary of the Navy Robert Work. "Since 1946 in the Office of Naval Research and the broader Science and Technology Committee has been the incubator for discovery, research and innovation that has helped to keep our Sailors and Marines at the forefront of science, technology and warfighting capabilities, which keep them at the top of their

game." S&T is more than a Navy priority. It's critical for every goal we face as a nation, according to Thomas Kalil, deputy director for policy with the White House Office of Science and Technology Policy. "Even in the tight budget, we made investments in research and development. The Department of Defense and the Navy have a long and distinguished record of making investments in science and technology, which have a huge impact on national security and the economy."

Key topics addressed at the 2010 S&T Partnership Conference were direct energy, hypervelocity, naval warfighter performance, information dominance, total ownership cost reduction, expeditionary and irregular warfare and power and energy were some of the topics discussed at the conference. And the key to success in these critical mission areas is partnerships.

Rear Adm. Nevin P. Carr Jr., Chief of Naval Research, said ONR tries to find new technology throughout the world. ONR's strategic plan is based on partnerships around the world.

"We execute across academia," said Carr. "We reach out to 70 countries, all

50 states and a thousand different touch points in academia and industry."

"Partnerships will be the way that disruptive technologies will be developed," Work said.

Work addressed the value of having the best technologies, but cautioned that capability needs to be balanced with affordability. "When we can build a \$15 million interceptor to shoot down a \$5 million ICBM, we're on the wrong end of the equation," he said.

Work also talked about the emphasis on subjects such as "greening the fleet," and developing new energy sources. But, he said, these are not just clichés. "It's all about warfighting."

Carr talked about the warfighting potential of the electric ship, "where electricity becomes a commodity." He mentioned the flexibility of diverting power for weapons, but, he asked "how do you store it?"

Carr also discussed hypersonics, directed energy weapons and electromagnetic railguns, which allow for a "deepening of the magazines." He explained how the inert railgun rounds will increase the depth of fire while at the same time be safer to store aboard ship

because they have no propellant or explosive charge. Directed energy weapons can be fired again and again, as long as power is available.

The attendees found the conference both a useful source of information and connecting with potential partners. "It was the most substantive and well organized naval conference I have been to all year" said Steve Benson, manager for strategic planning for defense and security systems for Sensis.

According to Lockheed Martin's Jeff Niner, the conference was an important recurring event for industry as it provides a good clear look into ONR. "This conference is a way for ONR to open up the aperture of their lens to the greater industry community, let us know what they need and also hear what is going on 'out there' beyond the walls of the Ballston offices. It truly is a win-win."

In addition to being a forum for learning, many participants found it useful to display their capabilities.

"It was important that the Marine Corps Warfighting Laboratory (MCWL) be represented at ONR/ASNE's S&T Conference and that we were able to reach out to so many interested parties and decision-makers with information regarding our work in the field of ground robotics," said Fred Lash, a BAE Systems employee who supports the Marine Corps Warfight-



Chief of Naval Operations (CNO) Adm. Gary Roughead.



Rear Adm. Nevin Carr, Chief of Naval Research.



Undersecretary of the Navy Robert O. Work presents the keynote address.



Assistant Secretary of the Navy for Research, Development and Acquisition Sean Stakley

(ALL Photos: U.S. Navy photo by John F. Williams/Released)

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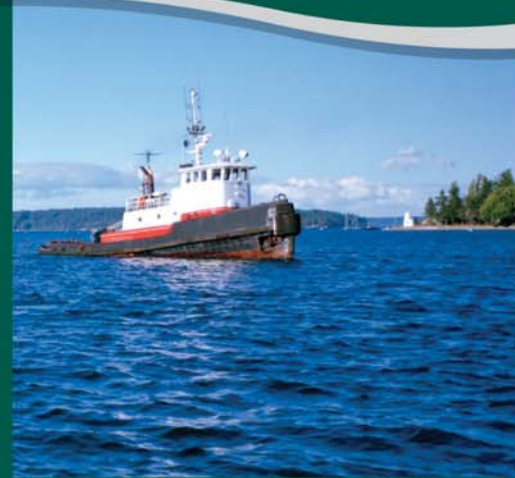
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ing Laboratory. "As a result of those three days, a lot more government and industry people are aware of what we do at MCWL."

"The ONR conference provided a valuable opportunity to hear from senior Navy leadership, to gain greater awareness of activities in the Navy's Science and Technology realm and for our Future Readiness Cross-Functional Team (FR CFT) to better communicate with other Navy partners," said Gary Shrout, public affairs officer and strategic communications coordinator for the Naval Aviation Enterprise. "All this will help to ensure that the Naval Aviation Enterprise continues to assist Naval Aviation leadership in providing the right amount of future combat readiness in the most efficient manner possible."

Austin O'Toole of Boeing said that ONR took the conference to the next level by introducing the warfighter perspective into the dialogue. "This allowed greater insight into ONR's thinking as they develop/focus on the Navy's Future Naval Capabilities and requirements. I also thought the "pitch-the-principal" sessions were innovative and a great foundation to build lasting partnerships/relationships with the Navy's S&T community."

"Our Navy and Marine Corps is the most capable fighting force in the world," said Sean Stackley, assistant secretary of the Navy, research, development and acquisition. "Warfighting superiority requires that we maintain that edge, not only to pace the threat, but to stay on top. That means maintaining our science and

technology edge."

For the Navy's S&T enterprise to be effective, all the stakeholders need to understand highly unique requirements and the ability to target investments to support warfighters. "It's their job to protect the nation," said Stackley. "It's our job to protect them."

To design and build a winning Navy and Marine Corps for the future will require the best technologies developed by government, academia and industry that can be applied practically at a price that is affordable, and brought to reality at a pace that can serve the warfighters both now and in the future.

"Since it takes a generation to build a fleet, we must recognize the importance of being able to introduce new technologies by way of evolution and integration

into the existing fleet and naval air force," Stackley said

"Engineering is the platform that takes technology and puts it into practical application," said Dennis Kruse, ASNE executive director. "This conference lets the scientists know what technologies are really needed by the Navy and Marine Corps. ASNE provides the impartial forum to have that dialog."

Kathleen Hinton, president of ASNE, agreed. "Part of our mission is to promote naval engineering and the exchange of technical information," she said "ONR addresses the entire spectrum of naval engineering. For us it is a natural fit."

Captain Edward Lundquist, US Navy (Ret.), is a senior science writer for MCR Federal, LLC.



FOR SALE: Aircraft Carrier ... Cheap

HMS Invincible is for sale by tender

The aircraft carrier HMS Invincible is being auctioned online as part of a multi-million-pound sale of UK military hardware. The sale is designed to reduce a £36b 'hole' in the MoD's finances. Featured on the MoD's Disposal Services Authority website — <http://www.edisposals.com> — are full details on the ship, which was laid down in 1973 at Vickers Shipbuilding, Barrow-in-Furness. The price is cheap, for an aircraft carrier that is, as potential buyers will need at least £5million to become the proud owners of the 30-year-old Royal Navy warship.

HMS Invincible was completed in 1980 and is currently stable for tow, subject to buyer confirmation.

Displacement17000 Tonnes
Estimated metal weight10000 Tonnes
Estimated metal %95% mild steel
Length, OA210m, W/L 193m
Draft - Fwd5.2m, Mid 5.8m, Aft 5.8m
Beam - Extreme 35m, Ex-walkways 32m, W/L 27.53m
Height46m (estimated at current draft)
EnginesRemoved
Generators and Pumps ...Generally unserviceable
.....or not working



USN Demos Alternative Fuels for Shipboard Use

The U.S. Navy conducted a full power demonstration of a Riverine Command Boat (experimental) (RCB-X) powered by alternative fuel, Oct. 22, at Naval Station Norfolk, Va. Testing and evaluation of alternative fuels from the 49-ft. RCB-X boat supports the Secretary of the Navy's efforts to reduce the fleet's reliance on fossil fuels and is part of a series of progressively complex tests and evaluations scheduled through 2012. These exhibitions will culminate in 2012 with a Green Strike Group of U.S. Navy ships operating locally and by 2016 deploying a Great Green Fleet powered entirely by alternative fuels.

"Going green is about combat capability and assuring Navy's mobility. It is not just about natural security; it also strengthens national security. By having reliable and abundant alternate sources of

energy, we will no longer be held hostage by any one source of energy, such as petroleum," said Rear Admiral Philip Cullom, Director of the Chief of Naval Operations Energy and Environmental Readiness Division (OPNAV N45), which leads the Navy's Task Force Energy.

"First and foremost, energy conservation extends tactical range of our forces while also preserving precious resources. Our goal, as a Navy, is to be an "early adopter" of new technologies that enhance national security in an environmentally sustainable way," said Cullom.

The fuel, a "drop in replacement" to standard shipboard fuel, is 50 percent algae-based and 50 percent NATO F-76 fuel, which forms a 50/50 blend of hydro-processed renewable diesel, also known in industry as "HR-D." Additionally,

HR-D, as opposed to biofuel, does not include water which is incompatible for shipboard fuel systems and does not have the limited serviceable life (typically six months) of biofuels. A blended hydro-processed renewable diesel fuel ensures that the integrity of the fuel system is maintained. The Navy is incorporating a systematic approach of evaluating systems, protocols and standard operating procedures. The testing and certification represents a cost-effective approach for the entire engine inventory.

The testing and evaluation is being lead by Naval Sea Systems Command's Advanced Fuels program office.

For more news about Navy energy initiatives and priorities visit

<http://greenfleet.dodlive.mil/>
or
www.navy.mil/local/nee/

New IMO Circular

Troubleshooting OWS Failures Underway

Contaminants in bilge water are the primary cause of oily water system (OWS) failures. Common substances like soot or solvents can cause OWS malfunctions that are expensive, disruptive, and infuriating to crew and owners alike. Too often OWS malfunctions also lead to illegal discharges. Contaminants in bilge water are a problem that reaches across vessel types, age, and geography. To address this problem, the International Maritime Organization (IMO) recently published an innovative guide, IMO MEPC.1 Circular 677, Guide to Diagnosing Contaminants in Oily Bilge Water to Maintain, Operate and Troubleshoot Bilge Water Treatment Systems." The Guide provides a basic understanding how OWS systems work, and how contaminants and sources of those contaminants can enter the bilge. The Guide then uses a decision tree to help identify contaminants that can cause OWS malfunctions.

A key feature of this approach is that troubleshooting can be done underway. This avoids time consuming and costly port calls, service calls, and excessive bilge water discharge fees. It can also reduce crew frustration, a leading cause of illegal oily waste discharges. The Guide further identifies detailed options for addressing common contaminants and for avoiding reoccurrences of OWS failure.

Understanding Limitations of an OWS System

OWS systems are designed to remove oil from bilge water so that it can be legally discharged overboard. A typical OWS may include: a holding tank(s), a pretreatment settling tank, a particle filter, an OWS, post-OWS treatment and/or polishing units, and a bilge alarm — the oil content monitor (OCM). The OCM is critical to the functioning of an OWS system. It controls the discharge of processed bilge water from the OWS, ensuring that discharges do not exceed the legal limit of 15 parts per million of oil.

Oil content meters identify concentrations of oil by detecting oil "particles" in treated bilge water. Unfortunately, many OWS systems are unable to handle bilge water contaminants. In addition, design limitations of the OCM result in it reading contaminant particles in the processed water as oil particles. Older IMO standard MEPC 60(33) oil content monitors are poor at detecting oil emulsions.

Newer MEPC 107(49) meters are more finely tuned to detect emulsions and iron oxide particles. However, they are still limited in their ability to discriminate some particles and non-oily emulsions from oil.

When common particulates such as soot, iron oxide, or biological detritus are present, OCMs often read those particles as oil. This prevents discharge of the processed water and sends the OWS into recycle mode. Unless the contaminant is identified and addressed, the OWS may stay in recycle mode indefinitely. This can lead to tens of thousands of dollars in pump-out charges, disrupted schedules, and frustrated crews. To avoid this situation, it is es-

sential to know what contaminants, particulates, and emulsion forming chemicals are in the bilge.

Circular 677 provides a foundation for identifying contaminants and improving bilge water management. It has several parts. It outlines functional elements of an OWS system. It provides a central tool for diagnosing OWS failures.

The decision tree is comprised of a series of Q&As. These allow shipboard engineers to troubleshoot problems using "if/then" statements. Each branch of the decision tree is a logic sequence that is based on symptoms of an OWS system failure. Following each branch of the decision tree is a series of prescribed chemical and/or physical tests to determine the possible contaminant. These tests can be performed by ships' crew while underway. The decision tree is annotated and directs the engineer to detailed instructions and recommendations for corrective or remedial actions to address the contamination. For example, if the engineer is directed to perform a specific test and observes effervescence, the contaminant is iron oxide. The decision tree then directs the engineer to recommended remedial or corrective measures for addressing iron oxide in the bilge water and can result in a corrected reading by the OCM. If the processed water then shows less than 15ppm of oil, the processed water can be legally discharged. The Guide addresses both acute and chronic conditions. This can allow the engineer to identify sources of the iron oxide and take appropriate action to remove or reduce the source.

The decision tree is supported and cross-referenced to six Annexes and Appendices, which describe the tests, and findings, and prescribes and explains remedial or corrective actions.

The Guide was developed by the Society of Naval Architects and Marine Engineers Environmental Engineering Committee. As always, the Guide can only be effective when combined with personnel awareness, adequate funding, attention to manufacturer's maintenance and operating procedures, and careful monitoring and oversight.

Circular 677 is an advance in shipboard oil waste management. The lack of understanding of the role contaminants in bilge water can play in OWS failures is an obstacle in the efficient operation and troubleshooting of bilge water treatment systems. It is an obstacle with expensive, disruptive, and legal consequences. IMO MEPC.1/Circular 677 is a major advance in understanding the roles contaminants in OWS failures.

It provides engineers with the foundation for developing bilge water contaminant identification and troubleshooting skills. It provides an innovative tool — a decision tree — and extensive technical options for understanding, troubleshooting, and avoiding OWS failures.

A copy of IMO MEPC.1/Circular 677, more information on using the Circular, and tools to assist in implementing Circular 677, can be found at

www.circ677.com



About the Author

Bruce A. Russell is Managing Director, Circular 677 Diagnostics, and Chair, SNAME Environmental Engineering Committee. He can be reached at: Tel: 301-656-1512, or Email: brussell@circ677.com



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Real-World Engineering

Human Factor and the RB-M

By Christopher Parker, BMT Designers & Planners

The United States Coast Guard's (USCG) RB-M (Response Boat — Medium) is being deployed to not only replace the ageing USCG 41-ft. Utility Boat (UTB) but also to bring the increased capability necessary to meet the expanding homeland security requirements for the USCG. A key issue which was identified in regard to operational suitability of the vessel was HFE (Human Factors Engineering) which includes operability, ergonomics, vibration and sea keeping. Although initial HFE assessments were conducted, the USCG Office for Human Systems Integration for Acquisitions needed the help of external experts who could perform the data collection and analysis for verification. And so they turned to BMT Designers & Planners.

Christopher Parker, Senior Human Factors Engineer at BMT Designers & Planners explains how his team worked closely with the USCG to ensure that the design of the RB-M met the requirements set out within the original plan.

The purpose of USCG's acquisition of the RB-M is to replace an ageing utility boat that was highly utilised and being tasked for missions outside the scope of its original design. USCG's role has evolved over time especially since 9/11 and its wide portfolio of missions includes tasks as diverse as environmental protection, homeland security requirements and search and rescue. USCG has responded appropriately to the new challenges, but meeting the new requirements is putting more pressure on an ageing fleet. As a result, USCG's new assets need to be flexible enough to support a wider range of different activities. Consequently, a key element of the new acquisition is to incorporate support for as many activities and mission areas as possible.

In order to ensure that the new design delivered the right capability without compromising the crew's safety or ability to operate efficiently, the USCG Office of Boat Forces (CG-731) identified the need for an HFE Assessment as part of the Operational Test and Evaluation (OT&E) process and engaged BMT Designers & Planners to conduct it.

HFE is a relatively new discipline but

one that can make an enormous impact on the likelihood, and severity, of accidents at sea. HFE is tied to the systems engineering process whereby research on human beings' capabilities and limita-



BMT Designers & Planners worked closely with the United States Coast Guard to ensure that the design of its new RB-M met the requirements set out within the original plan.

tions, psychological, physiological and social, is applied to traditional engineering design in order to better match the interface between the individual user and the systems that they interact with. The ultimate goal of HFE is to improve human performance and to get the most out of the end user while reducing the opportunities for error. Notably, as the likelihood or resulting consequences of human error is lessened, the safety risk also diminishes. These are two attributes which are of significant interest to USCG whose concern for the users that man their vessels is top priority.

The Human Factors assessment was carried out in a very short timeframe with only six weeks to plan the assessment, collect data and then report on the results. The goal of the assessment was to support USCG during part of its operational test and evaluation (OT&E) plan where there was a requirement to determine

whether or not the design of the asset supported the crew's required tasks and activities in a safe and efficient manner. The first task for BMT Designers & Planners was to quantify USCG's HFE goals

the UTB met a range of standards including human factors design standards and best practice in a static state. Such an examination included measuring the console height; the required reach of the coxswain, hand rail heights, access and machinery spaces etc. in order to provide a baseline measurement. The second stage involved carrying out a usability assessment which provided data in more of a dynamic environment. This involved taking a team of qualified human factors engineers to sea on a UTB so they could observe the crew undertaking either actual or simulated missions such as man overboard, towing or anchoring. This allowed the HFE team to focus on bottlenecks, potential hazards or potential for errors. Only when the design is put into a dynamic state where people are interacting with technology or people are interacting with other users in a pressurised situation, is it possible to really highlight potential areas of interest in terms of performance.

Having undertaken the baseline assessment on the UTB, the same process was undertaken on the RB-M. Similar heuristic and dynamic assessments were carried out to allow an informed survey given the assets' design and ability to support missions between the two vessels.

Armed with data, notes, photographs and video, BMT Designers & Planners distilled the data that had been gathered and compiled a matrix that could be used not only to identify the areas for improvement, but also to document the accomplishments, and areas where the application of good practice should be applauded. BMT Designers & Planners' report documented all the observations made by the HFE team to ensure that the intelligence was passed on to USCG for future programmes. This included reference to types of equipment, design standards, or operation requirements for the asset, using pictures where it was appropriate.

The report also included a risk analysis based on US Department of Defense MIL-STD-882 which categorised the areas for improvement in terms of prioritisation within those key areas. Overall, the HFE confirmed that the design of the RB-M was a success in its ability to sup-

ported the crew's required tasks and activities in a safe and efficient manner. The methodology that BMT Designers & Planners proposed for collecting the appropriate data which would then be analysed to make a determination was firstly to become familiar with the RB-M and secondly, to become familiar with the UTB that it was replacing. Understanding the 41 foot UTB gave a baseline for context in which the RB-M could be assessed. This was addressed as a two stage process, the first of which was a heuristic assessment, reviewing the vessel in a static state. This involved examining how

About the Author



Christopher Parker, Senior Human Factors Engineer at BMT Designers & Planners

port the users, and as an aside, a vast improvement over the UTB. The acquisition process executed by USCG was a hugely successful one that ensured user input could be addressed throughout the project. The results reported on the many accomplishments embodied in RB-M including improved habitability and protection from environmental conditions within the asset. Not only was it more comfortable, but the layout enhanced many attributes which would positively affect both the quality of life and quality of work.

In the maritime environment, increasingly complex technology is proliferating and has started to challenge the capabilities of the end user. As a result the interface between the end user and the system has become critical. It's vital that the interface is optimised and that expectations about how a system works and will behave absolutely matches the mental model, or expectations, of the individual. In the case of the RB-M only minor HFE-related issues were highlighted such as labelling and the need for informative alarms. There were some low scale consistency issues identified concerning equipment consoles but arguably this is a typically normal challenge when you have lots of different vendor equipment integrating in one system. On the whole, what the HFE team found were low scale risks which were easily rectified - again testament to the USCG's excellent acquisition procedure.

In addition to analysing the data, BMT Designers & Planners also provided the USCG with mitigation strategies. For example, the HFE team identified that while the dramatically increased speed of the RB-M ensured that the vessel could cover a wider space and arrive at a scene twice as fast as previously experienced, speed needs to be given due respect, as with any high speed craft. Additional training and awareness to ensure crew understood the implications and dangers of this greater speed capability was proposed.

The RB-M has been very well received in regards to the 39 already delivered and in service and the contractor which was building the vessels has been awarded contracts for an additional 30, with the USCG long term goal being to have a fleet of 180 by 2015. The next tranche of RB-Ms will include design changes identified by BMT Designers & Planners' HFE work. Some of these changes had already been identified prior to the HFE assessment but rather than detracting from the HFE approach this helps validate the HFE methodology that was utilised.

The USCG's engagement with the HFE element of the project was critical to its success as it gave BMT Designers & Planners access to the assets and individuals required to complete the project in the tight timeframe specified. The two pronged HFE approach of reviewing heuristic and dynamic usability covered a wide spectrum of issues, both the positive aspects and areas of improvement. This methodology provided USCG with the data required to make an informed decision, ultimately with the conclusion that yes in fact the RB-M does perform, and does support the user's ability to conduct the varied missions required to be carried out by USCG, safely.



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AutroSafe4



The next generation of AutroSafe, the flagship fire detection system from Autronica Fire and Security was launched in September. AutroNet is an Ethernet-based panel network that connects AutroSafe 4 panels through a dual-path, high-speed (100Mbps) redundant system, for performance in line with current regulations. It safeguards communication between panels even if a line fault (break, switch port fault etc.) is present. AutroNet expands the reach of the AutroSafe system even further so a single AutroSafe 4 network may include up to:

- 64 fire alarm panels
- 6 detector loops per panel
- 15 loop units connected to one power loop
- 5 event log with up to 10,000 events

New AutroKeeper smart relay units also make redundant control of the loop possible, which is particularly important; should the primary loop controlling panel fail or misbehave, the secondary backup panel will take control of the loop.

AutroSafe 4 is managed through a single point of operation for download of configuration data or program upgrades.

www.autronicafire.com

Mobilarm VHF

Mobilarm has completed the delivery of its V200 VHF Locator Beacons to the U.S. Navy for sea trials and evaluation as part of a Sole Source contract awarded to the company by the United States Naval Sea Systems Command (NAVSEA). The V200 has been specifically developed by Mobilarm for US Navy submariners for escape and abandonment and is expected to lead to the product being recommended as a standard for submarine escape systems across all NATO submarine defence forces.



www.mobilarm.com

SMD Rotary Sensor

Piher International Corporation announced the immediately availability of the non-contacting MTS 360 SMD Rotary Position Sensor. The MTS combines a through-shaft design with 360 degree absolute position feedback in an ultra miniature size. The result is the smallest fully featured rotary sensor on the market with reliability up to 25 million cycles. With its tiny size of only 6mm x 17mm x 18mm (HxWxL), engineers can now integrate a fully featured rotary sensor directly on their PCB without the packaging issues that typically accompany encoders or other absolute position devices.



www.piher.net

Lifeboat Training Center

Survival Craft Inspectorate Ltd. (Survival Craft) has collaborated with Australia's Industrial Foundation for Accident Prevention (IFAP) to establish the new facility in Fremantle, which was formally opened by Western Australia premier Colin Barnett. The center a 50/50 venture between Survival Craft and IFAP and is located within an extension to IFAP's Offshore and Maritime Training Center adjacent to the Port of Fremantle and with direct access into Rous Head Harbor. It already has OPITO approval, with STCW approvals in the pipeline, and is filling a significant gap in the international training market.

<http://survivalcraft.com>
<http://www.ifap.asn.au>

New Safety Tools Catalog

CS Unitec's new full-color 88-page Safety Tools catalog features a full line of hand and power tools for Ex zones and hazardous locations. Appropriate applications include oil drilling platforms, petrochemical plants, oil refineries, natural gas installations, ammunition plants and other industries where specialty safety tools are required. The company's line of non-sparking hand tools includes over 3000 individual tools manufactured from special copper beryllium and aluminum bronze alloys that are certified for safe use in hazardous areas.



Email: info@csunitec.com

Lifeboat Survey

Internet maritime safety resource Maritime Accident Casebook, MAC, launched the first of a series of surveys into lifeboat safety. The survey, which is expected to last six months is aimed at stakeholders through the maritime and offshore industries, including seafarers and rig workers, shipowners, offshore operators, LSA manufacturers and providers as well as casualty investigators. The first survey can be accessed from the Maritime Accident Casebook website or directly on the Survey Monkey website with is hosting the first survey at <http://bit.ly/9O8lxT>.

SafeLink R10 Survivor Recovery System

McMurdo said that emergency beacon brand Kannad Marine offers a new marine safety products: the SafeLink R10 Survivor Recovery System (SRS), a personal AIS (Automatic Identification System) device for Man Overboard recovery. It is lightweight, compact, and designed for attachment to a life-jacket and intended for carriage by all crew members. The SafeLink R10 SRS is specifically designed as a personal search and rescue locating device, to enable those on board a vessel with an AIS chart plotter to efficiently find and retrieve a missing crew member.



Intellian v60G Marine VSAT Antenna

Intellian added to its range of VSAT communications antennas, the v60G. Designed for smaller commercial and oil and gas vessels, or for use in space-constrained installations, the v60G is designed to provided exceptional performance, enhanced remote monitoring and control, reduced cabling, and unlimited azimuth. The three-axis v60G has unlimited azimuth, eliminating cable wrap and the lengthy loss of signal connection as the system unwinds. It is ideal for mission critical operations, such as surveillance or vessel monitoring, that require uninterrupted connectivity, or in Voice over Internet Protocol (VOIP) communication.

www.intelliantech.com

Sea Marshall AU9

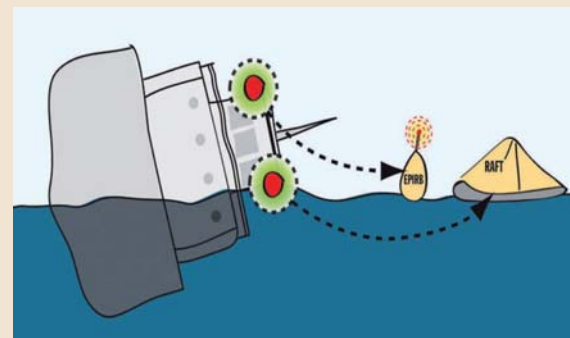
Marine Rescue Technologies released Sea Marshall AU9 series of alerts for dive industry, rigs, supply vessels and workboats. The Sea Marshall Maritime Survivor Locating Devices (MSLD) is a Man-Over-Board system comprised of an Alerting Unit (AU) or Personal Locator Beacon (PLB), worn by each crewmember, and a Base Unit receiver/locator unit installed on the vessel. The 121.5MHz personal locator beacon device combined with survival flotation aid or protective garment is now standard issue for a growing number of commercial operators.



Email: mritchie@seamarshall-us.com

Liferaft, EPIRB Release

With new technology from Sweden's CM Hammar, liferafts and EPIRBs can be released and float freely already when a ship or vessel is in listing position. With current release systems, safety equipment is released first when it reaches a depth of 1.5 to 4m. When a ship or a vessel capsizes without sinking, there is a risk that liferafts and EPIRBs are trapped under the craft, or never released at all. With List Angle Detection (LAD), the new technology introduced by CM Hammar, liferafts and EPIRBs can be automatically released at a specified degree of list when a vessel capsizes. The released safety units reach the surface before the ship flips around, significantly reducing the risk for it to be trapped or entangled in constructions on deck. The LAD consists of a control box with two activating outputs for Hammar H20 ERU's. The control box has an integrated inclination sensor designed to release the ERU's automatically in case the vessel capsizes.



www.cmhammar.com

Shaw Named Hornblower COO

Hornblower Cruises & Events has appointed Bob Shaw, a senior executive with more than three decades of operations experience, to the position of chief operating officer. In his new role, Shaw will be responsible for day-to-day management of all Hornblower companies, including charter yacht and public dining operations and two National Park Service concession contracts.

McDermott Names Houser SVP Ops

McDermott International, Inc. said that Dan Houser was appointed to Senior Vice President, Operations, responsible for leading the Atlantic region and Global Marine organization at McDermott, which includes setting the strategic direction, as well as business acquisition and execution for these groups. In addition, he will be responsible for expanding the company's activities for the region into Brazil, West Africa and the North Sea.

Quarders Joins Intellian

Intellian selected David M. Quarders as its new Director of VSAT Sales for the Americas. Quarders has more than 20 years of direct and indirect sales and marketing experience in the defense, shipping, oil and gas, and boating industries. He is based in the new Seattle-area Intellian office.

Foss Vessels Honored

Fifty-nine vessels owned by the Seattle-based Foss are being recognized by a major maritime organization for their standout environmental safety records. Altogether, the Foss vessels feted by CSA have gone a combined 551 years without an environmental incident.

Foss was honored by the CSA at a dinner ceremony in Washington, D.C., with the awards presented by Maritime Administrator, David T. Matsuda and Rear Admiral Brian Salerno, Deputy Commandant for Operations, U.S. Coast Guard and Michael Bohlman, Chairman of CSA. Capt. Jonathan Wood, skipper of the Volans, accepted awards on behalf of Foss.

MOL Starts Vietnam Tug Business

Mitsui O.S.K. Lines, Ltd. announced that the company has established a joint venture with two local companies in Vietnam and started a tugboat business. The joint company will allocate high-powered, high-performance tugboats in Vietnam's Cai Mep/Thi Vai area, where deepwater container terminals are now under developing. Established in August 2010, the Tan Cang-Cai Mep Towage

Services Co., Ltd. (TCTS) will be headquartered in Ba Ria-Vung Tau Province, Vietnam. The initial allocation will be two 4,000 hp vessels.

MarineCFO Live Expands Rapidly

MarineCFO reports that its on-line version, MarineCFO Live! – launched in

late 2009 – has seen strong growth in 2010, now being used by more than 40 marine companies in 10 countries, including Harvey Gulf, Otto Candies, Enterprise Products, McDonough Marine, Marquette Transportation and Martin Marine Transport.

<http://www.MarineCFOLive.com>

Knud E. Hansen USA Opens

Knud E. Hansen A/S of Denmark announced the establishment of a subsidiary company, Knud E. Hansen USA L.L.C. located in Ft. Lauderdale, Fla. Knud E. Hansen A/S has been a leading design consultancy, specializing in the Cruise & Ferry market since 1937.

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Rolls-Royce, Bestway Collaborator

Rolls-Royce signed a collaboration agreement with Shanghai Bestway Marine Engineering Design Company Ltd (Bestway), a leading marine design and research company in China. The collaboration will focus upon development of innovative and environmentally friendly marine designs.

New Maritime Security Company

Nick Davis has set up a new company to provide capability and asset enhancement through the supply of suitable security vessels, professional personnel and the application of intelligence and operational support. The new company, Security Boat Services (SBS), focuses on all aspects of industry and government work within the maritime sector. www.securityboatservices.com



Martek Wins Canadian Navy Contract

Martek Marine signed a contract with the Canadian Navy to supply 12 MM2000 marine gas detection systems, with Hydrogen Sulphide (H₂S) capability, to the Canadian Navy's fleet of Halifax-class multi-role patrol frigates based in Victoria, British Columbia, and Halifax, Nova Scotia.

WSS Brazil Handles Oversized Shipment

Wilhelmsen Ships Service reported that a Vertical Conditioner, a piece of special equipment to treat seeds in the industrial process to produce canola oil was shipped from Brazil to Russia, transported overland in Brazil for 470km arriving at Santos Port where it was loaded onto a Flat Rack Container, on behalf of Brazilian food industry equipment company Tecnal.



Noreq AS Acquires Acta AS

Maritime supplier, Noreq announced the acquisition of Acta in Denmark. Since 1955, Acta has been a supplier of offshore marine cranes, life raft- and MOB davits as well as deck machinery. Acta is the only crane manufacturer in the world having CE marking on offshore cranes for wind power installations off shore. Acta is located in Odense, Denmark and the name of the new company is NoreqActa.

NOREQACTA

AVEVA Summits Draws 800

AVEVA announced the successful conclusion of its new global series of AVEVA World Summits. Three regional Summits were presented in Amsterdam, Las Vegas and Beijing, adopting the theme of "Engage – Inspire – Deliver." More than 800 delegates attended for a range of social and networking activities over the course of the two day events. www.avevaworld.com



Bulkore Chartering Chooses ShipDecision Technology

Bulkore Chartering selected ShipDecision to support its maritime cargo brokerage business. ShipDecision is a Maritime Software as a Service (SaaS) solution that helps organize the sharing and use of information among business partners in the Maritime sector. Accessible from anywhere an internet connection is available, and protected through banking-level encryption, ShipDecision processes data, documents and communications related to each voyage. www.shipdecision.com

Hughes Provides Broadband to Hercules Offshore Fleet

Hercules Offshore has invested in a satellite communications system from Hughes Network Systems, LLC. Hughes and Environmental Safety Systems International Corporation (ESSI) are equipping the entire Hercules Offshore fleet of Class 120 to Class 230 liftboats in the U.S. Gulf of Mexico.

Rolldock Orders OCTOPUS-Onboard

Amarcon announced that Rolldock has ordered OCTOPUS-Onboard for the new-build Multipurpose Heavy lift vessel Rolldock Sea, which is a combination between float-in/float-out, roll-on/roll-off- and lift-on/lift-off capabilities.

SAM Electronics Receives Cruise Ship Orders

SAM Electronics received orders to supply four NACOS 65-5 integrated navigation command systems for new cruise ships currently under construction in major European shipyards on behalf of Carnival Cruise Lines, Celebrity Cruises and Costa Cruises for delivery in 2011 and 2012.

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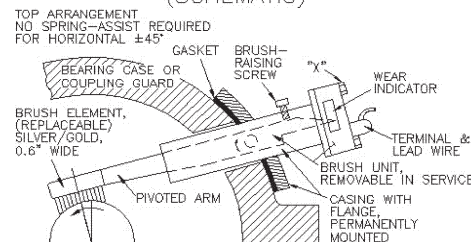
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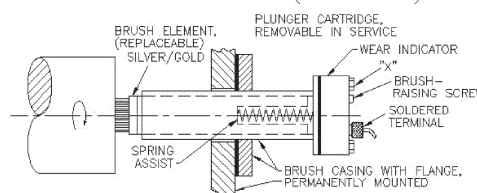
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Advanced Structures Corporation, 235 W. Industry Court, Deer Park, NY, tel:631 667-5000, fax:631 667-5015, advstrcorp@aol.com contact: Paul Eisenberg, www.AdvancedStructuresCorp.com
Walz & Krenzer, Inc, 91 Willenbrook Rd. Unit B4, Oxford, CT, tel:203 267-5712, fax:203 267-5716, sales@wkdoors.com contact: Melissa Shepstone, www.wkdoors.com

ELECTRONICS/NAVIGATION COMMUNICATIONS SERVICE AND

Mackay Marine, 921 Seaco Avenue, Deer Park, TX 27616-1851, USA, tel:281 478-6245

EPC CONTRACTORS AND ENGINEERING

Waller Marine, 14410 W. Sylvanfield Houston, Texas 77014, tel:281 444 9650

FENDERING SYSTEMS/ BUOYS - DOCK & VESSEL

Schuyler Rubber Co., 16901 Woodred Rd. NE, Woodinville, WA 98072, USA, tel:425 488-2255, fax:425 488-2424, Greg@schuylerrubber.com contact: Greg Armfield, www.schuylerrubber.com

FILTRATION

Boll Filter, 9822 General Drive. Ste. 180, Plymouth, MI 48170, USA, tel:734 451-4680, fax:734 451-4681, Latorre@bollfilterusa.com contact: Michele Latorre, www.bollfilterusa.com

FURNITURE

Wright Computer Products Inc., PO Box 565, Woodbury, NJ

GALLEY EQUIPMENT

Jamestown Metal Marine Sales, Inc., 4710 Northwest 2nd Ave., Boca Raton, FL 33431, USA
US Outfitters, 10752 Deerwood Park Boulevard South Waterview II Suite 100 Jacksonville, FL 32256, Jacksonville, FL

GANGWAYS

Ravens Marine, 3295 South Orange Avenue Kissimmee, FL 34744, FL, tel:407-935-9799, fax:(407) 935-9436, matt@ravensmarine.com

HATCHES & DOORS

US Outfitters, 10752 Deerwood Park Boulevard South Waterview II Suite 100 Jacksonville, FL 32256, Jacksonville, FL

HVAC

Jamestown Metal Marine Sales, Inc, 4710 Northwest 2nd Ave., Boca Raton, FL 33431, USA

HYDRAULIC MANUFACTURING AND SALES

Pennecon Energy, 2 Maverick Place, Paradise NL, tel:709 726-3490, mn1@pennecon.com contact: Eddy Knox, www.pennecon.com

INTEGRATED BRIDGE SYSTEMS

L-3 Maritime Systems, 9 Malcolm Hoyt Drive, Newburyport, MA 34232, USA, tel:978 462-2400, fax:978 462-4497, Jon.Miller@L-3com.com contact: Jon Miller, www.L-3com.com/MPS

INTERIORS

Jamestown Metal Marine Sales, Inc., 4710 Northwest 2nd Ave., Boca Raton, FL 33431, USA

Thermax Marine-Panel Specialists, Inc., 3115 Range Rd., Temple, TX 76501, USA, tel:813 340-3940, fax:813 264-2507, thermax@panelspec.com contact: John Hutchinson, www.thermaxmarine.com

US Outfitters, 10752 Deerwood Park Boulevard South Waterview II Suite 100 Jacksonville, FL 32256, Jacksonville, FL

JOINER PANELS/FURNITURE

US Outfitters, 10752 Deerwood Park Boulevard South Waterview II Suite 100 Jacksonville, FL 32256, Jacksonville, FL

LIFEBOATS/RAFTS

DBC Marine Safety Systems, 101-3760 Jacombs Rd., Richmond, BC V6V 6T3, Canada

LIFESAVER EQUIPMENT

C.M. Hammar AB, August Barks Gatan 15, 421 32 Vastrå Frolunda, Sweden

LIGHTING SYSTEMS/ EQUIPMENT

Maritime Associates, P.O. BOX 1788, Crystal Bay, NV 89402, USA

LUBRICANTS

Kobelco Eagle Marine, Inc., 366 Fifth Avenue, Suite 712, NY, NY 10017, USA

MARINE & OFFSHORE SIGNAGE

Maritime Associates, P.O. BOX 1788, Crystal Bay, NV 89402, USA

MARINE FLOORING & ACCESSORIES (IMO CERTIFIED)

Tuflex Rubber Products, LLC Marine Division, 1101 Channelside Drive Suite 244, Tampa, FL, tel:1 800-770-6008, fax:813 875-2312, marine@tuflex.com contact: Kristy Nash, www.tuflex.com

METEOROLOGICAL INSTRUMENTS

R. M. Young Company, 2801 Aero Park Drive, Traverse City, MI, tel:231-946-3980, fax:231-946-4772, vsherman@youngusa.com

PARTS LOCATOR SERVICE

Inventory Locator Service, 8001 Centerview Parkway Suite 400, Memphis, TN 38018, USA

PARTS/SERVICE AND REPAIR

Westfalia Separator, Inc., 100 Fairway Court, Northvale, NJ 07647, USA, tel:(201) 784-4335, fax:(201) 784-4399, Klaus.Brinkrode@geagroup.com contact: Klaus Brinkrode, www.wsus.com

PROPULSION EQUIPMENT

Motor-Services Hugo Stamp, 3190 SW 4th Avenue, Ft. Lauderdale, FL 33315, USA

VOLVO PENTA OF THE AMERICAS INC, 1300 Volvo Penta Drive, Chesapeake, VA

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Wing Inflatables, P.O. Box 279, 1132 Samoa Blvd., Arcata, CA 95521, USA

SATELLITE COMMUNICATIONS

Intellian Technologies, 9261 Irvine Blvd., Irvine, CA, tel:949 916-4411, fax:949 271-4183, sales@intelliantech.com contact: John Minetola, www.intelliantech.com

SEALS

Kobelco Eagle Marine, Inc., 366 Fifth Avenue, Suite 712, NY, NY 10017, USA, tel:212-967-5575, fax:212-967-6966, hawkins@kobelco-eagle.com contact: David Hawkins, www.kobelco-eagle.com

SHIPBOARD SURGE SUPPRESSORS

Wright Computer Products Inc., PO Box 565, Woodbury, NJ, tel:856 845 6767, fax:856 384 1145, wcpinc@verizon.net contact: David Wright Sr., www.wcp-usa.com

SIMULATION TRAINING

Transas Marine USA, 18912 N.Creek Parkway Ste 100, Bothell, WA 98134, USA, tel:425 486-2100, fax:425 486-2112, gtoma@transasusa.com contact: George Toma, www.transasusa.com

STORAGE BUILDINGS

ClearSpan Fabric Structures, 1395 John Fitch Blvd. South Windsor, CT 06074, tel:860-528-1119, fax:860-289-4711, damede@farmtek.com

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TANK LEVELING INDICATORS

King Engineering Co, PO Box 1228, Ann Arbor, MI 48106, USA

Technical Marine Service, Inc., 6040 North Cutter Circle, Suite 302, Portland, OR 97217-3956, USA, tel:503-285-8947, fax:503-285-1379, SBrox@tms-usa.com contact: Steve Brox, www.Levelcom.net

VALVES

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Coastal Marine Equipment, 20995 Coastal Parkway, Gulfport, MS 39503-9517, USA, tel:228-832-7655, fax:228-832-7675, sales@coastalmarineequipment.com

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The screenshot displays the MarineLink.com website. At the top, there's a navigation bar with 'Home', 'Magazines', 'Events', 'Advertising', and 'Contact us'. Below this, there are several news articles with images and headlines, such as 'New Ristar Tug for Svalbard Marine of Denmark' and 'Seaway Completes Acquisition of Bulk Energy Transport'. There are also advertisements for 'SEAARK MARINE' and '505'. The bottom of the page features a 'MaritimeJobs.com' section with a 'Click here to post your resume - absolutely FREE' button.

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Trade Manager Pipe & Mechanical

Job Location: Bahamas

Position Summary

Primary responsibility for the Foremen and the workers in their specific trade, reading specifications and developing manpower with the Ship Manager and Project Manager for each project. Direct supervision of Foremen on job sites

- Responsibilities Include
- Reading and interpreting specifications specific to their trade
 - Coordinating Foremen, workers and equipment with the Project manager /Ship manager
 - Assignment of Foremen and workers to projects as required
 - Supervision of the Foremen to ensure they have full understanding of the item tasked all tools and equipment
 - Walks the jobs with the Foremen to instruct and to ensure the Foremen understands the Item.
 - Coordinates with the ship manager to ensure the Yard is getting paid for all work being accomplished.
 - Identifies chances in the scope of work from original.
 - Generates VO with the Ship Manager to ensure all cost is covered
 - Updates the ship manager daily to schedule Delays and advances
 - Develops work around to allow schedule to be met.
 - Accomplishes daily walk through to ensure productivity, safety and house keeping measures are being met as required.
 - Holds Tool box safety meetings with Foremen weekly
 - Identifies labor issues and works with ship managers to get all projects completed on time and budget.
 - Works with the Ship manager /Project manager to develop budgets
 - Sets Goals and Budgets with Forman for each item
 - Insures all time is allocated properly by Foremen and time sheets are turned over to the Ship manager/Project manager Daily for Time and Material items.
 - Works with Planning Department to develop realistic schedules and budgets for projects.

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- FT, Tenure-track Marine Transportation Faculty FY11-11
- FT, Tenure-track Engineering Faculty FY11-12
- Director, Simulation Technology FY11-13

The Academy is located in Buzzards Bay at the mouth of the scenic Cape Cod Canal and is a member of the Massachusetts state university system.



For information about this position and how to apply, visit the employment quick link on our web page at www.maritime.edu.

Massachusetts Maritime Academy is an AA/EEO employer. Under-represented groups are encouraged to apply.

PROJECT MANAGER

Job Location: USA, Mobile

REPORTS TO: Vice President of Operations

SUPERVISES:

Directly:

Ship Project Managers

Program Engineer

Deputy Program Manager

Project and Program Coordinators

Subordinate:

Scheduling / Planning

Purchasing

All manufacturing trades

Contract management

- Design and configuration management

- Manage design to ensure that deliverables are sufficient to support the project schedule.



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 - Manage order placement, on-time delivery from suppliers, quality assurance from suppliers
 - Identify and resolve material and equipment issues.
 - Classification and inspection authority relationship
 - Product is built to specification and regulatory requirements.
 - Test and evaluation programs
- QUALIFICATIONS / KNOWLEDGE / EXPERIENCE:
- 4 year degree relating to engineering technologies preferred
 - 15 years of related experience and training

- Accomplishes other tasks as deemed necessary by management
- The following are minimal requirements
- 10 years experience in the Trade as a first line supervisor
- Requires ability to read and understand technical data and drawings
- Must possess knowledge of Marine related equipment for ship repair preferably cruise ships.
- Must demonstrate Management skills and abilities

Bryan Spencer
Spencer Services
P.O. Box 25187
CO 80936 USA
Phone: 719-522-1077
Email: bryan@spencerservices.net

EHS Manager

Job Location: USA, Honolulu
Title: Environmental, Health & Safety Manager
Job Description & Duties: The EHS Manager is directly responsible to the Chief Operations Officer for implementing, monitoring and managing the Environmental Program at PSI. With approval of the COO, promulgates company directives and guidelines to ensure the personnel and operations of PSI are adhering to local, state, and federal environmental rules and guidelines.

Ensures PSI complies with regulations issued by the local, state, and federal Departments of Health and that PSI conforms to the requirements of its Environmental Protection Agency (EPA) issued National Pollutant Discharge Elimination System (NPDES) permit pertaining to hazardous and non-hazardous waste generation and disposal by PSI.

Monitors the raising and lowering of PSI's dry-docks as required by NPDES permit, collects data pertaining to such, and reports to the Department of Health on the data collected at periods established by the Department of Health.

Conducts required reviews and inspections and identifies and verifies required corrective actions. Maintains program instructions and procedures ensuring compliance with local, state, and federal directives.

Ensures and enforces safety regulations as promulgated by federal, state, and local agencies and as contractually agreed to with customers.

Is directly responsible to the Chief Operations Officer to ensure that the safety regulations as promulgated in the company Health and Safety (H&S) Manual are followed.

Monitors, evaluates, and enforces the respiratory protection program.

Reviews confined space permits.

Ensures administrative files are established as required by the company Health and Safety (H&S) Manual.

Maintains the OSHA 300 log.

Completes accident/incident/illness investigations and reports to Corporate Insurance Department.

Provides training as necessary to meet the requirements of regulatory agencies, the company H&S Manual and to ensure the

ongoing education and safety of employees.

Maintains safety training records.

Ensures routine safety inspections and surveillances are conducted in accordance with the company H&S Manual. Follows up to ensure hazard abatement is carried out. Ensures Activity Hazard Analysis (AHA) is conducted and employees take precautionary measures according to the AHA's.

Experience: Two or more years in the field of environmental compliance inspection and enforcement. Certification or minimum two years experience in the field of industrial safety.

License(s): N/A

Certification(s): EHS Professional or equivalent combination of experience and training. CSP, OHST, STS (Desired but not required)

Training: Coursework in environmental compliance through institutions or via self-study.

Refresher Courses Required:

As applicable to certifications held.

Giliw Abenes

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Honolulu HI 96820 USA

Phone: 808848633326

Fax: 8088486260

Email: hr@pacificshipyards.com

Director of Simulation Technology FY11-13

Job Location: USA, Buzzards Bay

A special mission college within the Massachusetts state university system

Position: Director, Simulation Technology

Posting:

November 2010 Start Date:

ASAP

Position Number: FY11-13

Application Deadline: Open until filled

Division: Operations Division

Union affiliation: Association of Professional Administrators (APA)

Supervision received: Reports to Vice President of Operations

Supervision exercised:

Supervises subordinate professional, classified, and student personnel in area of expertise

General responsibilities:

- Oversee the operation, maintenance and preventative maintenance of all simulators
- Responsible for planning of simulator acquisitions, replacement, and upgrades working with appropriate departments
- Responsible for writing RFP's for new simulators, upgrades, and installation to existing simulators
- Troubleshoot and repair simulators – software, hardware, systems, and programs
- Coordinate all software and maintenance contracts
- Coordinate simulator availability for open houses and visitors
- Conduct training for simulator operators and staff
- Develop and maintain procedures, budget, and schedule for simulator operations
- Ensure simulators are functioning properly

ly for all labs/classes

- Perform other related duties and responsibilities as assigned

- Supervise departmental staff

Qualifications and requirements:

- Bachelor degree in related field or at least ten (10) years experience in simulation technology

- Extensive experience with Microsoft servers, network technology and hardware

- Ability to work effectively with faculty, professional, and student personnel

- Excellent administrative, organizational, and interpersonal skills

- Ability to function effectively in a multi-task college environment

- Professional competence as evidenced by personal growth and development

- Experience supervising personnel

Preferred qualifications:

- Certification in related field

- Knowledge and understanding of Academy's mission

- Microsoft Certified Systems Engineer

- Masters degree in Computer Science

Salary: \$70,000 - \$80,000. The Academy offers generous benefits policies and a competitive salary commensurate with qualifications and experience. FLSA status: Exempt.

To apply, please submit a cover letter, a resume, an MMA application, Affirmative Action form, and the contact information of five (5) professional references. These forms are located on the employment quick link on our website: www.maritime.edu. Application materials may be attached and sent electronically to hr@maritime.edu. Alternatively, you may send your application materials by USPS to: Human Resources, Massachusetts Maritime Academy, 101 Academy Drive, Buzzards Bay, MA 02532. Finalist must complete a pre-employment physical, drug screening, and background check. MMA is an AA/EEO employer. Members of under-represented groups are encouraged to apply.

Colleen Ruggeri

Massachusetts Maritime Academy

101 Academy Drive

Buzzards Bay MA 02532 USA

Phone: 508.830.5000

Fax: 508.830.5090

Email: cruggeri@maritime.edu

Web: <http://www.maritime.edu>

Marine Services & Logistics Manager

Job Location: USA, Boulder, CO

To be consider for this position, all candidates MUST apply here:

<http://bit.ly/c3ULrP>

Primary Objective of Position:

The Marine Services and Logistics Manager, under general direction and minimal supervision, is responsible for ensuring quality and on time delivery of services and products that meet the needs and exceed the expectations of our Marine customers. The Manager will be responsible for developing and improving business processes, managing a direct and matrixed team to accomplish these tasks on an ongoing basis and introducing new & innovative ideas to support market growth.

In this position, the Manager will also be responsible for communicating Micro Motion's differentiation strategy through sales and marketing presentations, customer contacts, training situations and participation in Marine segment industry events and associations.

Essential Job Functions:

- Key contributor to Micro Motion's marine business strategy

- Develop metrics, monitor trends and communicate key messages with senior management

- Based on deep understanding of marine customer needs, manage existing service portfolio and identify additional service opportunities for both bunkering & fuel efficiency applications

- Direct customer support activities, developing and maintaining favorable relations with customers and ensuring that excellent customer service is provided

- Lead global implementation of marine service "productization" which includes the following

- Establish global quote to order process for marine services

- Develop a standard operating procedure so that service technicians can deliver in a consistent manner globally

- Plan resources based on marine business trend

- Assist MID center of excellence with distributing/assigning workload as required

- Drive training and certification program to ensure operational capability

- Establish a global scheduling process

- Develop service value messages and coordinate marketing collateral and other marketing communication activities

- Develop spare parts list and distribution/replenishment logistics

- Champion specific industry needs within the organization

- Lead efforts to define and drive development and maintenance of products and services to best serve the industry

- Recommend engineering changes to existing products, new product potential, and new approaches for greater market penetration

- Lead efforts to understand Marine global support/warranty limitations and make recommendations for improvement

Qualifications:

- Demonstrated knowledge of the Marine industry is preferred as well as Services/Operations leadership skills

- Also required is sound knowledge of the principles and methods of fluids and flow measurement, process control and instrumentation

- Must be able to work in and communicate through a multi-layer matrix organization

- Strong computer proficiency, including the use of common word processing (such as Word), spreadsheet programs (such as Excel), and presentation packages (such as PowerPoint) is required and proficiency in the use of a database program (such as Access) is also preferred

- Strong presentation skills are required

- Must be willing to travel up to 40% of

time, both domestically and internationally. Experience:

• 10 years minimum of sales/marketing/Service/Operations experience

• International experience required

Education:

B.S. Degree in Engineering. MBA preferred but not essential.

Physical Demands:

N/A

To be consider for this position, all candidates MUST apply here:

<http://bit.ly/c3ULrP>

Tim Potten

Micro Motion

7070 Winchester Circle

Boulder CO 80301 USA

Email: timothy.potten@emerson.com

Web: <http://bit.ly/c3ULrP>

Naval Architect

Job Location: USA, Houston

NAVAL ARCHITECT to work in Houston, TX to perform naval architectural analyses (stability, weight, estimates, etc.) & structural analyses (first principles, basic finite element analysis) within offshore/marine

industry. Must have Bachelor's degree in Naval Architecture & Marine Engineering. No experience required. No training provided. Salary: \$63,000 per year plus health & dental insurance & 401(K) after appropriate waiting periods. Schedule: Mon-Fri 8am-5pm. Submit resumes to: Recruitment and Employment Office, Bennett & Associates L.L.C., Job Ref# BEN64127, P.O. Box 56625, Atlanta, GA 30303.

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Bennett & Associates, L.L.C.

P.O. Box 56625

Atlanta, GA 30303 USA

Email: aruderman@bbengr.com

Port Captain

Job Location: USA, Concord, California

Port Captain Job Posting

A San Francisco Bay Area ship management company is seeking an individual to fill the position of Port Captain for the management of our Maritime Administration (Marad) and Military Sealift Command (MSC) contracted vessels. This individual will be based in our Concord, California

office and will occasionally be expected to travel to our various ship and office locations in the US and Asia.

The Port Captain will be required to be a U.S. citizen, capable of gaining a security clearance and shall meet the following qualifications:

• A minimum of five (5) years of commercial Port Captain's experience, or

• A minimum of five (5) years of seagoing experience as a ship's Master or Chief Mate on a USCG unlimited license, or

• A combination of a Bachelor's degree in Marine Transportation and at least three (3) years of documented sailing experience on a USCG unlimited license.

The Port Captain needs to have a combination of education and experience that provides a high level of understanding of ship operations and maintenance management, including knowledge and working experience with Classification Societies, USCG regulations, and vessel and port security requirements. As part of his/her responsibilities, the Port Captain will actively participate in the formation and implementation of the Company's ISM Code and regulations.

The Port Captain will also be required to have an understanding of union-management relations, work rules and STCW requirements. As part of the Port Captain's responsibilities, he/she will participate in the selection of the senior deck officers for the Company's managed vessels.

The Port Captain will work with the program managers of the Marad and MSC fleets, providing technical nautical experience for the management of their various vessels.

Salary: Competitive Salary and Benefits.

All applicants, please reply to the following email address:

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