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(Photo: Meyer Werft)

‘Of Mice & Meyer’

Germany’s Meyer Werft again delivers another spectacular cruise ship, the Disney Fantasy dreamliner. **Full story starts on page 26.**

ON THE COVER

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When the Costa Concordia crashed last month, the maritime industry was again left scratching it’s collective head and asking: “How can accidents like this happen?” ***Pictured is floating oil boom on its way to being installed around the ship.***
(Photo Courtesy of Boskalis)

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The cover of this edition of *Maritime Reporter & Engineering News* — our "Cruise Shipping Annual" — should have been the most predictable ever. While the tag line is a single word — ***"Why?"*** — to most everyone the answer is painstakingly clear: The crash of the Costa Concordia by all appearances seems to be yet another case of human error resulting in a tragic and stupefying accident, a senseless loss of life and a situation that frankly today, given the investment in technology, training and intelligence, makes this all seems improbable if not impossible.

While the plight of the stricken Costa Concordia and its beleaguered master Captain Francesco Schettino has been covered 24/7 in global news portals since the fateful Friday, January 13, 2012, it is worth it now to take a breath and realize that less than a month in the wake of the accident, the full details and ramifications of this disaster are still years away.

Much has been made regarding the immediate detention of the Captain – as the criminalization of mariners is a hot-button issue – but it was his employer, Costa, who quickly asserted his role in grounding less than two days after the incident, releasing the following statement: *"While the investigation is ongoing, preliminary indications are that there may have been significant human error on the part of the ship's Master, Captain Francesco Schettino, which resulted in these grave consequences. The route of the vessel appears to have been too close to the shore, and the Captain's judgment in handling the emergency appears to have not followed standard Costa procedures."*

While damning, and corroborated with a host of additional evidence, including an alleged taped conversation between Concordia's Master and the Italian Coast Guard in the aftermath of the wreck, a conversation that reads more like a *"Saturday Night Live"* comedy sketch than an emergency discussion among maritime professionals, it is still worthy to wait until full details are known — *if* full details are ever known — before a hasty rush to judgment.

Without a doubt, the case of Costa Concordia and the circumstance that led to and allowed the ship to stray far from its course and into danger will be analyzed for years, with the case to become a watershed for the cruise shipping industry. While the accident drew immediate comparison to the ill-fated Titanic, I think it best to focus on the differences of the accidents, namely the fact that more than 1500 perished with Titanic, while, at press time, there were 17 confirmed dead and 15 still missing as a result of the Concordia disaster. This is not to diminish the value of a single soul, but the fact that more than 4,100 people exited the Costa Concordia safely on the night of Friday, January 13, 2012, is amazing to me, a testament to not only the design of modern mega cruise ships, but also the training of crew – two areas where the cruise industry in general, Costa in particular, are taking heavy fire.

It's in times like these that I like to rely on trusted sources of information accrued from nearly two decades covering this industry, and one of the first on speed dial for all matters maritime, particularly cruise related, is Tomas Tillberg of Fort Lauderdale-based Tillberg Design. For those who do not know Tomas, trust when I say he is a calm voice of reason in times good and bad, with the unilateral ability to identify the strengths and weaknesses of the industry he has served for many years.

"To be negative and critical in such a tragic situation is understandable but it would behoove all concerned to learn from this experience and take necessary steps to prevent such an occurrence in the future," Tillberg said. "The cruise industry has an incredible safety record on a whole, with many years and many millions of passengers served safely. I think what you may see as a result of this incident is increased emergency training of the crews and a focus on communications with the passengers."

Asking "Why?", gathering information and formulating policy to help prevent future tragedy is prudent. Snap decisions based on incomplete sources of information and political grandstanding is not.

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LCS 4 Christened Coronado

The U.S. Navy continued its program to deliver state-of-the-art, highly flexible platforms when on January 14, 2012 Coronado, the second Independence-variant Littoral Combat Ship (LCS), was christened at Austal USA in Mobile, Alabama. "Today's ceremony is a testament to the hard work and dedication of Austal's talented shipbuilders," said Austal USA President and COO, Joe Rella. "We are proud of our accomplishments and honored to be building these magnificent warships that are already shaping the future of the modern day Navy." The Independence-variant LCS, with its trimaran hull–design, offers maneuverability, stability, endurance, shallow draft, three weapon zones, and a flight deck larger than any other U.S. Navy surface combatant. The 127-m all-aluminum vessel is capable of being outfitted with reconfigurable payloads (mission packages) which can be changed quickly to support mine countermeasure, anti-submarine and surface warfare missions. It has a maximum speed of more than 45 knots.

A fast, agile, and high-technology surface combatant, Coronado will be a platform for the launch and recovery of manned and unmanned vehicles. To meet increased demand for mission-tailored packages, its modular design will allow the ship to be reconfigured for antisubmarine warfare, mine countermeasures, or surface warfare missions on an as-needed basis. The LCS class ships have the ability to swap out mission packages in a matter of days - adapting as the tactical situation demands. The modular approach allows the Navy to incorporate new and improved systems into the fleet as advanced technologies mature, providing flexibility and evolving capability.

WHAT'S IN A NAME?

The ship's name recognizes the city of Coronado, Calif., and honors the city's ties to the U.S. Navy. Coronado has been home to Naval Air Station North Island and Naval Amphibious Base, since 1917. Two previous ships have been named after this city: USS Coronado, a Tacoma-class patrol frigate, earned four battle stars for supporting landings in New Guinea and Leyte during World War II and the USS Coronado, an Austin-class amphibious transport dock later re-designated as an auxiliary command ship, served as flagship for U.S. 3rd Fleet and was decommissioned in 2006.

Designated LCS 4, Coronado is an innovative surface combatant designed to operate in littoral seas and shallow water to counter mines, submarines and fast surface craft threats in coastal regions. The ship is capable of speeds in excess of 40 knots and can operate in water less than 20 feet deep. Coronado will address a critical capabilities gap in the littorals and conduct the Navy's mission to enhance maritime security by deterring hostility, maintaining a forward presence, projecting power and maintaining sea control. Susan Ring Keith was the ship's sponsor. Upon her birth in Coronado, Susan joined a long family history associated with the Navy and Coronado. In addition to her father, both of her grandfathers and both of her uncles were career Naval Officers. Her two brothers followed their father into the naval service, with one brother retiring as a Rear Admiral. Her godfather (and later step-father) was Rear Admiral Put Storrs, one of The Three Seahawks, the predecessors to the Blue Angels. Susan was the quintessential Navy Junior, and she as well entered the Navy as a Navy wife and Navy mother. In 1966, Susan's mother, Eleanor Ring, christened the previous USS Coronado (LPD/AGF-11) and Susan served as Maid of Honor. In 2009, Susan was invited by the Secretary of the Navy to serve as Sponsor of Coronado (LCS4). Susan's daughter, Isabella (Belle) Keith Drouin, will follow in Susan's footsteps by serving as the ship's Matron of Honor.

Coronado will be manned by two rotational crews, Blue and Gold, similar to the rotational crews assigned to large submarines. These core crews are augmented by one of the three types of mission package crews and an aviation detachment. The commanding officer of the Blue crew will be Cmdr. John Kochendorfer, from Dana Point, Calif. The commanding officer of the Gold crew will be Cmdr. Michael "Shawn" Johnston, from North Carolina. After commissioning, the ship will be homeported in San Diego, Calif.

General Characteristics
Independence Variant

Builder: .....General Dynamics
Length: .....419 ft. (127.6 meters)
Beam: .....103.7 ft. (31.6 meters)
Displacement: .....appr. 3,000 MT full load
Draft: .....14.1 ft (4.3 meters)
Speed: .....40+ knots

Ships:
USS Independence (LCS 2), San Diego, CA. (future)
PCU Coronado (LCS 4), San Diego, CA. (future) - under construction
PCU Jackson (LCS 6) - under construction
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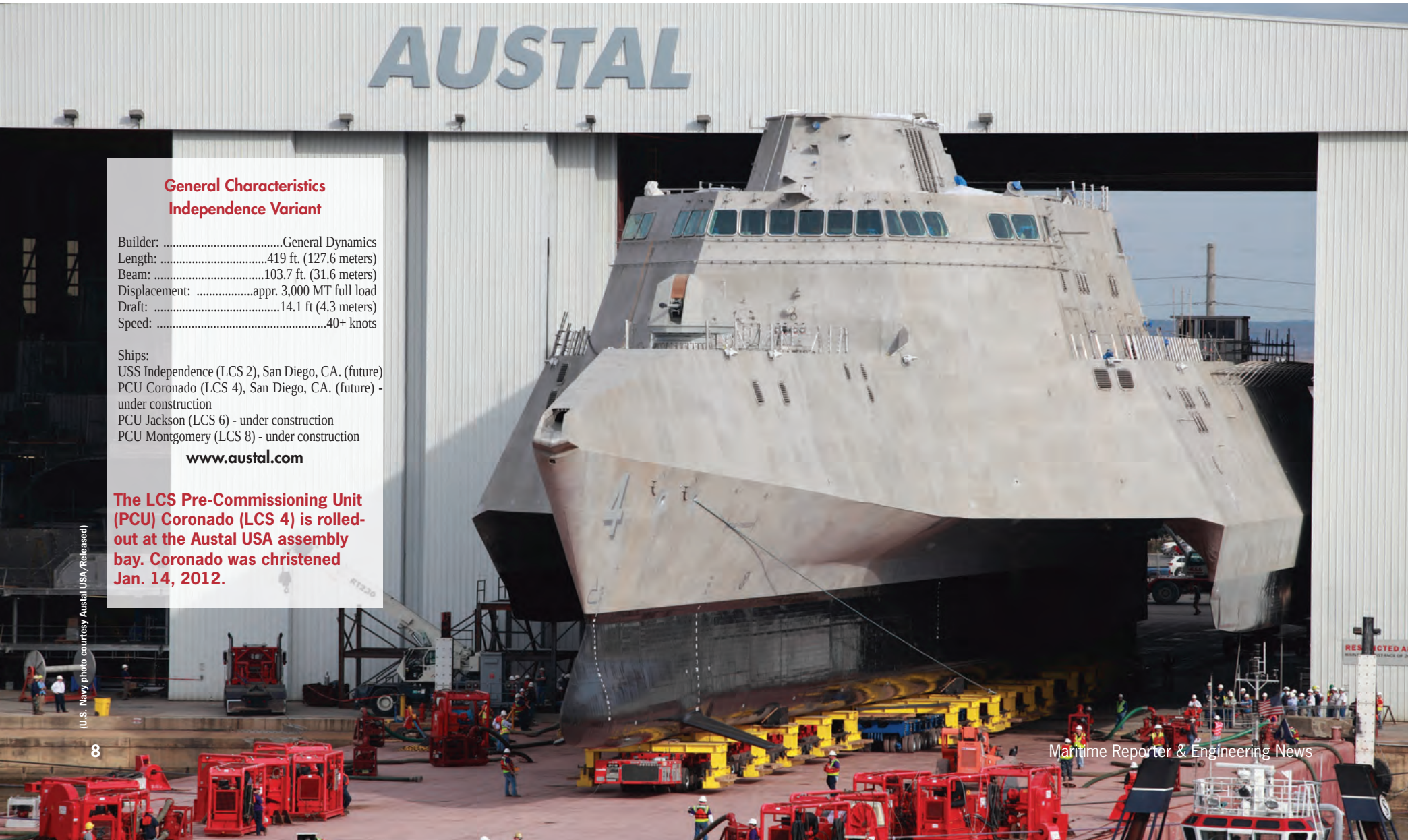

The LCS Pre-Commissioning Unit (PCU) Coronado (LCS 4) is rolled-out at the Austal USA assembly bay. Coronado was christened Jan. 14, 2012.

(U.S. Navy photo courtesy Austal USA/Released)

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Tidewater PSV Named For Cindy Brown

By Susan Buchanan

Platform supply vessel Cindy Brown Tide was delivered to offshore-service giant Tidewater on Oct. 24, and chartered to oil company BP in the Gulf of Mexico. The boat's namesake is someone missed by many. "The vessel was named for Cynthia Niklaus Brown, a wonderful woman who passed away in late 2009 in Houston after being diagnosed with cancer," said Joseph Badeaux, general manager and vice president at Houma, La.-based Quality Shipyards, a subsidiary of Tidewater.

Brown, a New Orleans native, was the wife of Tidewater Vice President Billy Brown and a friend of the family of Tidewater's President and CEO Dean Taylor. For part of their married life, the Browns were stationed overseas, and Cindy had colleagues around the globe.

The vessel in her memory took 20 months to build. "We laid the keel in December 2009 and built the boat in Houma," Badeaux said. "Well over 100 employees worked on the project." The Cindy Brown Tide is the last in a series of three PSVs--including the 266-foot Terrel Tide delivered in 2009 and the similarly sized Leboeuf Tide in 2010--also built by Quality Shipyards for Tidewater. The Terrel Tide and Lebouef Tide were both named for Tidewater employees.

Billy Brown said his wife Cindy was "quite a woman--a math, science and physical ed teacher who worked in Louisiana and overseas." She grew up in the Gentilly section of New Orleans and graduated from Louisiana State University. The mother of three daughters, she was interested in art and was a photographer, sculptor and painter. She resided on four continents during her lifetime and visited more than two dozen countries.

"Our family met Dean Taylor's family in 1980 when we lived in Brazil, and then we met up with them again in 1985 when we resided in Dubai," Brown said.

Diagnosed with cancer in early September of 2009, Cindy passed away on Oct. 24 of that year at the age of 55. "It all happened very quickly," Brown said. Her memorial service was held at St. Dominic Church in New Orleans, and donations have been made in her name to the Susan G. Komen For The Cure foundation.

Tidewater's business is worldwide. Billy Brown joined the company in 2003 as Vice President of Engineering and Technical Services after nearly three decades in marine construction in the Gulf of Mexico, Brazil, the Arabian Gulf and India. He became Vice President of Tidewater Inc. in 2005, and oversees Quality Shipyards, along with Tidewater's engineering and technical services groups.

Badeaux recalls the first time that he met Cindy Brown in Louisiana. "I was offered the job of managing Quality Shipyards and had moved to Louisiana from Virginia in July 2007," he said. "One day I stopped by the Brown's house in Metairie," a New Orleans suburb. "Cindy insisted I join them for dinner. I didn't know anyone in the area. She was very kind and said 'you're family now,' which meant a lot to me."

As for the vessel's characteristics, the Cindy Brown Tide has a 56-foot beam and a maximum draft of 15.9 feet. Its two main engines are 5,150 horsepower. The PSV can carry 2,650 long tons of cargo, 142,500 gallons of fuel oil, 242,850 gallons of cargo water and 127,798 gallons of potable water, along with 11,700 barrels of drilling fluid. The boat contains 44 sleeping berths, 30 seats, staterooms, a lounge, a large walk-in cooler and a big freezer, a hospital and fire fighting equipment.

Badeaux said "Leevac Industries in Jennings, La. designed the vessel, Namasco provided steel for the boat and Caterpillar supplied the engines. Rolls Royce provided the bow thrusters, the Z-Drives are by Steerprop and were provided by Karl Senner, Inc., the DP systems are from Kongsberg, and the major electrical

Characteristics

Length x Beam x Depth	266 x 56 x 19.5 ft.
Max/Light Draft	15.9/5.7 ft. (4.8/1.7 m)
Freeboard	2.9 ft. (0.8 m)
Displacement at Loadline	5,295.5 lt/5,380.2 t
Deadweight	3,587.0 lt/3,645.2 t
Clear Deck Space	178 x 48 ft.
Deck Strength	1,024.0 lb/sq. ft.
Minimum Height	65 ft.
Deck Cargo	2,650 lt 2,692.1 t
Cargo Water	242,850 gal 919.3 t
Fuel Oil	142,500 gal 458.5 t
Potable Water	127,798 gal 483.5 t
Lube Oil	1,148 gal 3.9 t
Bulk Tanks (4) Total	6,600 cu. ft.
Drilling Fluid (22 lbs/gal)	11,700 bbl
Walk-In Cooler	523 cu. ft.
Walk-in Freezer	537 cu. ft.
Berths	44
Seats	30
Air Conditioning/Heating	Yes
Flag:	U.S.
Home Port:	New Orleans
Official Number	1235173
Call Sign	KCBE
Builder	Quality Shipyards
Tonnage	2,435
GITCT	1,097 NITCT
Classification	ABS +A1, (E); +AMS, DPS-2, FFV-1, +ACC

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Kort Nozzles.	(2) Steerprop
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Emergency Generators	CAT C9

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(Credit: Skeets Photo Service)

subcontractor was Coastwide Electric, Inc." in Amelia, La. Badeaux noted "we build offshore vessels for Tidewater only. We can build brown water boats for anyone for inland waterways--such as towboats that push barges up and down the Mississippi River."

Quality Shipyards, wholly owned by Tidewater, provides new construction, conversion and repair services. Its construction shipyard and repair yard are located on the Gulf of Mexico's Intracoastal Waterway at mile marker 57 near Houma. In addition to building and repairing oilfield vessels, the shipyard designs and builds river towboats, barges and other vessels using the latest computer-aided design or CAD equipment. The company has produced more than 274 boats in the last 40 years or so. The repair area at Quality Shipyards has four floating dry docks, with a lifting capacity of up to 4,200 tons. The yard can repair marine vessels with up to 15,000 horsepower, and contains a machine shop and a fabrication shop with blasting and coating capabilities. The repair facility specializes in vessel conversion and stretching.

"Tidewater is currently building boats in Houma, in Sturgeon Bay, Wisconsin and in China and other countries," Badeaux said. The company's construction projects include PSVs, anchor-handling vessels, crewboats and tugs. In Houma, Quality Shipyards is building a MMC 879 platform supply vessel that's 260.5 feet long, with a 55 feet beam and a 24 feet hull. MMC is a European ship design firm located in Poland. Tidewater, based in New Orleans and Houston, owns 354 vessels and operates one of the world's largest fleets for the offshore energy industry. About five percent of Tidewater's active fleet is in the Gulf of Mexico. The company is traded on the New York Stock Exchange under the symbol TDW. The Cindy Brown Tide is expected to remain in the Gulf of Mexico for now, Badeaux said. The Terrel Tide is at work in Africa and the Lebouef Tide is in Brazil.

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Friday the 13th & Cruising's Dark Days

As events surrounding the cause of the Costa Concordia crash continue to unfold, only one thing is certain: the cruise ship industry is forever changed.

By Greg Trauthwein, Editor

The commercial maritime industry operates largely out of the public eye, making headlines only when something goes drastically wrong.

As all readers of this publication should surely know, it all went terribly wrong for the cruise ship Costa Concordia on the evening of Friday, January 13, 2012, when the 952-ft., 114,000 gt ship deviated course off the coast of the Italian island of Giglio, striking a submerged obstruction and ripping an estimated 160 ft. gash in its hull. That night more than 4,000 passengers and crew were required to abandon ship, and as of this writing, the death toll stood at 17, with 15 still missing. To call this casualty sensational is a vast understatement, as it has drawn the continued harsh glare of the global mainstream media, immediately drawing headline-grabbing "Titanic" comparisons.

Working crane barge "Meloria" alongside while SMIT divers inspect the ship. (Photo courtesy: http://www.boskalis.com)

The interest is understandable, as a hulking, beautiful $570m ship lies precariously on its side with the picturesque Italian island of Giglio as a back-drop.

The interest is understandable as the supposed actions (or lack thereof) of a captain; the man entrusted with safety of passengers, crew and ship and who reportedly abandoned these duties in spectacular fashion.

The interest is understandable as the cruise sectors is the "glamour" end of the maritime market; an industry with a long-term, enviable good record of safely carrying passengers; an industry which seeks to evoke images of cocktails, exotic ports of call and good times rather than YouTube videos of passengers and crew scrambling for safety.

"To be negative and critical in such a tragic situation is understandable but it would behoove all concerned to learn from this experience and take necessary steps to prevent such an occurrence in the future," said Tomas Tillberg, Tillberg Design, a man and a firm who has worked in the business of cruise shipping — from the role of lead architect of newbuildings to designers of selected areas for refurbishments — since the office was established in Ft. Lauderdale in early 1996.

WHAT WE DO NOT KNOW

While the rush to judgment in modern media is a swift as the digital information flow allows, more reasoned minds with long experience in the maritime industry realize that it will be years before the full impact of the Costa Concordia accident is realized. This incident is a literal powder keg, encompassing major maritime issues including:

- the effective mitigation of **human error** risks to maritime accidents,
- the **training** and education of crew,
- the **criminalization** of mariners,
- **communication** to passengers, and
- the safety of modern, **mammoth cruise ships**

Today, there are far more questions than answers, including:

• What will be the short and long term impact to the cruise shipping industry?

The longer Costa Concordia lay on its side off Giglio with unrecovered bodies inside, the deeper the impact on the psyche of the cruising public. Early rumblings indicate a double digit decline in future bookings already at cruise titans Carnival and Royal Caribbean for the upcoming season, but the long-term impact will not be realized for months, if not years.

• When, not if, will regulators step in to impose changes to the industry?

With any high-profile event, it is almost assured that politicians will enter the fray, sometimes to the benefit but often to the detriment of a sector. The new International Maritime Organization Secretary General Koji Sekimizu weighed in by late January, insisting that the IMO is the right body to deal with the ensuing safety debate in the wake of Costa Concordia. Predictably U.S. politicians jumped in almost immediately, on January 18, just five days after the tragedy, announcing that the Transportation and Infrastructure Committee would conduct a hearing to review cruise ship safety.

"Congress must closely examine how this incident occurred and address questions raised regarding vessel safety and operating standards and crew training requirements," said Committee Chairman John L. Mica (R-FL). Particular attention has been paid to crew training and a focus on the international nature of the crew and staff from a largely uninformed general media.

"We do a lot of training with a lot of different nationalities, and I can tell you for certain that competence is not a national trait, it is a personal trait," said Captain Ted Morley of Ft. Lauderdale-based Maritime Professional Training (MPT), a top training facility for the maritime industry. Taking it one step further, Morley noted that the cruise industry has an exemplary training culture, particularly given its penchant for conducting regular, non-regulatory training. "Looking at at other vessels of commensurate tonnage, cruise shipping companies are at the top of the list in terms of training received. Perhaps the only other sector doing more is the LNG sector."

• Are modern cruise ships growing too large to evacuate safely?

From a structural and design standpoint, there is likely not a naval architect or marine engineer alive that would dub any maritime structure 'perfect.' Rest assured that much time and attention will be paid to ship size and evacuation characteristics by authorities. The evolution of the modern cruise ship has followed a careful path, and the proliferation of megaships was conjured and confirmed by some of the world's brightest minds. The more interesting question will be the public's perception of the safety of climbing aboard the world's largest ships. This perception, or more accurately the market demand for the big ships with the big amenities, will more than any regulator help determine the future size of the cruise shipping fleet going forward.

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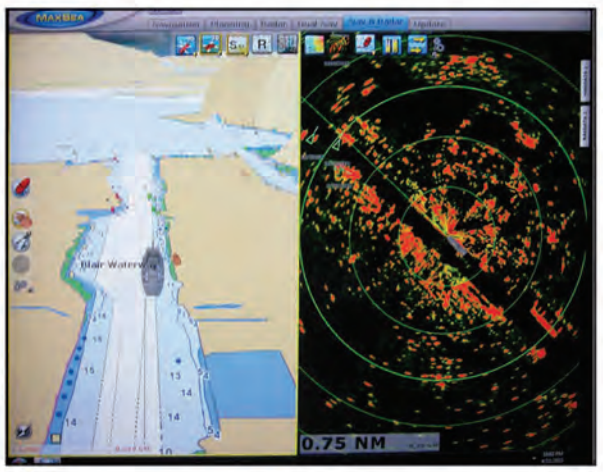
MAXSEA TIME ZERO



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The WAR Against Fatigue

Fatigue is documented as the primary cause of 16% of maritime casualties and is a factor in an additional 37% of casualties. Experts suggest that this is just the tip of the iceberg

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By Dennis L. Bryant

Data show that more than 75 % of marine casualties are the result of human error. Fatigue is documented as the primary cause of 16% of maritime casualties and is a factor in an additional 37% of casualties. Experts suggest that this is just the tip of the iceberg and that fatigue is a factor in the vast majority of marine casualties caused by human error.

Lack of rest has been the lot of seafarers at least since voyages beyond the sight of land became common. Until recently, little has been done formally to address the problem. Governments routinely issue minimum manning certificates for vessels that, while meeting the safe manning level requirements established by the International Maritime Organization (IMO), ignore the realities of life and work on a modern vessel at sea.

In olden days (say, pre-WWII), ships made a transoceanic voyage and then spent a week or more in port while the cargo was unloaded and new cargo was loaded. Meanwhile, the crew rested and enjoyed shore leave.

That is no longer the case. Ships unload cargoes, reload, and are underway in less than 48 hours – less than 24 hours in many instances. Shore leave is a thing of the past. Heightened security makes it difficult to get ashore. Even for those legally able to go ashore, practical realities get in the way. Commercial ports are now largely isolated from city centers. In addition, the crew is generally fully occupied in getting the ship unloaded, reloaded, reprovisioned, repaired, inspected, and reinspected in the short time before departure. Thus, shore leave or even the chance to catch up on sleep while the ship is in port seldom happens.

Laws generally prohibit a licensed individual or seafarer in the deck or engine department of an oceangoing vessel from being required to work more than eight hours in one day. The key word here is "required". Mariners routinely work well in excess of eight hours per day. They are expected to by the code of the sea. They get paid overtime when they do so. There is little else to do on a ship at sea.

A ship is not like an office or factory ashore, where you can shut off the lights and close the door at the end of the day. A ship operates 24 hours per day almost every day of its existence, from commissioning to recycling. It requires a crew onboard the entire time. Minimum manning levels are barely able to cover the basic operational and housekeeping requirements.

They do not take into account the additional man-hours required for addressing commercial issues (e.g., chartering, cargo inquiries, bunkering, victualing, crew changes) and regulatory issues (e.g., recordkeeping, reporting, drills, plan review and update, port state control inspections). I am not aware of an ocean-going ship that today operates with much more than the minimum crew required by its flag state. Thus, in my opinion, the owners and operators of every one of those vessels are expecting the crew to work more hours each day than is safe. The crews are pervasively and continually fatigued.

On June 23, 1989, the tanker World Prodigy grounded on Brenton Reef in Rhode Island Sound, spilling approximately 7,000 barrels of diesel fuel. All aids to navigation were operating properly and neither weather nor visibility was a factor in the grounding. The National Transportation Safety Board (NTSB) determined that the probable cause of the grounding was the master's impaired judgment from acute fatigue, which led to his decisions to decrease the bridge watch and attend to nonessential tasks during a crucial period in the ship's navigation. The master had been on the bridge almost continuously for the 33 hours preceding the grounding. He failed to monitor the position of the vessel as it was approaching the port and it grounded on a charted and marked reef. The incident is rightly considered a prime example of the adverse impact of fatigue on judgment and the performance of even routine duties. Unfortunately, the World Prodigy casualty is only one of many resulting from crew fatigue. It is merely one of the best-documented.

One of the first regulations directly addressing limits on hours of work was promulgated by the US Coast Guard in September 1993. It provides that, on vessels conducting lightering operations in a designated lightering zone, a seafarer may not work, except in an emergency or a drill, more than 15 hours in any 24-hour period, or more than 36 hours in any 72-hour period.

In November 1993, the IMO adopted a Resolution addressing fatigue factors in vessel manning and safety. The resolution noted that fatigue results in the degradation of human performance, the slowing down of physical and mental reflexes and/or impairment of the ability to make rational judgments. Fatigue may be induced by factors such as prolonged periods of mental or physical activity, inadequate rest, adverse environmental factors, or stress. Among the most commonly recognized and documented causes of fatigue among seafarers are poor quality of rest, excessive workload, noise, and interpersonal relationships. Management ashore and afloat and flag administrations are supposed to take these factors into account when establishing manning levels and work schedules.

In 1997, Member States adopted major amendments to the International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW Convention), along with the accompanying STCW Code. Among other things, the Convention stated that each Administration shall, for the purpose of preventing fatigue, establish and enforce rest periods for watchkeeping personnel. The Code was more explicit, stating that watchkeepers shall be provided a minimum of 10 hours of rest in any 24-hour period and not less than 70 hours of rest in each seven-day period. The 2010 Manila Amendments to the STCW Convention and Code, which came into effect on 1 January 2012, expanded the rest requirement to a minimum of 77 hours in any 7-day period. Administrations are further enjoined to require that records of daily hours of rest of seafarers be maintained in a standardized format to allow for monitoring and verification of compliance by the Administration and during port state control examinations.

These efforts should go a long way toward reducing the pervasive fatigue present among seafarers on almost all commercial vessels. Real progress, though, will only be evident when manning levels on commercial vessels are increased.

There is a large volume of work to be accomplished on an operating vessel. Only by increasing the number of hands available to perform that work can exhaustion of crewmembers be reduced. The principles of safe manning, as established by the 1999 IMO Resolution, are supposed to take into consideration the watchkeeping requirements of the STCW Convention (and Code) and ensure that the master, officers, and ratings do not work more hours than is safe. Manning levels should be such as to ensure that the time and place available for taking rest periods are appropriate for achieving a good quality of rest.

In order to minimize disparate impact that would be caused by piecemeal increases in manning levels, it is recommended that flag Administrations come to a mutual agreement on safe manning levels for different types and sizes of commercial vessels. Deviations could be allowed only if the flag Administration clearly articulates the basis for a particular vessel's allowed deviation and provides the IMO with a written explanation for the deviation. In the meantime, flag Administrations and port states should vigorously monitor and enforce the rest period recordkeeping requirement on all ships. Only through such efforts will we make meaningful progress in the war against seafarer fatigue.

Determine Wind Loads with CFD

Report highlights how Computational Fluid Dynamics (CFD) are playing an increasingly important role in the assessment of wind loads.

Wind forces are an important design parameter in ship motions, maneuvering situations, offshore mooring and for Dynamic Positioning (DP) systems. CFD can be utilized to assess wind loads and by using CFD, the complex flow behavior in and around the wake of objects can be better understood.

Within the Offloading Operability JIPs, wind tunnel measurements were carried out to determine the wind loads on a number of vessels e.g. Membrane (Prismatic) and Moss (Spherical) type LNG carriers, a shuttle tanker and an FPSO. For all of the vessels CFD calculations were carried out using MARIN's in-house URANS code ReFRESCO.

In **Figure 1** the computational mesh for the Membrane-type LNG Carrier is illustrated. Ten million grid cells were used. The calculated forces are very dependent on the atmospheric velocity profile used, therefore different profiles were compared with the profile measured in the wind tunnel. Then the development of the profile in the CFD calculations is investigated. Using the correct wind tunnel profile, the wind loads were calculated for the angles 0 to 180 degrees in steps of 10 degrees. Overall, the calculated coefficients agree with the measured values.

Figure 2 shows the results for the Membranetype LNG Carrier. The Cx and Cy coefficients agree very well with the measurements but the figure shows that the Cm is slightly over-predicted in the CFD. A major advantage of CFD is that detailed flow visualizations can be made. In **Figure 3** the pressure distribution on the Membranetype LNG Carrier is shown to illustrate the high and low-pressure regions. This information can be used to optimize the design and location of deck structures.

With CFD the wind loads on typical offshore vessels can be predicted with reasonable accuracy in a cost-efficient manner. The next step is to investigate and predict shielding effects on a vessel positioned in the wake of another ship. Preliminary results are presented in [1]. However, this is a difficult problem due to the large geometric complexity, grid sizes and the accuracy that has to be achieved regarding the calculation of the wake of the upstream ship.

1. Koop, A., Klaij, C., Vaz, G. "Predicting Wind Loads for FPSO Tandem Offloading Using CFD," OMAE2010, Shanghai, China. June, 2010.

About the Author

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Figure 1:
Computational mesh for the Membrane type LNG Carrier. A total of 10 million grid cells are used.

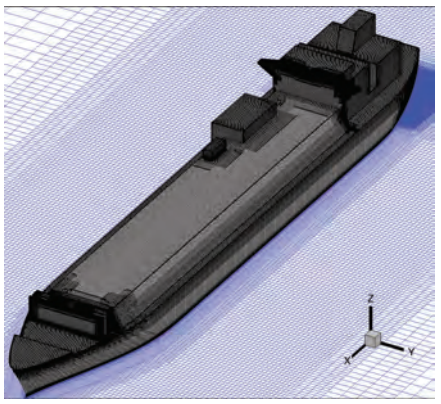


Figure 2:
Calculated and measured force coefficients for Membrane type LNG carrier.

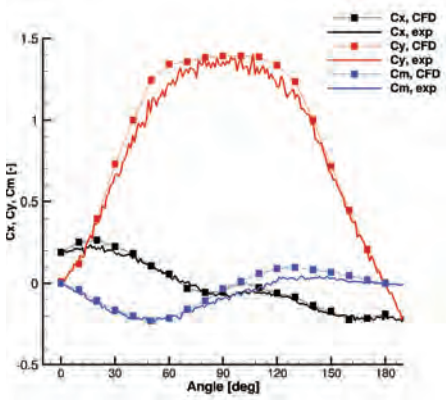
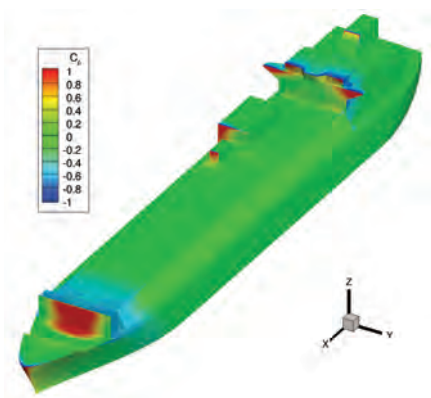


Figure 3:
Calculated pressure distribution on the surface of the Membrane LNG Carrier for wind heading 180 degrees.



The Pirate Surge *that Never Was*

By David Rider, Neptune Maritime

In September 2011, as the monsoon began to blow itself out, there were grave warnings from a number of sources and analysts that the shipping industry could expect to see a significant surge in pirate activity as conditions in the Arabian Sea and Indian Ocean became more favorable. Captain Keith Blount, chief of staff with EU NAVFOR, told the press[1], "I think we are going to see a surge in piracy because we always have done at this time when the southwest monsoon abates and the seas become flatter."

But as conditions cleared, the anticipated increase in pirate activity failed to materialize, to the surprise of many in the industry. This was all the more remarkable given the business model of Somali pirates, which demands that they hijack high value targets which can be ransomed for huge sums which are then used to pay off the investors who supply the equipment used by the pirates, their food and that of their hostages and so on. Without a reasonable turnover of hijacked vessels, pirates begin to run up big bills in their home ports and those cut into their profit margins.

Pirates towards the end of 2011 were very much on the back foot, and successful hijackings were suddenly few and far between.

The data speaks for itself. 2010 saw 210 incidents attributed to Somali pirates, according to figures supplied by the International Maritime Bureau (IMB)[2]. In 2011, this figure increased to 231 but, while 2010 saw 49 vessels hijacked, last year there were only 26 successful hijackings.

While October 2011[3] saw some 26 attacks by Somali pirates on merchant and fishing vessels, only one of those attacks resulted in a 'win' for the pirates; the MT Liquid Velvet, a Greek-owned chemical tanker which was hijacked on October 31 as she transited from Suez to India. In January 2012, NATO reported that the Liquid Velvet had been turned in to a pirate mothership and had left Somalia, on the hunt for other prey. Fortunately, naval forces disrupted this plan but the vessel remains in the hands of its Somali hijackers.

While 26 attempted attacks is certainly a large number for one month, the fact that only one vessel was successfully hijacked is significant and signaled that the tide was perhaps beginning to turn on the pirates. Until the fourth quarter of 2011, pirates had enjoyed continued success in the Arabian Sea and Gulf of Aden (GoA), despite the presence of EU NAVFOR Operation Atalanta and NATO Operation Ocean Shield warships. The 'good guys' have an area approximately the size of Europe to patrol, which has always made early interdiction of pirates a difficult task, particularly given the amount of small boat traffic in the GoA.

The industry continued to hold its collective breath, waiting for more attacks and hijackings as the monsoon abated. However, October proved to be the pirates' most active month that quarter, as November would reinforce. EU NAVFOR initially listed 12 pirate attacks for the month, later downsizing this to just 11 attacks, of which only one resulted in a successful hijacking. Again, the figures confounded received wisdom. From the pirates' perspective, December was to prove little better, with EU NAVFOR reporting just three pirate attacks for the month, although one of those was indeed a 'hit' for the pirates, as the MT Enrico Ievoli enjoyed the dubious honour of becoming the last vessel to be hijacked in 2011, falling into pirate hands on December 27 approximately 215 nautical miles East by Northeast of Salalah, less than 40nm from the Oman coast.

Suddenly, 2011 had become the year the pirates failed and the expected surge spluttered to a halt. The big question is, why?

A number of factors have been cited as possible causes in the drop-off of pirate activity. Kenya's military forces have been present in Somalia for some time, fighting Al Shabaab insurgents across the country and this has been pointed to by some in the media as being partly responsible for the lack of pirate surge. Activity on the ground by the authorities in Puntland, Somalia's semi-autonomous state, have also affected pirates. Recent arrests, including one which saw 150 pirates scooped up in one raid[4], have no doubt caused pirates some discomfort and one cannot discount the persistent presence of NATO and EU NAVFOR patrols in the area as damaging pirate operations. They regularly interdict and disrupt pirate mother ships and dhows, and this too must affect pirate success figures.

Examination of the data, however, highlights another factor which has mitigated pirate attacks: the presence of armed guards onboard merchant vessels. Whilst most official sources view them with ambivalence, there is absolutely no doubt that in the fourth quarter of 2011, they played a significant role in defeating piracy.

Of the 26 pirate attacks conducted in October 2011, a staggering 16 of them were repelled by armed guards[5]. In November, EU NAVFOR's updated figures stated that 11 attacks took place. Five of those vessels had an armed Vessel Protection Team (VPT) onboard. It should be noted that whilst the MT Liquid Velvet, successfully hijacked on October 31st, had a 'security advisor' onboard, he was unarmed. Sadly, the MT Enrico Ievoli, taken on December 27th, had neither a VPT nor even a citadel for its crew to retreat to in times of danger.

While the figures make interesting reading, further evidence of the success of armed VPTs can be found on the ground in Somalia.

Robert Young Pelton is the Publisher of **SomaliaReport.com**, one of the best news sources in-country and a vital resource for anyone interested in breaking Somali news stories and pirate activity. Who better to ask why piracy was at such a low level towards the end of 2011?

"A very simple answer. Armed security on ships. When we analyze every single regional (HOA) contact between the maritime industry and pirates, over 90% of the reasons why pirates broke off attacks, hovered then left or made initial attempts to board.

The use of warning shots, shots to the skiff engines and the use of visible force prevented a successful attack," said Pelton.

Somalia Report has widely covered moves by officials in Puntland to prevent piracy, as Pelton explained:

"There is an increasing pressure on pirates from the government of Puntland. The only functional ground based activity that I have seen is the Somalia Marine Force, local anti-piracy militias in Bargal and arrests made by Puntland police. Puntland has gone from being blamed for supporting piracy to being the most aggressive land based force working to eliminate it.

It's a pity that international groups who are also working to defeat piracy do not support and co-ordinate with these national entities. Watch for dramatic events from the new Somalia Marine Force. They will bring around 1000 trained locals, air assets, naval assets and a very sophisticated approach to the elimination of piracy in Puntland."

With more shipping firms employing private security companies to guard their vessels, it seems clear that the methods used by Somali pirates will have to evolve.

Robert Young Pelton agrees, "[We will see] More audacious attacks like the near land or at anchor attacks, land based attacks to grab western victims. It is an entrepreneurial model with low cost of entry, multiple attacks to try new tactics and little risk.

So I fully expect pirate groups to surprise us with each attack in 2012 rather than maintain the status quo, which as Somalia Report predicted last year, is now dead."

As the UK government continues to ratify the procedures needed to vet maritime security companies so that UK-flagged vessels can employ armed VPTs5, it seems that they are becoming the de facto defense against Somali pirates and insurers agree.

2012's pirate season has already kicked off with one reported casualty thus far – an Iranian chemical tanker – although actual details of this hijacking remain scarce.

With more vessels carrying armed security details and the continued use of citadels and Best Management Practice, this year could be the most interesting yet in the fight against an illegal industry which is estimated to cost the global economy as much as $8 billion each year[7].

About the Author

David Rider is Neptune Maritime Security's Communications Officer, and has 20 years' experience in journalism and communications. Email david.rider@neptune-ms.com

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Raytheon Anschütz Expands in the U.S.

While the rest of the world is seemingly in contraction mode, and positive forecasts regarding the maritime industry are few and far between, one marine electronics major is in expansion mode, planting the seeds now and perhaps raising the flag for the inevitable rebound to come.

Raytheon Anschütz announced last month that it is expanding its presence in the U.S. navigation systems market with the opening of its San Diego, Calif.-based operations in January 2012. Frank Christophersen, US Vice President Sales, was tapped to lead the effort, and in talking with Maritime Reporter he explained.

"The timing is interesting, because the economy is not so great, and the industry is down," Christophersen said. "From our perspective, it's the best time to set this up, to prepare and get strong for when times get better."

"Raytheon of course has some military products and is already serving the U.S. Navy. There is a lot of synergy with what Raytheon is doing, and with Anschütz commercial business," Christophersen added. "The Military and the Coast Guard is moving toward a more "off-the-shelf" approach. On the commercial side of the business is, of course, the U.S. based shipowners that are building overseas. Even though the ships are being built overseas, the decisions are made here, the specifications are made here. And then, of course, after they are delivered, they often call on the U.S."

The business area will be co-located at Raytheon's established facility, dedicated to the development and delivery of naval and maritime systems and technology, giving the expanded company a deep pool from which to draw talent. In addition, though, Christophersen did admit that there are plans to expand with additional personnel.

With the new office, Raytheon Anschütz focuses its capabilities in providing navigation systems and customer support to the U.S. maritime industry. The U.S. office will promote the full portfolio of Raytheon Anschütz's navigation components and solutions, including gyro compasses, autopilots and steering controls, radars, ECDIS and complete integrated bridge systems for both, new and retrofit projects.

"The office will become America's new center of navigation excellence, providing the full scope of navigation technology and best-in-class service and support for shipyards and ship owners," said Christophersen. "We used to be represented in the U.S. by a distributor. From a company perspective, it just didn't make any sense."

Backed by Raytheon's infrastructure, Raytheon Anschütz's U.S. operation is

dedicated to providing customers with direct access to technical advice and pre-sale consultancy regarding IMO recommendations, class requirements and operational needs, as well as life-cycle support services.

Raytheon Anschütz navigation systems are installed on more than 30,000 ships worldwide, making the company to a leader in bridge and navigation systems supply. The opening of the new office signals the return of the navigation business of Raytheon and Anschütz to the USA. For many years, the former companies Anschuetz of America and Raytheon Marine had been established navigation system providers for many shipyards and shipping companies from all over the United States.

"On the commercial side of the business are, of course, the U.S. based shipowners that are building overseas. Even though the ships are being built overseas, the decisions are made here, the specifications are made here. And then, of course, after they are delivered, they often call on the U.S."

Frank Christophersen, US Vice President Sales

Heeding the Call Offshore

German Maritime Economy

Six percent drop in sales in 2010, but upturn in incoming orders improving production capacity utilization for 2011.

By Peter Pospiech, Dipl.-Ing., Germany

"We continue to be successful in world markets and have also found new customers in attractive niches in 2011. At the same time, our regular customers are now again ordering not only in the newbuilding segment but precisely also in the retrofit area," said Dr. Alexander Nürnberg, Chairman of VDMA Marine and Offshore Equipment Industries, at a late 2011 press conference held in Hamburg. The German maritime economy is an essential industrial sector, which — particularly in the rather economically underdeveloped regions of the northern coastal areas — account for a high percentage of the regional content. Here, the maritime economy has an unchanged supporting part. Additionally, by integration of component suppliers from the southern federal states, a substantial employment is assured. In total there are about 400,000 people active in the German maritime economy, including approximately 19,000 working in shipyards and an additional 72,000 in the ship and offshore suppliers industry. Approximately 22,000 people or so are active in one of the 400 shipping companies, e.g. shipping lines and ship brokers on shore. In addition the ship crews on German ships must be counted – about 10,000 Germans.

SALES OF 11.1B EURO IN 2010

German marine and offshore suppliers generated sales of 11.1 billion Euro with 72,000 employees in 2010. The export rate was 72 percent. Capacity utilization in production among marine equipment suppliers continued to improve. Short-time work is a thing of the past in most companies.

The offshore supply business in the oil and gas market was not affected by the slump in sales and continued on the growth track as in recent years. Here the business development during the first half-year 2011, resulted in order incomes of 13 ships amounting to 1.8 billion EUR. Herewith, the orders on hand increased again to 1.6 billion gt, valued by 8.2 billion EUR (end of December 2010: 1.4 billion gt; 7.4 billion EUR). The structure of orders on hand back up impressively that the German ship yards have successful performed their orientation towards special shipbuilding.

MORE INCOMING ORDERS

Incoming orders recovered by eight percent in 2010 following the dramatic slump in shipbuilding orders from October 2008 and the drop of 29 percent at suppliers in 2009. The trend thus seems to have been reversed and slight sales growth can be expected for 2011. The sector has coped by itself with the shipbuilding crisis and expects to achieve continuous, modest growth in the next few years. Especially in the special shipbuilding sector – from oceangoing cruisers to megayachts, from freight ferries to

The futuristic E-Ship I driven by four Flettner-Rotors for emission reduction reasons, built by Lindenau Shipyard and Cassens Shipyard.

offshore-special ships and naval-shipbuilding – German shipyards proved oneself, in spite of crisis, as being competitive and able to win new orders.

OPPORTUNITIES IN NEW EXPORT MARKETS

Marine equipment and offshore suppliers have concentrated on developing new export markets in addition to benefiting from the slowly increasing orders in established areas. The VDMA delegation trips in 2009 and 2010 were successful and are being continued at the same high level in 2011. Emerging shipbuilding giants such as India, Brazil and Russia are coming to the fore in the wake of the top trio of Asian shipbuilding countries China, Korea and Japan. **In 2010, 2,780 oceangoing vessels were again ordered worldwide (compared to the previous year: 1,599), with 928 (605) in China, 464 (140) in South Korea, 385 (281) in Japan and 173 (89) in the EU-27, including 21 (7) in Germany. Orders on hand for ships worldwide declined again last year, from 9,226 vessels to 7,822.**

CHINA'S STILL THE LARGEST

After 50 years, a new sailing vessel has been built by shipyard BVT, Bremen.

The main foreign markets for German suppliers in 2010 were in Asia (35 percent) and other European countries (33 percent). China is the largest foreign market, accounting for 21 percent of exports, trailed by Korea (9 percent). The sector is continuing to monitor very closely Asian countries' efforts to expand local suppliers. German firms are thus aiming to retain their existing edge in the technical and logistics area and improve on this with innovations. Know-how protection is continuing to become more significant, also within joint ventures with local partners in Asia.

OUTLOOK FOR OFFSHORE

German suppliers are continuing to step up their involvement in the offshore oil and gas industry that they have been displaying for several years. Christoph Daum at MENCK GmbH (Kaltenkirchen): "Demand for high-quality, reliable equipment is high. Availability, dependability and high environmental and safety standards are crucial competitive advantages of German companies in this respect. A system leadership, as frequently called for in the political area, is not a prerequisite for long-term success in this very international business."

Offshore suppliers are active in the oil and gas area as well as the offshore wind segment. Here there are synergies that favor "learning from one another" and therefore add to the attraction of Ger-

“We continue to be successful,” said Dr. Alexander Nürnberg, Chairman of VDMA Marine and Offshore Equipment Industries during a press conference in 2011.

many as industrial location. The VDMA is thus also actively promoting networking among its members between these two maritime segments.

ENERGY EFFICIENCY IS GERMAN CORE KNOW-HOW

A further focus of German suppliers is energy and cost saving and at the same time the environment-friendly operation of ships and offshore plants. In this respect, the German high tech industry has a reputation to defend with its technological edge. “The developments with drive trains and in particular engines are excellent examples here,” said Klaus Deleroi, MAN Diesel & Turbo SE (Augsburg), “as only technology leaders with system expertise are able to optimize the various emission values during the entire lifecycle of an engine. In this process, we certainly have to take into consideration the flexible deployment scenarios. By doing so, we help the customer meeting statutory requirements worldwide and give him a crucial advantage in terms of cost-efficiency and environmental protection.”

An interesting business area is also developing here for the retrofitting of older ships to ensure an immediate improvement in their efficiency and environmental compatibility.

FLEXIBILITY

As it has been forecasted exactly a year ago, the workforce with 72,000 employees could be largely retained. There are currently shortages of qualified employees again, as other industrial areas are also booming and the demographic development in Germany is beginning to make its presence felt.

“Thanks to our well above-average training rate and the support of the dual study courses, we are confident about the future,” said Dr. Alexander Nürnberg. He added: “We ask a great deal from our employees. Our reliable personnel policy, our optimism and our top teams in the often owner-managed companies will give us the suitable young talent to master the challenges in the global market with its ever shorter cycles.” Precisely for the small or medium-sized marine equipment and offshore suppliers, the flexible, breathing company is the prerequisite for survival on the world stage.

SHAPING THE FUTURE

Meyer Werft Management, works council and union IG Metall undersigned a new future oriented labor agreement. “In Europe the last existing ship yards struggle about their business,” says Bernhard Meyer. All the more proves the document in an impressive manner the course for future markets of Meyer Werft. The shipyard with it’s daughter companies, the works council and the union IG Metall jointly agreed in productivity improvement for the next years. As a tribute to their fellow employees for their engagement to optimize the new production processes a bonus as well an employment guarantee till June 2016 has been given.

”With this contract we are saving the new path of constant improvement and productivity increase. We achieved a lot, but still we are not at the end of the way,” said Meyer. **“The company will invest this year again 50m EUR into yard facilities, IT-infrastructure and also into** staff’s professional skills. The conclusion of the contract is an outstanding example how a company with a labor agreement in long-run saves the particular location and also the jobs,” said IG Metall manager Meinhard Geiken.

TOWARDS COOPERATION

To overcome the size limitations of the Flensburg premises and in order to combine experience and references in the offshore business, FSG (Flensburger Schiffbaugesellschaft mbH) entered into a partnership with the Nobiskrug shipyard in Rendsburg. This partnership also encompasses the production facilities at the former HDW-Gaarden shipyard in

Klaus Deleroi, Senior Vice President, MAN Diesel & Turbo, “The developments with drive trains and in particular engines are an excellent example here.”

Shipyard Abeking & Rasmussen focus is on special ships like their own development SWATH-ship in all sizes.

Kiel, thus offshore units from 60 to 400 m can be offered. The brand name for this new venture, German Offshore, reflects the objective of these two cooperating companies: to introduce renowned German shipbuilding expertise to the broad field of offshore applications. Thanks to its excellent engineering capabilities and extensive production facilities, this cooperation can offer the full product portfolio for offshore sectors. Indeed, such is its expertise and its production capacity, that there are hardly any limits on the size and shape of the products it can develop. The German Offshore product range includes e.g. design and assembly of transform and jack-up platforms, special ships (e.g. heavy lift freighter, OSV Offshore Service Vessels, accommodation ships) as well as cable-laying ships.

P+S Shipyards Multi Purpose Emergency Tug Nordic, stationed in the middle of the North Sea.

The Disney Fantasy from Meyer Werft.

Meyer Werft

The Cradle of Deluxe Cruise Ships

By Peter Pospiech, Dipl.-Ing., Germany

Dreamliner from Germany's Northwest Craved Around the World

These are the pictures which are going around the world on the occasion of towing again an enormous cruise ship out of the covered building docks and pull it in high precision work via the very narrow inland waterway across the grassland of the river Ems towards the open ocean. These pictures brings the city of Papenburg, with its 35.000 residents, into focus. The pictures are unreal as well as fascinating. With its periodical rerun, always then, when a new cruise ship leaves the Meyer Werft of Papenburg, they are burnt into the memory as a kind of an icon of the new ultra-modern Northwest.

Who are the people of the Meyer Werft and what makes them so effective?

The company Meyer Werft GmbH in Papenburg on the river Ems was founded in 1795, and has been owned by the Meyer family for six generations. Bernard Meyer is managing partner at the helm of this well-established shipyard. The president likes it to be reserved. He wears a dark blue jacket, typical east Frisian, he drinks tea and drives an Audi. But not an eye-catching one. Don't make a great play – particularly of one's own. Only the maritime golden button on his jacket twinkle a bit treasonous.

Over the past few decades Meyer Werft has earned an excellent reputation in the construction of special-purpose ships – and this throughout the world. Long-standing experience in the construction of passenger vessels gained in the 80s has been the basis for a successful entry to the market of large, modern cruise ships. To date the shipyard has delivered 32 luxury liners of different tonnages to customers all over the world. The latest highlight was the delivery of the 122,000-gt giant Celebrity Silhoutte to Celebrity Cruises (Miami) in July 2011 in Eemshaven/Netherland.

The Celebrity Silhoutte is the fourth ship out of a series of five cruise ships the shipyard is building for Celebrity Cruises. Highly energy-efficient systems, a solar power system, optimized hydrodynamics, a very efficient underwater hull coating and an energy-saving lighting system using LEDs cuts back the ship's energy demand considerably.

Very soon the next transfer and delivery was in preparation: Mid January 2012 the Disney Fantasy leaves the covered building docks and end of the month the new luxury cruise liner went on his very difficult delivery voyage via the Ems towards the Northsea for several day's seatrails. Meanwhile, the Meyer Crew assembles the next cruise liner – the AIDAmar. Delivery has been scheduled for Q2 2012.

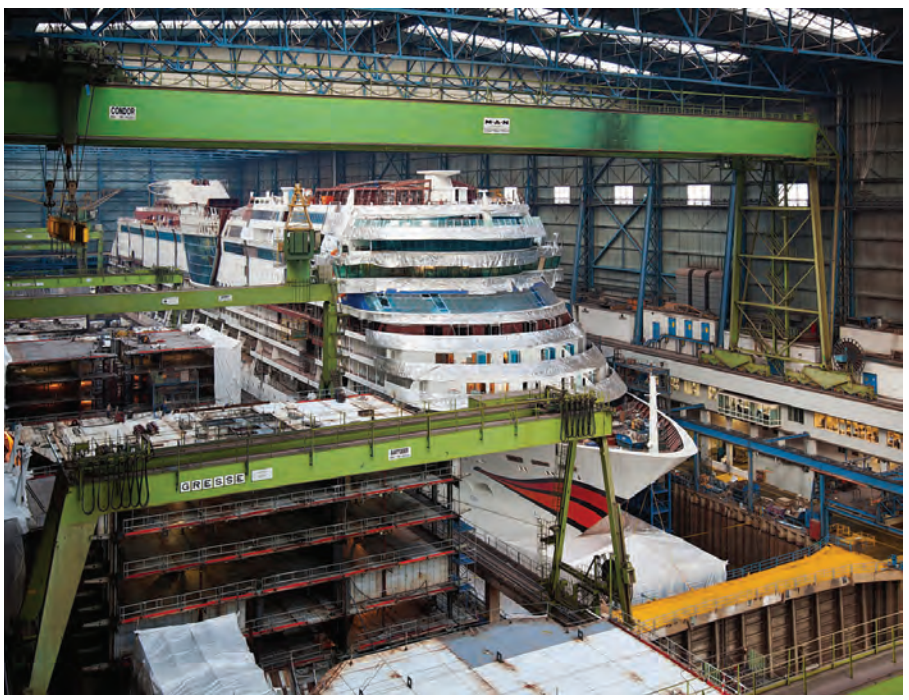
Today, with its approx. 2,500 employees, Meyer Werft is one of the biggest employers in the region. In the family-owned company more than 300 apprentices are trained in 12 different professions. Over and above this enterprise co-operates with about 2,000 suppliers, which ensures employment in regional companies and beyond.

Ralf Sempf, head of materials management and purchasing of Meyer Werft: "Approximately 800 suppliers are involved in the building of a cruise ship. Our own share of the cost of building these highly complex vessels is only about 25% nowadays - the equipment suppliers account for around 75% of the cost of building a new cruise ship. As well as procurement directly related to the ship, we also work with many more suppliers, more than 20,000 companies, who provide us with goods and services."

Peter Hackmann, head of Corporate Communications, adds: "With two club ships for AIDA Cruises, one post-PanMax ship (122,000 gt) for Celebrity Cruises, one 130,000-gt ship for Disney Cruise Line, two 143,500-gt ships for Norwegian Cruise Line and two cruise ships (158,000 gt) for Royal Caribbean International, the shipyard's order book now includes eight cruise ships which will all have been completed by 2015. We are currently one of the world market leader in the cruise ship segment, with a market share of around 38%. We also have a technically sophisticated gas carrier on our order books. The order book of Neptun Werft, an affiliated company of the yard, also includes, among other vessels, 10 river cruise ships and one research vessel. The total order book value of the group is currently around •EUR 5 billion."

Meyer Werft Papenburg with its covered building docks.


The latest delivery, Disney Fantasy.



The next supply waits already for floating: AIDAmar.

Creative Shipbuilding

Meyer Werft has always proven to be extremely creative when it comes to outfitting of their luxury liners: climbing walls on sundecks, golf simulators, Broadway-style theatres or ultramodern beauty and spa areas make holiday dreams come true. This well-established company has meanwhile developed into Germany's biggest contractor for theatres.

Moreover, with its green ship concept, the shipyard has been pursuing a lasting strategy for improving the eco-friendliness of cruise ships. This concept embraces reduced emissions and energy consumption, environmentally friendly water and sewage treatment as well as non-polluting waste disposal.

Luxury car and passenger ferries as well as RoRo ferries and passenger ships also count among the shipyard's range of products. Over the past few decades Meyer Werft has built 30 ferries and RoRo ships. Neptun Werft GmbH with it's headquarter in Rostock , is a builder, among others, of river cruise ships which are operated on the Danube and the Rhône, for instance. Neptun Werft currently has ships on order, or under construction respectively, for the river cruise operators A-ROSA Flussschiff GmbH, Rostock/Germany and Viking Croisière S.A., Basel, Switzerland. In April of the past year 2011, Neptun delivered the river cruiser A-Rosa Brava and in same years July the Viking Prestige to it's client.

Since 1983 Meyer Werft has also built 24 passenger ships for the Republic of Indonesia. The latest ship was the Gunung Dempo which the shipyard delivered to the Indonesian owners in June 2008. Meyer Werft is also focusing on the construction of gas tankers for the transportation of liquefied and chemical gases. In 2010 the 55th gas tanker was completed and delivered to the owner by the Papenburg shipbuilders.

And last but not least: After designing a new prototype at the computer the innovative newbuild begins to take shape: The steel cutting of the first LNG carrier with a so-called dual-fuel engine for shipping company Anthony Veder (Rotterdam/NL) marks a new era. The new tanker for the transport of Liquefied Natural Gas will have a length overall of about 156 m, a breadth of 22.7 m and a cargo capacity of 15,600 cu. m., which can be cooled down to minus 164° C. The ship, which will be named Coral Energy, is able to operate at a speed of 15.8 knots and can be powered by LNG as well as heavy fuel oil. The delivery of the vessel is scheduled for Q4 2012. Neptun Werft will be highly involved in the construction and outfitting of this new LNG carrier.

"Approximately 800 suppliers are involved in the building of a cruise ship. Our own share of the cost of building these highly complex vessels is only about 25% nowadays — the equipment suppliers account for around 75% of the cost of building a new cruise ship. As well as procurement directly related to the ship, we also work with many more suppliers, more than 20,000 companies, who provide us with goods and services."

Ralf Sempf, head of materials mgmt. & purchasing, Meyer Werft

SHIPYARD HISTORY

In 1975 the shipyard moved its premises from the town center to the periphery of Papenburg, where first of all a covered building dock was built, which was extended between 1987 and 1990. To meet the strong demand for newbuildings, Meyer Werft made the biggest investment in the history of the company in 2002: a second building dock and prefabrication halls featuring state-of-the-art laser welding plants were built. The new building dock was once again extended by 120 m in 2008. Currently the laser welding plant un-

(L to R): Torstein Hagen, Janice Farrar-Titus of shipping company VIKING, Mr. and Mrs. Bernhard Meyer, Meyer Werft.

dergoes a lenght extension.

In doing so, Meyer Werft has provided the best possible conditions in order to stand its ground successfully in the fierce international competition also in the future, and to be able to offer ships of all customary tonnages (up to 180,000 gt).

The construction of cruise ships is a highly competitive market, with much international competition. Two years ago, Meyer Werft began to restructure its strategy, with the aim of consolidating the company's market position. Also, the new concept "Continuous Improvement Process" (CIP) is being gradually implemented throughout the shipyard's various sections, in the form of a continuous improvement process. By analyzing individual processes, streamlining methods can be determined and implemented, with the aim of increasing efficiency, reducing cost, improving quality, and shortening ship throughput times. The Streamlined Shipbuilding system also necessitates streamlining of the logistics processes in the company. All changes are based on the "6 Rs" of logistics: the right goods at the right time, at the right place in the right volume, in the right quality and at the right cost.

The ship development process has been implemented in the shipyard's design and construction offices, to ensure that the work process is as productive and time-saving as it can be, even during a ship's development phase. It also enables the needs of the production process to be accommodated as early as possible. The purchasing department subjected itself to a process analysis at the beginning of the year, in which two essential improvement methods were established.

Ralf Sempf explaines the system: "First of all, we need to integrate partner companies in a cruise ship's design process at an earlier point in the process. This enables the supplier to devise plans for the various sections of the cruise ship in the early phase of the project, in consultation with the customer and the Meyer Werft design and construction office. Our partners are then better able to plan, to detect implementation problems at an early stage, and to develop alternative strategies. The first five pilot sections have already been defined for the new Norwegian Cruise Line ships. Secondly, we not only wish to optimize the shipyard's processes, but also to promote the continuous improvement process together with our strategic partners.

This involves developing the process chain together with the supplier and examining the product to ascertain costs, quality, functionality and the supplier's delivery service, always with the goal of improving quality, costs and punctuality. The regional companies J&K and Wenker took part in the first projects. Joint workshops held on the premises successfully evaluated and prioritized productivity enhancement potential, which is now undergoing implementation. The advantage to our partners is that they are able to incorporate jointly developed improvements in their products and production processes. These important steps enable us to face the international competition in cruise ship building together, and to maintain our market success in the future."

Emergency Preparedness for Ports

By Kathleen Gleaves

Since Hurricane Katrina and the terrorist attacks of 9-11, the concept of emergency preparedness planning has made deep inroads into the Standard Operating Procedures and Best Practices of government agencies and jurisdictions. However, many Special Purpose Districts, including small Port Authorities, have managed to avoid the process believing their Coast Guard approved Facility Security Plan is all that is needed; emergency preparedness beyond that is unnecessary. There are exceptions, but a disturbingly large number of Ports are still hiding behind the tired old mantra, "It's the tenants' responsibility." After all, the tenant is the operator and the Coast Guard holds the operator responsible for security planning. But there are numerous threats beyond security issues that can undermine a Port's ability to function normally. The Occupy Movement and other recent civil actions are prime examples, plus chemical and fuel leaks, oil spills, natural disasters, fires, accidents, power disruptions and more.

The belief that contingency planning for operational disruptions is not their problem all too often means seaport representation is missing from regional response and recovery planning. Partnering with local agencies for emergency planning is not a priority to business-centric Port management. Without Port input, local planners build plans based on their own assumptions. This disconnect can be a serious roadblock to a smooth and successful emergency response and recovery effort for the entire region. There is a lot of confusing terminology out there; emergency planning, emergency preparedness, business continuity, continuity of operations, contingency planning, resilience, and more. They can all be distilled down to a simple concept; surviving a critical event is contingent on having a solid plan.

Without a plan, an agency will be trying to solve rapidly-changing problems in a chaotic environment without a foundation of leadership, training, resource management, or even a clear idea of what survival looks like one week, one month, or one year after the disaster. What is the new normal?

Equally important to having a plan is coordinating those plans with neighboring agencies and jurisdictions. In an ideal world, Port representatives play a role in all regional planning, training and exercise events. Doing so allows for the sharing of ideas, needs and priorities. During an emergency, the Port's representative becomes the liaison with other responding agencies keeping vital communication lines open and providing a familiar face. A time-worn adage of Emergency Management is "The middle of a disaster is no time to be exchanging business cards."

Practicing complex responses and communications plans through joint planning, training and exercises smoothes the path to a more coordinated effort. (Shown here is Royal Caribbean's Rhapsody of the Sea, Port Police Dive Team, City of Seattle Police Dive Team and the Seattle Fire Department's Dive Team conducting a joint exercise in Puget Sound.

AREAS OF DISCONNECT

The near-mythic concept that cruise ships, in a sort of "bareboat charter" configuration, are the answer to Mass Sheltering needs has proliferated since Hurricanes Katrina and Rita in the Gulf. The realities of those efforts do not match the myth, yet jurisdictions with ports in their realm are building it into their planning efforts. On the surface, it seems to have everything going for it; private sleeping quarters, large community eating areas, commercial kitchen and laundry, public address systems, self-contained fresh and waste water systems, TV and media access; in short, everything necessary for an ideal Mass Shelter. Yet the reality is that, while it sounds practical, if ports are not set up to handle it, it may not be possible, or at least not possible in a reasonable time frame. TWIC and other security measures required for cruise ships, availability of shore power and/or fuel, even the freedom of movement for the residents are issues that challenge plans for using cruise ships as shelters. Well-meaning local emergency planners may not understand nor fully appreciate these challenges without input from Port emergency management specialists. It is too late to develop a plan when the city Emergency Manager is waving a cruise ship full of 2000 men, women and children toward the Port, and asks, "Where can we park this?"

Responsibility for providing emergency back-up power for air filtration at a grain loading facility is too important to wait until the grid fails before considering options.

The same holds true for the use of Port facilities for importing emergency resources. Local emergency planners rarely realize the need for a match of size and function between ships and docks. Their belief that any ship can pull up to any dock can cause huge problems for the movement of recovery materials and equipment. Few even realize gantry cranes run off the electrical grid. If restoring electrical power to the waterfront is not a top priority, a Port may not be able to provide the recovery support expected by the community. Can any modern, mid-size or larger port accommodate those expanded needs during a crisis with only their break-bulk or self-unloading capabilities intact? Collaborative planning is the only way to avoid these pitfalls.

Tenant use fees and lease payments directly impact a Port's bottom line. If Port facilities are non-functional or have been commandeered by the response effort, how long will a tenant pay rent on an unusable facility, and how long can a Port survive without the revenues generated by their tenants? Who pays the bills?

Even if the local community does not anticipate utilizing Port facilities, there are additional concerns. Road, bridge, and rail viability is critical to moving cargo on and off of a facility, and hence generating income. If local community planning has not prioritized Port needs in terms of restoration of service, the facility may sit idle for days, weeks or months simply because local planners were not aware of the needs. Shipping companies cannot wait for a lengthy recovery; they will find a new facility. The only question is will they ever come back?

A BUMPY ROAD

Sometimes the success of an improvised solution leads the way to an effective emergency plan. After the Loma Prieta earthquake in the Bay Area in 1989, the loss of the highways and bridges drove local responders to the water where a hasty assemblage of private and public vessels were pressed into service for the movement of goods, services, and people. While the ad hoc solution worked eventually, it took time and no small amount of trial and error putting it together. With the ultimate success of the effort, local emergency planners and responders realized the value in having a plan that organized those resources more efficiently for future events.

In 2007, a chlorine leak near the Port of Tacoma revealed the lack of a comprehensive evacuation plan for the Port and the surrounding tide flats industrial area. Even though 25 victims were transported to local hospitals, this mass casualty event claimed no lives. Another positive outcome is that it inspired officials from the City of Tacoma, Pierce County, the Port of Tacoma, and local tribal organizations to collaborate on an evacuation plan and opened the door to greater cooperation in all areas of emergency management for the region.

The discovery of old World War II munitions under the cruise ship docks at the Port of Seattle in 2010 initially triggered a disjointed and confused response involving dozens of agencies alternately claiming and denying responsibility for removal. When the Captain of the Port threatened a complete shut-down of the cruise facility just days before the beginning of the Alaska cruise season, all of the parties - US Coast Guard, Navy, Army Corps of Engineers, Port Police, City of Seattle Police and Fire Departments, Port Operations, Port Security, cruise lines, private security agencies, and numerous tenants unrelated to the cruise operation, sat down and worked out a mitigation and response plan to deal with future events. A serious illness onboard a cruise or container ship may add Public Health, the Center for Disease Control, the State Department, and foreign governments, to an already crowded pier. By training and practicing together these disparate agencies can learn to work more efficiently as a team during an actual event.

Developing a solid emergency plan for a Port is no small task, but there are numerous resources available. The American Association of Port Authorities (AAPA) has a Best Practices handbook for building a plan. FEMA has in-house and online training programs for Continuity of Operations (COOP) planning and the National Incident Management System (NIMS) planning protocols. Business Continuity Planners abound through a number of private certification organizations. Emergency planning for seaports is a specialized practice and must be undertaken by someone who understands the unique mix of corporate business and government operations, the mix of private business and regulatory restrictions, and the delicate balance of security and commerce. Ports may be small when compared to cities or counties, but their emergency planning processes are no less complicated; different, but still complicated.

Practicing complex responses and communications plans through joint planning, training and exercises smoothes the path to a more coordinated effort. (Shown here is Royal Caribbean's Rhapsody of the Sea, Port Police Dive Team, City of Seattle Police Dive Team and the Seattle Fire Department's Dive Team conducting a joint exercise in Puget Sound.

The current buzzword "Resilience" sounds less dark and scary than "Survival," but in the end, the meaning is the same. Survival is dependent on a Port's ability to handle the next disaster taking aim at its shores. While a solid plan cannot guarantee any entity will survive a disaster unscathed, not having one guarantees it won't.

More & more marine operators employ modern maritime comms to find

Efficiencies through the airwaves

It could be argued that the evolution of Satellite Communication services is the most transformational technology in the maritime sector in the past 20 years. It has an indelible impact of everything from advance planning of port calls to emergency runs to the ship repair yard; from enroute planning and equipment diagnostics to crew calling and related quality of life at sea issues. Maritime Reporter & Engineering News has once again assembled leaders in the business of Satellite Communications around our virtual "Round Table" to discuss the issues, technology and challenges to ensuring a seamless transmission from ship to shore and back.

– by Greg Trauthwein, Editor

The Participants: Peter Broadhurst, Cobham Satcom Marine Systems Sea Tel Products • **Tom Clark,** Deltawave Communications • **Jim Dodez,** KVH • **Jon Harrison,** Intellian Technologies Inc. • **Casper Jensen,** Thrane & Thrane • **Tore Morten Olsen,** Marlink • **Irwin Rodrigues,** Boatracs

Put in perspective the way in which the maritime community uses SatCom services today versus just 10 years ago?

Olsen, Marlink Satellite communications usage typically mirrors trends on land and today, more than ever, the maritime community is relying upon connectivity to increase operational efficiency as well as support crew welfare.

Clark, Deltawave These days, it seems to have become expected that vessels provide broadband services to their clients and crews. VSAT in particular has become much more affordable now than it was 10 years ago. While mobile satellite equipment and services such as Inmarsat and Iridium are still prevalent, broadband solutions are increasingly in demand due to the nature of clients expectations. Providing data connectivity for vessel crews are increasingly becoming more prevalent for crew morale as VSAT rates are becoming more affordable, along with alternative technologies such as Inmarsat's new Wimax service which is an ideal alternative for companies operating in the GOM.

Broadhurst, Cobham Communication has become a versatile tool that has allowed operating efficiencies for the maritime community. Real time monitoring and reporting allows route planning, cargo trading, and shore side operation management, ensuring maximum operating return from the vessel and crew.

Where do you see growth opportunities?

Rodrigues, Boatracs We see opportunities for growth in three primary areas. The first area is in small to medium size fleets. **Roughly two thirds of the North American workboat market consists of fleets with less than 20 vessels, and there is growing demand for affordable, simple satellite communications solutions that help these companies stay competitive and compliant.** The second area is around compliance and making it easier to collect, manage and retrieve critical vessel data. Finally, we see demand for affordable and scalable fleet management software that integrates a variety of data – fleet positions, messaging, navigational, regulatory, AIS – into a single visual interface that is hardware agnostic. Scalability is an important factor – today, Boatracs has fleets that range from 1 vessel to over 200.

Dodez, KVH The commercial shipping, fishing, and oil and gas industries are all moving toward more advanced onboard communication and crew welfare solutions at a rapid pace, making satellite communications for commercial vessels a key growth opportunity for KVH and the mini-VSAT BroadbandSM network. An estimated 95% of the world's cargo volume is moved by ship, making efficient business operations and retention of crew members essential for this massive industry.

As cost-efficient services like mini-VSAT Broadband become more readily available, ship managers are updating their onboard communication solutions to improve compliance with various regulations, including electronic filing of port entry forms and more convenient Electronic Chart Display & Information System (ECDIS) updates, as well as better integration with shore-based systems for business efficiency. Network management solutions like KVH's CommBox Ship/Shore Network Manager offer a variety of benefits to support these efforts, including roaming crew e-mail, least cost routing capabilities, and robust security features.

Broadhurst, Cobham The need for bandwidth and higher throughput services to support the advancing IT functionality and onboard services will continue in the future. Always on and fixed pricing will be a key feature to running the applications that are being built to support the maritime community.

The maritime industry is generally regarded as conservative in its adoption of new/emerging technologies. Do you find this to be the case in the SatCom sector, and if so, what do you think will be the driver to increase service(s) adoption?

Dodez, KVH Mariners are working to maximize efficiency just like any other business, especially in this global economy. We've seen that maritime businesses are willing to adopt new technology that offers a combination of affordability, reliability, convenience, and support. Those features are part of the reason the mini-VSAT Broadband network is the fastest-growing maritime VSAT solution in the world, with more than 100 terabytes of data delivered annually, more than 2 million voice calls handled around the globe, and 99.5% network uptime in 2011.

tore morten olsen, marlink

"There is now greater competition between hardware manufacturers which constantly drives them to bring technologically advanced and innovative hardware to market. This has led to the introduction of smaller, more compact antennas which offer increased reliability."

irwin rodrigues, ceo, boatracs

"Roughly two thirds of the North American workboat market consists of fleets with less than 20 vessels, and there is growing demand for affordable, simple satellite communications solutions that help these companies stay competitive and compliant."

Rodrigues, Boatracs The maritime industry is cautious in terms of technology adoption, and for several reasons. A large majority of the industry consists of small to medium size operators who don't have IT departments to evaluate, implement and maintain the hardware and software required for reliable communications. This category of customer needs a great deal of support to successfully adopt and become a raving fan of new technologies. In addition, customers of all size want a solution that fits their needs and often times new technology is too complex and inflexible. Companies are less likely to adopt if they feel the solution is overkill or requires modifying operations purely to accommodate technology. We also find that companies won't adopt until they understand the time to value. They have heard about multi-year implementations that were supposed to deliver value much earlier, and they want to begin seeing measurable results in a very short time frame.

Broadhurst, Cobham The maritime industry is very conservative and generally only adapts compulsory technology as a whole. **However communications is becoming a necessity to increase the efficiency and profitability of the maritime industry.** There will be early adaptors and take up of new technology has quickened in recent times. Also shipping companies are quicker to see the value in the return on investment of new technologies.

Olsen, Marlink Different sectors of the maritime industry have different needs. While some sectors focus on optimizing operational efficiency of the business, other sectors have a higher focus on costs and it is this variable that determines how quickly new satellite communication technologies are adopted. For instance, vessel and platform operators in the oil, offshore and specialized sector, the cruise sector as well as the military and government sectors typically have a higher focus on bandwidth and quality of the communications link. This is because connectivity is required to support applications which are critical to the successful and efficient operation of the fleet and the business.

Jensen, Thrane & Thrane I don't see this as strictly true in terms of satcoms. There seems to be a growing need for more bandwidth, availability and reliability, which I think is based on a number of factors. Vessel efficiency is becoming increasingly critical to optimal fleet management and ultimately profitability, so shipping companies are often keen to invest in technology and services that can help them keep their operational and fuel costs down.

jim dodez, KVH industries

"We're seeing a strong trend toward simplifying satellite communications systems, offering more features and convenience with less and/or smaller hardware. They need to be affordable and easy to use, as well as simple to integrate with existing IT tools."

A multitude of IT and equipment manufacturers are pushing the technical envelope in terms of remote monitoring or maintenance, and getting vessel and systems data to experts on shore through standalone applications or integrated information management seems is now a major focus.

Likewise, crew welfare will continue to be a driver for the use of satcoms.

I believe that another driver for the increased use of satcoms will be competition between network providers – which will see innovative service offerings and a reduction in airtime costs – and the introduction of new service functionality. Inmarsat is just about to make two new FleetBroadband services live in April – Multi-voice and Dynamic Telemetry Service. Multi-voice will enable up to nine simultaneous voice lines from a single FleetBroadband terminal, all with their own individual numbers and billing, so separating crew and operational communication costs will now be easier, which should see the introduction of more accessible voice calling for crew at sea.

What has been the biggest driver for improved satellite communication services between ship and shore?

Harrison, Intellian A change in the satcom service utilization pricing model in combination with an increase in satellite coverage has enabled ships to more readily replicate the IT and telecoms usage patterns seen in non-remote industries. VSAT products and services were the first to adopt this model in a large scale but there is still some limitation to the current model. Nevertheless the widespread adoption of this new model is now driving the satcom industry to invest in new technology.

Broadhurst, Cobham From maritime standpoint, the end-users have come to expect a certain level of service based on their experience on land. The biggest driver for improved satellite communications in maritime is the wide adoption of communication technology on land. The crew on board, the yacht owner, the passenger on a leisure cruise needs to stay connected because it is hard grained in our 21st century ethos. This obviously drives maritime communications to improve its service.

What trends do you see today that you believe will fundamentally change the market in the coming decade?

Rodrigues, Boatracs The cost of implementing satellite continues to come down, from VSAT down to narrowband solutions. As more and more fleets gain that level of connectivity, software that streamlines and improves operations is going to become more widespread. Along those same lines, increasing regulatory requirements will create a greater need to standardize and aggregate data on the vessel and automate the reporting of that data from shore in a timely and cost effective manner. Some regulatory requirements are requiring real time two-way data exchange between vessel and shore on demand. This will force more and more operators to satellite as the risks of not having constant connectivity become too great.

Broadhurst, Cobham The Facebook generation with their needs for multimedia will drive demand for more bandwidth – this is and will be an issue for crew retention. Over the last five years, C, Ku and L band services have worked independently and service providers have built services around these frequency bands. Over the next five years, we will see "the great mashing" where these bands will become somewhat irrelevant to the end-user. The new networks will be hybrids taking advantage of the benefits that each of these schemes offer. We will also see the emergence of Ka band services. These services will offer practically global coverage on their own as well as stitching various regional services, providing roaming on each other's network.

The mega trends for the next several years will include more bandwidth being made available to the market. I believe this supply will be met with unarticulated demand by end-users for more bandwidth as the maritime personnel get better connected to their counterparts on land.

Dodez, KVH We're seeing a strong trend toward simplifying satellite communications systems, offering more features and convenience with less and/or smaller hardware. **Mariners are demanding more from these solutions – they need to be affordable and easy to use, as well as simple to integrate with existing IT tools.**

Tom Clark, Deltawave Newer technologies are about to become introduced which will offer even greater bandwidth (Inmarsat's Global xPress, for example), which will be a game changer. This will provide even greater bandwidth than what is seen today along with competitive pricing structures.

Jensen, Thrane & Thrane VSAT is fast becoming a more realistic communications option for a larger number of vessels. It provides greater bandwidth with the opportunity for fixed monthly pricing, so the service is very attractive to vessels requiring substantial connectivity. However, there are some barriers, not least the lack of global coverage on a single service and the cost and complexity of procuring, installing and maintaining the hardware. Growing satellite coverage and work towards simplification of the whole lifecycle are definitely opening up new opportunities though.

Olsen, Marlink We are seeing more emphasis on complete communications packages which integrate both VSAT and MSS satellite communications solutions.

What do you count as the leading technical challenges to making SatCom services even faster and more reliable?

Broadhurst, Cobham There are two biggest technical challenges that we see, the first making systems future proof so today's technology does not become redundant. The second challenge is that of integration: how to integrate various tech-

casper jensen, thrane & thrane

"Inmarsat is just about to make two new FleetBroadband services live in April – Multi-voice and Dynamic Telemetry Service. Multi-voice will enable up to nine simultaneous voice lines from a single FleetBroadband terminal, all with their own individual numbers and billing."

nologies that are evolving on their respective evolution path. The communication systems have to perform for many years in some of the most rugged environment.

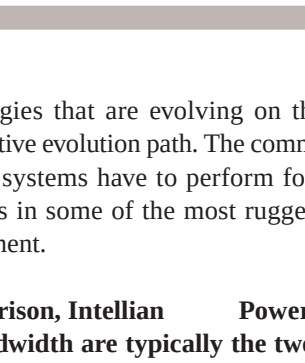
Harrison, Intellian **Power and bandwidth are typically the two main metrics that need to scale up to achieve faster satcom services.** L- band is becoming increasingly scarce, C-band and Ku-band have also progressively become saturated and Ka-band is the next rainbow for the industry since a lot more spectrum is available in that band. Propagation characteristics of Ka-band however pose a challenge and engineers have their hands full. Materials and construction techniques for reflectors, radomes, amplifiers, and all other components have to be designed with Ka-band.

Jensen, Thrane & Thrane
Bandwidth availability is of course a challenge. Satellites only have so much power and spectrum so there is a limited amount of bandwidth available for all users, but more and more satellites are going up, and new services such as Inmarsat's Global Xpress will increase the available bandwidth to the maritime community.

What challenges (outside technical) do you face to increase your penetration in this market?

Broadhurst, Cobham There is a learning curve with every technology which means that companies have to invest in education and resources. As systems get easier to install and easier to upgrade in the field with minimal risks of being obsolete in few years, like the Sea Tel 4012, it will automatically lead to higher penetration levels.
Sea Tel is investing heavily in training.

jon harrison, intellian



"Intellian has delivered several innovative products in 2011 and is expanding its portfolio to include C-band, Ku-band, and Ka-band. Intellian invests over 20% of its profit in R&D but we invest even more in our partners."

peter broadhurst, cobham satcom marine systems - sea tel products

"The Facebook generation with their needs for multimedia will drive demand for more bandwidth – this is and will be an issue for crew retention."

For instance, along with our rigorous classroom training courses, we have partnered with GVF to create online training modules for our dealers and their customers. These types of innovation regarding service and training, along with product innovation will increase penetration levels in the near future.

Harrison, Intellian Marketing and distribution are the common visible growth drivers of any company in this market and we face an ongoing challenge to balance our investment and effort in those two areas. We have established a global presence in just a few years with over 400 dealers and with modern fully owned and equipped facilities staffed with highly trained and experienced teams around the globe. It is crucially important to Intellian to support its distribution channels effectively.

The global economy overall, and many sectors of the maritime industry, were down in 2011. How has this affected your business?

Rodrigues, Boatracs In a down economy, the focus turns to lowering operational costs, increasing vessel productivity, increasing human productivity and generally doing business smarter, often with fewer resources. This is where adoption of technology can really make a significant difference. Because of this, we actually saw an increase in the number of vessels using our satellite communications services as well as an increase in software subscriptions. This was driven by the fact that mission critical data can be sent cost effectively through satellite, particularly using a narrowband solution. We serve a broad range of fleet sizes, with a specialty in working with small to medium size companies. Some of these customers pay less than $100 per month per vessel for airtime using our narrowband solution bundled with mapping and messaging fleet management software.

Dodez, KVH Mariners are certainly more budget-conscious in this economy, which can be a challenge. However, mini-VSAT Broadband offers some of the most competitive airtime rates in the industry as well as competitively priced hardware and an attractive commercial lease program. We are also building a diversified product line so that any mariner can create a mini-VSAT Broadband solution to fit the needs of their individual vessels. We now have two options for hardware – the 24-in. (60 cm) TracPhone V7 and new, 14.5-in. (37 cm) TracPhone V3 – that bring satellite communications to any size vessel, along with a number of airtime service plans with options that work perfectly for global shipping companies and regional, seasonal fishing vessels alike.

Harrison, Intellian Intellian's business is growing year over year and 2011 was no exception for us, even though we did see some effects from the global economic situation. A fair amount of our maritime products are purchased and installed on ships during their construction as part of a complete communication package. Nearly half of the world's merchant fleet is built in Korea; our heritage and headquarters are based in Korea and we have established a strong presence at the heart of the shipbuilding community in Busan, Korea with the opening of the Intellian Maritime Technical Center (MTC).

Broadhurst, Cobham We did see price pressure. However, we grew in 2011. Since Sea Tel is a privately held company, we do not disclose our financial results to the public. However, in 2011 we shipped more antenna systems than in the past, we launched more high performance products, introduced many new global service and support initiatives to help our channel. Our large and mid size antenna product line were particularly successful.

How is your company investing?

Harrison, Intellian Intellian has delivered several innovative products in 2011 and is expanding its portfolio to include C-band, Ku-band, and Ka-band. Intellian invests over 20% of its profit in R&D but we invest even more in our partners. \

What new product or service will you deliver to the market in the coming 12 months?

Harrison, Intellian Intellian is excited about 2012. Our future new 1 m Ku antennas will be designed from the ground up to accept an easy upgrade kit to transform them into fully fledged high performance 1m GX Ka-band terminals. This gives end customers the peace of mind and the long term value they associate with our brand and with our partner's brand. Inmarsat has just recently announced Intellian's appointment for the development of the Inmarsat GX family of maritime products; the 60 cm GX terminal as well as the 1 m Ku to GX Ka-band terminal. Intellian will also launch the Global PLL LNB for our Ku-band VSAT products during January. This new technology enables one LNB to be used in all regions and with all VSAT satellite frequencies.

Broadhurst, Cobham We have announced three new products in the first half of 2012: Sea Tel FX, Sea Tel 4012 and Sea Tel 3011. We will have the full range of FleetBroadband product line branded as Sea Tel FX. Sea Tel 4012 is our new Ku band 1m system that will be field upgradable to Ka band services. And, 3011 is a 3-axis sub 1m antenna system for vessel that doesn't have enough deck space for the 1m system.

Jensen, Thrane & Thrane We are looking at expanding and enhancing our L-Band and SOLAS product portfolio with new products and features across the range. Moreover we are looking at taking the investment into the SAILOR 900 VSAT platform into new product areas like Satellite TV as well as Ka-Band.

Clark, Deltawave Delta Wave has just opened a Marine Electronics and Field Services division. By diversifying into this market and investing in this new direction, we now offer a complete array of services and are now more of a one-stop shop for our maritime customers. By having FCC certified field service personnel constantly on the road, we will better serve our existing customers as well as new clients we are now bringing on board.

tom clark, deltawave communications

"Providing data connectivity to for vessel crews are increasingly becoming more prevalent for crew morale as VSAT rates are becoming more affordable, along with alternative technologies such as Inmarsat's new Wimax service."

MARITIME REPORTER AND ENGINEERING NEWS

NEW WAVE MEDIA

Second Annual
Don Sutherland Memorial

Maritime Photo Contest

See your image on the cover of the world's largest maritime magazine

Your photo could be on the cover or in the pages of the most widely read publication in the global maritime industry. Enter as many photos as you like, in each of the five categories. Entries can be submitted at:

www.maritimephotographs.com

All images must be entered by May 11, 2012. Winning photos will be published in the June 2012 Maritime Reporter and Engineering News, with the Grand Prize Winner featured on the front cover of the magazine.

This contest was established to honor the memory of the late Donald S. Sutherland, renowned maritime photographer and writer, who passed away suddenly in 2010.

Categories:

Ships and Boats
Offshore Structures
People
Maritime Scenes
Weather Systems

Contest runs until
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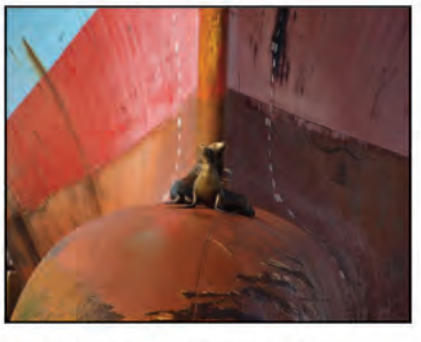


Photo by Philip Heem

For complete contest rules go to http://www.maritimephotographs.com/rules-and-terms.asp

Cleaning Up Our Waters

Marlink, Sea Tel Support North Pacific Gyre Clean-up Project

Now in its fourth year, Project Kaisei has come to rely upon satellite communications for effective communication with colleagues ashore as well as its global support base. Mary Crowley talks about how the project's requirements for communications are continuously evolving.

In the digital age it is easy to take for granted the benefits that reliable connectivity provides. In the maritime industry alone, always-on communications are supporting a wealth of applications to improve operational efficiency and crew welfare. But even today, the availability of modern communications capabilities is not guaranteed in some remote locations, which is why North Pacific Gyre cleaning operation 'Project Kaisei' was pleased to collaborate with Marlink and Sea Tel for its satellite communications services.

"Being able to communicate with our teams ashore during our expedition is vital to the success of the mission," said Mary Crowley Director of Ocean Voyages Institute, and Co-Founder of Project Kaisei. "We depend on real-time updates from oceanographers and weather experts to help us locate areas of the greatest accumulations of plastic trash. Continued support from Marlink and Sea Tel is instrumental in helping to achieve our duel missions of education related to the global problem and to stop the flow of debris into the ocean to begin actual clean-up expeditions."

DEBRIS COLLECTION

Set-up by Ocean Voyages Institute of California in 2008, a California 501(c)3 non-profit organization, Project Kaisei is the 'Ocean Clean-up initiative' of the Institute, focused on increasing awareness of the scale of marine debris, its impact on the environment and the solutions for both prevention and clean-up. The project aims to prevent further accumulation of marine debris in the ocean and apply new technologies to begin removing this waste.

Project Kaisei's research findings have identified that debris falls into four major categories.

- One: Ghost nets/derelict fishing gear,
- Two: Floating consumer debris, ranging from car fenders to large plastic storage bins, plastic bottles and containers of all shapes and sizes,
- Three: Smaller plastic debris, ranging from tooth brushes to children's toys to broken down pieces of plastic, and
- Four: Micro plastics.

According to the project team, the four debris categories each present different challenges for clean-up that require technologies to be created and modified to find the best devices for extracting these different categories of debris. Having the availability of the satellite communications link is fundamental to the continued development of this global initiative and gives clean-up operations the ability to communicate and modify clean-up technologies being tested while at sea.

"Having the ability to send reports, photos and film from the ship makes a significant difference to the effectiveness of our operations," continues Crowley. "Satellite communications allows us to take advantage of a whole host of applications. We also use it to keep track of weather patterns which influence debris distribution as well as communicate through blogs and email to provide the latest news, photographs and videos to our supporters worldwide."

BETTER CONNECTED

2011 marks the third Project Kaisei expedition that Marlink and Sea Tel will support with the donation of VSAT equipment and services. "2009 was the first expedition that Marlink and Sea Tel supported and our ability to send text, photos and video in real time, greatly enhanced exposure of the project, helping to raise awareness of our cause," said Crowley.

"During this voyage we were able to take part in several live radio interviews while sailing in the middle of the Pacific Ocean through our satellite communications system.

The ability to communicate to audiences from our remote location and relay live what we were experiencing greatly contributed to the timeliness of the news, making it more relevant and dramatic. In today's world with so much going on in terms of global news, the ability to communicate from the middle of the ocean while conducting studies of the debris issue is vital to gaining the media's attention and support."

Crowley continues: "Our vessel tracker application also relied heavily upon our

Project Kaisei is the

'Ocean Clean-up initiative'

of the Institute, focused on increasing awareness of the scale of marine debris, its impact on the environment and the solutions for both prevention and clean-up. The project aims to prevent further accumulation of marine debris in the ocean and apply new technologies to begin removing this waste.

satellite communications system and allowed team members to organise videos, blogs and photographs of daily events as well as Geo-locate our expedition vessels."

"Our requirement for satellite communications in 2010 grew in response to increased activity. A lot of our operations involved working with expert oceanographers who carry out computer modelling of debris distributions throughout the world's oceans. The connectivity was extremely important in keeping us in contact with them, so that we could demonstrate how marine debris was being distributed in the North Pacific Gyre and identify the areas of great accumulation of debris that clean-up is most needed."

"During the 2010 expedition, we received an influx of messages and questions from individuals seeking updates about our findings in the North Pacific Gyre and it was clear that bandwidth quantity would have to increase to facilitate real-time responses, photo upload and live interviews."

FUTURE SUPPORT

During the past three years, Ocean Voyages Institute's Project Kaisei, has been successful in studying and documenting what is going on in the Gyre from a scientific perspective. By reviewing ocean current distribution it has accomplished an encompassing survey of clean-up possibilities. In addition, the organisation has built a world renowned group of naval architects, marine engineers and ocean experts that are act as a 'think tank' for designing marine debris collection equipment. The project is currently working on four types of equipment which it believes will enable the four major categories of debris to be addressed. "In 2011 our emphasis is surveying coastal areas and coastal Gyres created by rivers, bays and our other watersheds which are also accumulating debris. There is a great deal of interest in seeing how much of the debris can be found closer to shore," Crowley said.

While becoming the center for information regarding marine debris collection equipment and heralding the need for global clean-up efforts, Project Kaisei has also been approached by various governments for assistance with designing marine debris collection vessels. "We have been approached by various maritime companies who have told us they have the equipment to accomplish marine debris collections and are working on ways of obtaining corporate and government investment to conduct the clean-up expeditions on a larger scale to test the equipment.

"Ultimately, the assistance of additional funding will enable us to fulfil the potential of providing accurate information on the best and most efficient ways of clean-up. Our future expeditions will be concentrating on continuing science, documentation of the problem, education and research for major clean-up efforts. Obviously, the ability to communicate remains fundamental to our success," Crowley said.

On the web:
http://www.projectkaisei.org

K-Drive *The Next Generation Propulsion System*

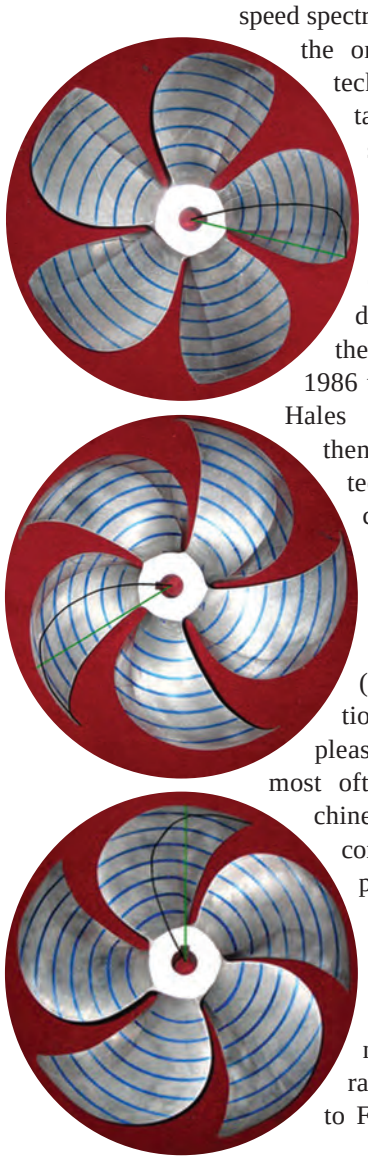
Flexitab Italia is challenging the belief that displacement hull vessels are most efficient with fully submerged propellers.

By Brunello Acampora

According to the design company, the most efficient and economical option for displacement hull vessels is with a surface drive propulsion system. The claim by Flexitab is that efficiency savings greater than 10% have been achieved in preliminary investigations using partially submerged propellers (PSP). In a category where a saving of 1% is considered significant, this new development will change the maritime community's expectations of propulsion efficiency.

THE INNOVATORS

Initially Brunello Acampora, founder and owner of the Naples base Flexitab, approached Renato 'Sonny' Levi with the idea of scaling up surface propulsion drives and applying them to displacement hulls that operate at the lower end of the speed spectrum. Sonny Levi, the originator of the technology, had taken the radical step of introducing surface drives to his "Virgin Atlantic Challenger II" design, which hit the headlines in 1986 when it won the Hales Trophy. Since then, surface drive technology has continued to advance and has been adapted to different types of applications (such as competition, military and pleasure craft), but most often in the hard chine planing hull configuration. The partnership between Brunello and Sonny was the genesis for the present international collaboration that has led to Flexitab being at the forefront of surface drive technology for commercial applications. Flexitab has spent the past five years collaborating with an international team of design and engineering specialists, including research and technical assistance from the Universities of Genoa, Napoli, Calabria (Italy) and Coventry University (UK), further developing the concept.



Sonny Levi developed three highly innovative PSP designs for Flexitab's 'K-Drive' System for displacement ships.

The immediate goal is to fully demonstrate that surface propellers, fitted and adapted to displacement type vessels, provides a superior alternative to fully submerged propellers, both in terms of cost efficiency and environmental impact where the carbon footprint is considerably reduced.

THE SCIENCE

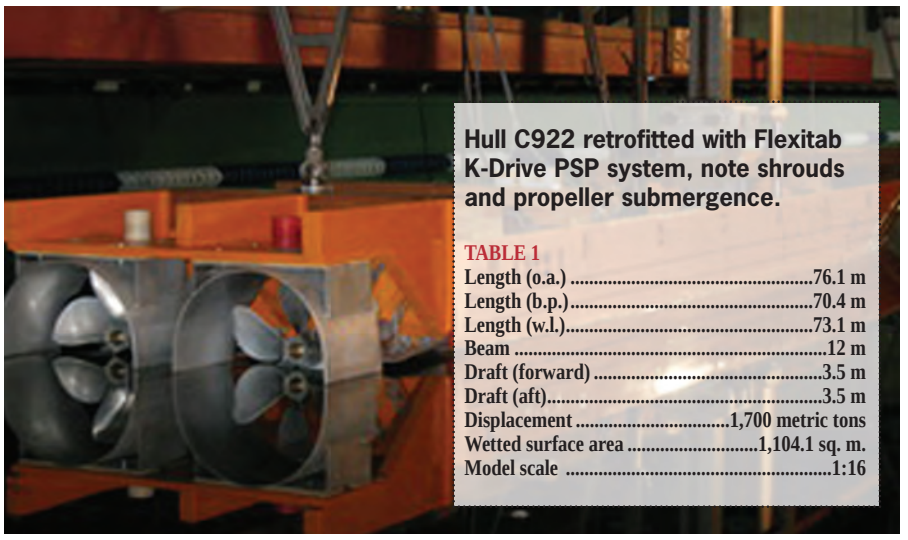
The general theory behind PSP, without delving into mathematical parlance, is a device designed to operate in the interface or free surface zone between air and water. The PSP blade configuration is in contrast to the airfoil-like blade shape of the typical submerged propeller. The wedge-shaped blades of a surface piercing propeller are operating partly submerged and partly in the air out of the water. The geometry of the blades is similar to that of a supercavitating propeller, which operates fully submerged. The blades of a PSP are designed to cleave the water on the downward side of the rotation while entraining air at atmospheric pressures (not water vapor pressure as in supercavitating propellers) during their submerged, active, cycle of work. In the case of Flexitab's K-Drive system, the submergence factor varies from 0.4 to 0.5 percent of the propeller disk area. The advantages that Flexitab's PSP offers over fully submerged propellers includes undisturbed flow into the propeller disc, the absence of conventional appendage drag and no constraints on blade diameter or tip clearances meaning the blades can be larger and operate slower. The net result is that higher overall efficiencies are achieved compared to fully submerged propellers due to their unique installation, which typically employs a specially designed transom configuration. This unique transom configuration also allows for certain types of propeller maintenance and cleaning to be performed without having to dry-dock the vessel.

RESEARCH

In 2006 Flexitab began carrying out preliminary research work on the feasibility of adapting the surface piercing propeller theory to large tonnage commercial crafts. This work was undertaken at the University of Genoa, Department of Naval Engineering's cavitation tunnel and at the University of Naples Federico II's towing tank using scaled model tests on the K-Drive system. Sonny Levi designed three sets of propellers that, while derived from his vast experience in the field of planing hulls, introduced new design features in order to adapt the current platform to a new set of design criteria. It is remarkable that these new designs, whilst they proved not to be optimized to the hull, still performed extraordinarily well. In self propulsive tank trials, the new propellers achieved a savings in propulsive power of 13% at Froude numbers above 0.3 over traditional submerged propellers. Preliminary investigations have been conducted on the feasibility of retrofitting a specific ship type with the K-Drive configuration. This work involved structural and vibration analysis, acoustical studies, mechanical drive-line arrangement and configuration, as well as environmental issues and wake disturbance.

ABOUT THE AUTHOR

Brunello Acampora, educated in Southampton, England is an engineer, designer and naval architect. He founded Victory Design in 1989 and the marine propulsion research firm Flexitab in 1999.



Hull C922 retrofitted with Flexitab K-Drive PSP system, note shrouds and propeller submergence.

TABLE 1

Length (o.a.)	76.1 m
Length (b.p.)	70.4 m
Length (w.l.)	73.1 m
Beam	12 m
Draft (forward)	3.5 m
Draft (aft)	3.5 m
Displacement	1,700 metric tons
Wetted surface area	1,104.1 sq. m.
Model scale	1:16

In the early stages of the research, Flexitab concentrated on the hydrodynamic performances of their 'K-Drive' propulsion system and the hull to propulsion system interactions. As a baseline, a model representing a small container feeder vessel was chosen to represent a typical full-displacement bulbous bow hull form. Table 1 (above) lists the particulars for the hull form chosen. This baseline model had already been tested with twin conventional submerged propellers under various operating conditions in the Naples towing tank facility, which released all test results to Flexitab. The vessel had actually been built and tested with the traditional submerged propellers, thus validating the tank results.

The baseline C922 model was then retrofitted with the Flexitab K-Drive PSP propulsion system and retested under the same operational conditions. It is important to note here that no significant alterations were done to the underwater profile of the hull, since the fundamental principal behind the K-Drive is to retain the original designed hull efficiency. The K-Drive system is intended to be installed onto the transom using larger diameter wheels with a propeller submergence factor ranging from 40 to

50% of the disk area (about half of the disk in the water) in order to completely remove the appendage drag from shafts, brackets, propeller hub and any other kind of appendage (including skegs) which normally need to be incorporated to fair the flow into conventional submerged propellers. During the tests at higher displacement levels, a flow control plane was placed between the transom and the propeller in order to control the propeller submergence, which proved effective.

RESULTS

The new propeller designs showed very interesting properties, with performances equal to or superior than those of many other models that had been previously tested at the Genoa cavitation tunnel. In particular, they showed a remarkably smooth transition throughout the speed range, without the typical hump in thrust and torque figures of current surface propellers. This positive attitude, leading to higher thrust values at the lower advance coefficients, is likely to be linked to the custom blade sections developed for the application, which guarantees a gradual ventilation of the back face.

On the other hand, propeller matching to the hull characteristics proved to be an area open to improvements that should lead to greater efficiencies over the ones already registered by the self propulsion tank tests. In particular, the tested propellers proved to be 'short pitched', probably because they were designed around the original hull resistance data that didn't take into account the K-Drive modifications. The addition of the K-Drive likely increased the original hull efficiency due to the reduced appendage drag. Still, two of the three PS propellers outperformed the conventional submerged propellers, keeping in mind that they were perfectly matched to the baseline hull resistance curve at Froude Numbers above 0.3 (about 16 knots on the relatively small ship tested). In fact, savings in propulsive power Pd of up to 13.8% were recorded at a ship speed of 19 knots. Drawing on data from a previously tested series of PS propellers at the Genoa facility (DINAV series) allowed the selection of an optimal pitch to diameter ratio, i.e. increase pitch without varying all other propeller data, resulting in a conservatively computed increase of propeller efficiency of at least 13%, which would then make the K-Drive better than traditional submerged propellers from speeds as low as 11 knots (Fn above 2). In such a configuration, at the higher speeds, the K-Drive would appear to grant theoretical power savings greater than 20%. The successful results of the model tests are encouraging also because there are still margins for further improvements, such as in the areas of the propeller design. A further set of propellers, incorporating all the advances of the innovative Flexitab propellers designed by Levi, including matched pitch to diameter ratios (P/D) as per the DINAV series, would give even better results, especially at the lower speeds. In an effort to gain European Community research funds, Flexitab teamed up with, amongst others, Interprogetti (Genoa). Interprogetti is a pioneer in the application of PSP to commercial ships, who designed the M.V. "Alnilam" (IMO No. 9167057), a livestock carrier with a design displacement of 5,500 tons, successfully trading since 1998.

(Continued on page 47)

Trash *Transformers*

Montreal's Terragon Environmental Technologies is not only seeking to change the way in which the maritime industry manages its diverse waste streams; it is trying to change the world.

By Greg Trauthwein, editor

Dr. Panayotis (Peter) Tsantrizos, President, CEO and founder of Terragon Environmental Technologies Inc. is obsessed with trash. Well not the physical product itself, rather the accumulation and handling of it, particularly in confined habitats that have few, if any, viable means to dispose of, transport and treat waste.

"What the world does now for waste management is collect the waste from everyone and bring it to a place where it can be treated or disposed of," Dr. Tsantrizos said. "This is not sustainable. As long as the 'waste generator' is separated from the 'waste processor,' we don't have the potential to use the waste as a resource."

WASTE … AS A RESOURCE?

Dr. Tsantrizos and his team have been working since 2004 on a pair of technologies – one designed to handle solid, the other liquid waste – that extends far beyond traditional waste handling methods, and in fact is a process whereby waste is literally "cooked" using its own energy, resulting in nothing more than water, clean air and a miniscule (by comparison to the original volume of trash) volume of "Bio-Char."

"The alternative is to have people treat their own waste. Ships have been doing it for a long time, but they have been doing that with technologies that are simply miniature versions of larger technology." Tsantrizos said. "That is not the proper way to do it. We started with the concept of enabling every habitat, and by habitat we mean a ship, we mean a hotel, and eventually every home, to treat their own waste and recover resources from the waste."

MEET MAGS

"My parents, or more accurately my parent's generation, were more sustainable than we are today," Tsantrizos said. "What were they doing? They had a little house, they would bury their organic waste in the field, composting it; the remainder they placed in a drum and they burned it. This was the right thing to do, as there was no waste pick-up and it was the only option that they had. The only problem was they had the wrong technology. So I started (Terragon) with the basic idea to provide a better 'drum' for waste disposal that could be used on a personal scale."

Founded in 2004, Terragon represents a new vision in waste management where it transfers the ability and responsibility of waste management back to the waste generator. Today the company is refining and bringing to market a pair of future generation technologies – MAGS & WETT – which are designed individually and in tandem to enable a "zero waste discharge habitat."

MAGS™, or Micro Auto-Gasification System™, is Terragon's solution to solid waste management that today is ready for commercialization. **The system, now in its sixth iteration, has been involved in some broad based real-life field testing, including MAGS' V4 installations onboard the commercial vessel Maersk Laser and the Canadian Navy's HMCS Protecteur, while its V5 installations include the U.S. Marine's Camp Smith base on Hawaii, and soon an onshore oilfield operation for Saudi Aramco.** V6 models, according to the company, are destined to ship this year to a diversity of entities, including commercial ships, industrial operations, work camps and hospitals.

MAGS accomplishes its mission to "cook" a wide variety of waste using Terragon's Auto Gasification Process, a patented technology which thermally breaks down hydrocarbons into sold carbon and synthesis gas, and uses the synthesis gas to fuel the process. The result? A small pile of "Bio-Char" that is many magnitudes less volume than the original waste.

"In the simplest way of putting it, we want to 'cook' the waste using the fumes that are produced as the fuel," Dr. Tsantrizos said. "If you use the energy that is in the waste to cook the waste, you have Auto Gasification. The main objective is not to burn the waste, but to fracture the waste back to carbon and water. By sequestering the carbon, this also goes a long way in minimizing the greenhouse gases," as Dr. Tsantrizos proudly pointed to the invisible emissions emanating from the exhaust stack while in process.

The WETT™ technology – under development for four years with support from the U.S. and Canadian Navies – is the system to handle liquid waste onboard ships. WETT removes suspended solids and contaminants, and produces clean water that is safe for discharge or reuse. This technology – which today is targeted to both landside and marine applications, specifically habitats with fewer than 300 people – is approximately a year behind the MAGS technology, with commercialization expected by 2013.

Separately, the technologies are an impressive means to efficiently and environmentally handle a diverse waste stream. Together, they represent a 'leap ahead' technology that will be designed to handle nearly any waste found onboard a commercial vessel.

ZERO WASTE DISCHARGE SHIP

While the MAGS and WETT systems are developed and will be offered separately, the "big picture" according to Tsantrizos is to package them together for use on a ship, offering a seamless and efficient waste handling operations.

"You have many different systems (and procedures) for handling waste onboard a ship, different technologies for bilge water, different technologies for grey water and black water, for plastics and food, paper and cardboard, to metals and glass," Tsantrizos said. "Everything is separated, and you end up having different systems to treat waste. From our conversation with ship owners, many of those appliances don't even work properly, but even when they do, it requires a lot of labor to separate the waste."

Terragon's intention is to integrate the solid and liquid waste handling systems into a homogenous unit using MAGS and WETT technologies, where you can take all the waste of the ship and end up with only clean water, thermal energy and Bio-Char. The approach is captured in the acronym STEP™, which stands for 'System for Total Environmental Protection" and is the approach combining MAGS and WETT.

"The synergy is very interesting," Tsantrizos said, "because WETT produces sludge which can be treated by MAGS, and MAGS generates process water which can be treated by WETT to become reusable water ."

"The proposal is much more than a concept, as Terragon will be conducting a trial of the combined technology with support from Sustainable Development Technology Canada (SDTC), and in conjunction with naval architect support from Alion Science and Technology Corp., on two applications: one of them on a Canadian Coast Guard Icebreaker and another at a small military outpost in the Arctic."

".. A VERY SMALL COMPANY ON A VERY BIG MISSION …"

Tsantrizos fully recognizes the inherent logistical challenges to produce, deliver and service Terragon's innovative waste handling systems globally to the maritime industry, let alone to individual communities and even households. Based in Montreal with 50 employees today, he said that to maintain its innovative edge he doesn't envision the company growing much larger.

"We started with two people (in 2004) and today we are 50 people," he said. "I don't want the company to grow much larger, as we will commercialize through partnerships with various other large, global companies. "I want the company to stay small because our ideals, our principles, our way of operating are not suitable for larger companies."

Summing up his company succinctly, Tsantrizos said "We are a very small company on a very big mission."

Small companies, however, are not inherently equipped to service a global business model, particularly one that will potentially require installation and maintenance with the world as its operational footprint. To rationally expand, the com-

"In the simplest way of putting it, we want to 'cook' the waste using the fumes that are produced as the fuel.

If you use the energy that is in the waste to cook the waste, you have Auto Gasification. The main objective is not to burn the waste, but to fracture the waste back to carbon and water. By sequestering the carbon, this also goes a long way in minimizing the greenhouse gases."

Dr. Panayotis (Peter) Tsantrizos, President, CEO and founder of Terragon Environmental Technologies Inc.

(Photo: Greg Trauthwein)

pany has devised a two-step process, the first of which is happening right now. Companies large and small are assisting the commercialization process either by industry sector or world region, whereby they will help with assembly, distribution and maintenance. This is targeted to the technology's 'early adopters' of the technology (ie. those with difficult or non-existent options), including marine, hotels and resorts, military and security, hospitals, isolated communities and work camps. Part two of the commercialization process will be the global commercialization effort, whereby the company will seek large corporate partner(s) that are positioned for global manufacturing, delivery and service.

CHALLENGES AHEAD

While adoption of new technology can be painfully slow, particularly in markets such as maritime where a conservative gene seemingly pervades nearly every vessel owner, Tsantrizos reasons that he doesn't see this as much of a challenge for one reason:

"(Arguments for the technology) are actually presented by the shipowners themselves. They themselves know what they don't want to have," he said.

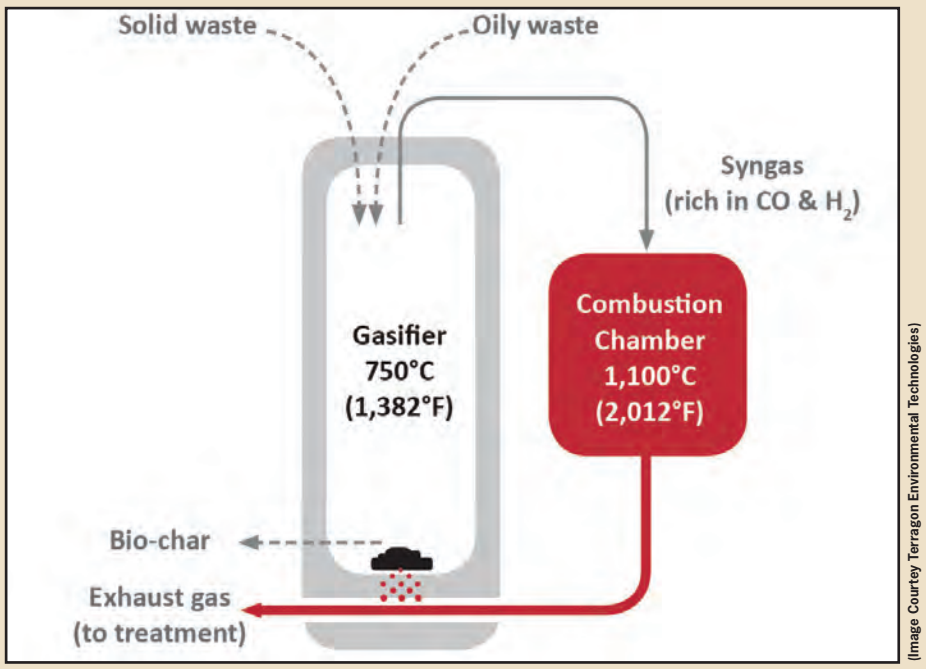
Regardless, Tsantrizos still sees a few challenges ahead: Bringing down the cost and raising the system's ease of use.

"My final vision is always focused on low cost and simple operation," Tsantrizos said. "The issue here is the technology is still relatively expensive, and we need to find ways to reduce the cost."

Cost reductions will come in part through a rationalized manufacturing strategy. Today the company manufactures exclusively in Canada, but as it rolls out operations globally it will be able to take advantage of much lower manufacturing costs. The ability to produce more machines, too, will help to drive costs down.

In addition, he said the waste handling system must deliver commercially with an interface which allows anyone to operate it efficiently and safely. While the current (V5) version features a high-tech electronic interface with a series of buttons and lights, Tsantrizos envisions a simplified control system, something akin to a washing machine, which will have the tandem benefit of reducing costs, too.

Through all of the technical talk, government partnerships and business challenges, Tsantrizos eye remains on sustainability. "We started – and maintain our course – with a singular vision and mission; enabling people to take care of their own waste."



(Image Courtesy Terragon Environmental Technologies)

(Photo: Greg Trauthwein)

Pictured, from Top Down

TOP Dr. Panayotis (Peter) Tsantrizos, President, CEO and founder of Terragon Environmental Technologies Inc., in his Montreal-based facility.

CENTER The Auto Gasification process, which essentially uses the energy from the waste to "cook" the waste.

BOTTOM
The latest iteration of the MAGS technology — V5 — undergoing final testing before its deployment into the field with Saudi Aramco.

Five Minutes With

Lars Skjelbred Eriksen, Hatteland

(Photos courtesy Hatteland)

Hatteland Display is headquartered in Norway, an innovative and fast growing player in the field of maritime monitors. Maritime Reporter & Engineering News recently spent some time with Lars Skjelbred Eriksen, the company's Vice President Sales & Marketing, to discuss trends in the marine industry display market. ***By Greg Trauthwein***

Hatteland Display appears to be an innovative, fast-growing company: what is your formula for success?

Much of it has to do with innovation and experience. We know our market segments very well and are able to develop new solutions for our system integrator customers, thus helping them innovate too. We take a partnership approach to our customers where long term cooperation and product lifecycle go hand in hand. Our solutions are trusted by the industry players and they know that we will be in the market for many years with new products.

The way that information is displayed on the bridge of a boat or ship has changed dramatically in the last 10 years. What have been the enablers of this change?

Much of it has been about embracing new technology by the maritime segment and by the classification authorities. The type approvals and classifications are ever more important with the introduction of new technology into bridge systems. Following that development and participating in its evolution as hardware manufacturers is important to us.

Last year at Norshipping 2011 in Oslo, you introduced to the market a series of new Touch Screen Monitors, Series X. What is special or innovative about this new line?

It is a new range that has allowed us to innovate again, but this time almost afresh with a clean sheet of paper. Utilizing what we have learned over the years in display and computer technology for the maritime segment, and adding the latest technologies, such as the latest touch screen technologies, to our design has brought to life a product range that we hope will greatly enhance the user experience in all areas of a ship, not to mention our opportunity to manufacture a modern product range for the future. The Series X in its modular design allows customers to choose from a host of options that can potentially maximise your application and its presentation on board a vessel. There's something for everyone in the series X and many customers have already seen the benefit and will standardize on these new products. Finally, new production technologies has made the seriesX product range very price competitive in the market.

At the time of introduction, you briefly discuss "Projected Capacitive Touch": What specifically does this mean?

Projected Capacitive Touch or "Multi-touch" is defined as the ability to recognize two or more simultaneous touch points, very similar to what you find on the Ipad2, for example. Using projected capacitive technology lets us create a more intuitive form of human-device interaction. Touch-interface gestures, supported by projected capacitive sensors, can simplify the interface and provide an intuitive user experience that goes beyond the typical "button replacement" found in most simple touch interfaces. Moving the active sensor area on the backside of the protection glass makes the system very durable and not sensitive to surface damages like dirt, scratches etc.

What are the "hot button" topics in the maritime display industry?

There are a number of them circulating, some are technological such as wide screen displays, solid state discs and fanless designs for computer products and of course Multitouch for displays. Others are more commercial such as lower costs of hardware. All, however, demand quality, reliability and long term product life and these are all features that are embedded in our way of making products.

How does Hattland Display invest to keep its product line fresh and innovative?

The investment in innovation starts much earlier than you would think. With our supply partners we have a long term visibility on what is happening in the industrial component industry. We keep a close eye years ahead on potential pitfalls that may threaten any of our products' life cycle, thus allowing us to take action in time to avert disruption. Moreover, by staying close to the latest developments in consumer technologies we are able to adapt relevant new innovations in this area to value adding products for the maritime segment. We are widely recognized to be first in our market to introduce new technologies.

The world is slowly emerging from a very difficult economic period: How did Hatteland Display hold up during these tough financial times?

It has certainly been challenging and has affected our core markets greatly. The new build cancellation figures were significant and did mean that an impact on us was inevitable. However, out of such downturns new opportunities arise and this has been the case for us. We invested in new product development such as the seriesX through the difficult period and are now ready with new products when the market comes back. Coupled with that it was an opportunity to look internally, and we have done much good work on ensuring that we have a lean and fit organization. In total Hatteland Display is a much stronger company today than before the financial crisis.

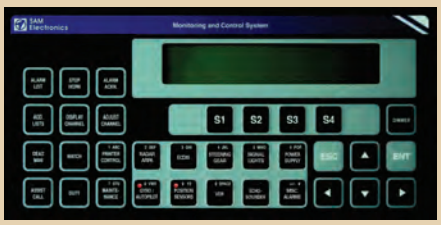
By Market, what areas of the maritime industry look to be on a strong growth curve at the moment?

The commercial marine (retrofit) opportunity that we anticipated would take up some of the slack due to the downturn in the new build sector took its time to emerge, but is now a good source of revenue for us. The commercial marine segment remains important as a whole and after the recent years' slump there is a positive curve emerging. As ECDIS becomes mandatory we see a growing demand from existing as well as new customers that require the optimal product for this application, which we strongly believe is our new 24" panel computer (Series X).

Alewijnse Delivers IBS to Bodewes 762

Alewijnse Marine Systems has fulfilled the order for the delivery of a complete Raytheon Anschütz bridge system to Bodewes Shipyards hull number 762. The order was given to Alewijnse after Bodewes Shipyards B.V. together with vessel owner Nescos Shipping B.V. Alewijnse delivered a complete bridge system with X&S band radar, dual ECDIS, autopilot and gyrocompass, all from the Raytheon Anschütz brand. The outfit of the vessel was completed with essential equipment including VDR, Alewijnse AIS and Thrane GMDSS.

Watch Alarm Systems from SAM Electronics



SAM Electronics, an L-3 company, launched a new series of Bridge Navigational Watch Alarm Systems (BNWAS) designed for simple installation aboard both new and existing vessels of any type or size in accordance with IMO carriage regulations due to become effective from this July onwards.

The alarm and monitoring series ensures enhanced safe vessel operation via continuous surveillance of bridge activities, including detecting any operator malfunctions that could lead to accidents. Alerts can be automatically relayed to the ship's captain and other watch personnel with the alarm system and all backup call functions and timer settings controlled and handled from the bridge console's centralized alarm panel.

Systems also meet latest IEC 62616 performance standards and are optionally available either as stand-alone units or for integration as part of the NACOS Platinum range of all-purpose integrated bridge management assemblies.

www.sam-electronics.de
Email: ANC@sam-electronics.de

Maritime TFT Monitors

Baytek Industriesysteme GmbH is offering a new maritime BQM monitor with a fully enclosed housing for outdoor areas. For indoor areas, the BPM monitor with ECDIS and radar certification is also available.

To deal with problems inherent to maritime use, the solution developed by Baytek for this purpose is the so-called bonded display. The 3mm thick and non-reflecting mineral glass bezel is bonded directly to the surface of the TFT display using an optical adhesive and a lamination process. This process ensures that there is no longer any air between the display and the glass bezel. This additional effort can reduce optical aberrations and reflections to as little as 0.2%. As a result, the Baytek maritime monitors provide the viewer with a detailed high-contrast image, even in very challenging and bright ambient light conditions. As a result, these monitors are fully readable in direct sunlight without increasing the power requirements.

Portable Liquid-level Gauge for Fuel Tanks

Mitsui O.S.K. Lines and Musashino Co., have jointly developed what the companies call the world's first portable liquid-level gauge for vessel fuel tanks, which is designed to reduce workload needed to measure a ship's fuel level during bunkering and enables more accurate measurement. With this new liquid-level gauge, the pressure sensor, which is suspended into the fuel tank, senses changes in liquid-level pressure and detects the fuel level in the tank quickly and accurately.

StratosMAX II and GoMax Wifi Café Service

StratosMAX II is a next-generation broadband wireless solution for remote communication needs, backed by a microwave network infrastructure covering the entire Gulf of Mexico. StratosMAX leverages emerging WiMAX technology (based on 802.16 standards, still under development) to create a wide area network for long range offshore communications. Delta Wave Communications was chosen as a supplier and certified installation partner for the Fixed and Nomadic service.

E-mail sales@deltawavecomm.com
Web http://www.deltawavecomm.com

Current At Sea: A Paperless NavCom Solution

Consilium and Orange Business Services launched a paperless navigation solution that extends an Electronic Chart Display and Information System (ECDIS) over what is touted to be the world's largest MPLS-based network. It is designed as a bundled, flat-rate solution named Current At Sea enables shipping companies to move to a fully electronic platform for navigation and communications.

The Current At Sea ECDIS and communication system can include voyage optimization programs, fleet and ship management systems, and real-time monitoring applications. Orange is bridging the ship and shore by integrating ECDIS with Orange's fully managed network (both terrestrial and satellite, including Inmarsat FleetBroadband connectivity).

All merchant vessels will be required to use an ECDIS in compliance with International Maritime Organization (IMO) regulations. The bundled solution from Consilium and Orange provides a way to meet this requirement. The companies are claiming that a fuel savings of between 4 to 8 percent is possible when voyage optimization programs are integrated into the solution.

In addition, Orange's MPLS-based network allows ships to bypass the public Internet when accessing corporate systems and connect using a much more secure, real-time connection to business-critical applications. Ship personnel can employ the full scope of the applications regardless of location, all at a flat fee; and because the connection is continuous, system maintenance can be done remotely while the ship is at sea.

www.orange-business.com/maritime

www.consilium.se

Westfalia Aboard Celebrity Silhouette

Celebrity Silhouette, the latest addition of Celebrity Cruises, was christened in Hamburg last year. The ship features the latest fuel and lubricating oil processing and sludge treatment facilities of GEA Westfalia Separator Group. The 122,000 GRT, the Celebrity Silhouette was built at the Meyer yard in Papenburg. To ensure reliable fuel supply to the drive systems, a Westfalia Separator centripack with four OSD 60 separators was installed. An installed Westfalia Separator Visco-BoosterUnit is designed to provide optimum adjustment of the viscosity, temperature and pressure of the engine oil to the requirements of the manufacturer. The trend towards using high-viscosity fuel and lubricating oils means that the volume of sludge is increasing.

http://us.westfalia-separator.com

AVEVA Surface Manager

AVEVA released a new product in its AVEVA Marine portfolio; AVEVA Surface Manager 12.1, which allows the transfer of surfaces to and from external systems, by the use of neutral standards offering greater flexibility and increased design quality.

Features of AVEVA Surface Manager include the import of surfaces from various formats for use in AVEVA Marine and graphically displaying the shape of the geometry. It supports the most commonly used formats: IGES, SAT, DML and STEP AP 203 for the import and export of surfaces. In addition, AVEVA Surface Manager also enables the extraction of surfaces from existing AVEVA Marine projects for conversion into external formats for use in third-party software. The new product also offers tools for quality assessment of the managed surface and, if needed, can repair defects detected in surfaces transferred from third-party applications in order to be successfully used in the AVEVA Marine applications.

www.aveva.com

(Continued on page 41)

(reference 1: "Surface Piercing Propellers for Displacing Vessels" Ferrando, Panarello, Scamardella, Viviani). While there are significant differences in their design approach, particularly with respect to propeller submergence parameters, the Interprogetti example is a landmark in demonstrating both the feasibility and the performance potential of PSP application to displacement hull ships.

FURTHER RESEARCH

The preliminary results validate the overall belief that this type of drive system can be successfully adapted to large, fully-displaced hull forms. As model testing of individual hull shapes can be very expensive, a numerical prediction approach is presently being pursued based on the initial findings. **Flexitab, in collaboration with sister company Victory Design, are presently developing specific analytical tools in the form of proprietary software to standardize the testing protocols, which will incorporate advanced virtual fluid dynamic analyses.** The aim is to provide a unique set of computations that will allow the prediction of performances and efficiency gains when retrofitting existing ship hull forms with the K-Drive PSP system. The tools being developed will take into consideration the amount of fuel burn reduction likely to be encountered, the overall projected installation and operating costs for specific vessel types based on age, remaining useful life and operational considerations, such as intended use. One area that shall need further investigation is the transmission of power from the engine to the propellers. In the case of PSP, the nature and operational characteristics of their design tends to induce a greater degree of cyclical loading on marine transmission components as compared to fully submerged propellers. The blades of a PSP operate both submerged, when maximum loading occurs, and ventilated, where loading is essentially zero. The resultant variations of the stresses coupled to the transmission gear could result in fatigue, vibration and resonance problems transmitted to the hull, stern gear and the gearbox. While this has not been fully explored in the preliminary stages of the design application where larger classes of vessels are concerned, previous experience with the M.V. "Alnilam" tend to suggest that technical solutions to these issues are at hand. The final production solution will require an additional program of testing and development to create a new family of partially submerged propellers based on the initial designs by Sonny Levi. The new family of PSP would of course be tested at a suitable facility, such as the Genoa modified tunnel, in order to derive all the data and curves essential for proper hull to propeller matching.

The axiom of the naval architect is that all designs are a compromise, and this is true when discussing the application of the PSP K-Drive from Flexitab as installed on large displacement commercial vessels. Not all classes of vessels will be ideal candidates. For example, certain types of bulk carriers and tankers, where the operational change in drafts between the loaded and ballasted condition entail large vertical excursions would initially not seem to be suitable. On the other hand, more research might show ways of getting around this issue: the flow control plane inserted between the transom and the propeller of the K-Drive did prove very effective at various drafts during the model tests.

Presently, the ideal type of vessel envisioned for this propulsion system is the large and medium sized container vessels, RoRo passenger ferries (with transom ramp modifications) and Cruise ships. Cruise ships are uniquely adaptable since their typical overhanging flat transom design lends itself well to the K-Drive system. In addition, the chance to reduce operating and maintenance costs as well as lessening environmental impacts should appeal to their inherently green nature. It should be borne in mind that while the initial effort for this project has been towards the modification of existing vessel designs, it is certainly not limited to such. The technology is equally adaptable to new construction. In fact, new construction affords greater opportunity to benefit from the projected reduced fuel consumption and propeller maintenance costs when factored into the life expectancy of new vessels. Incorporating the structural details necessary for the K-Drive mountings, transmission gearing arrangements as well as the engine plant layout is more easily accomplished in the preliminary design phases.

Increased efficiency aside, one has to acknowledge that economical cost factors will play the major role in whether or not an owner would chose to fit or retrofit this type of propulsion system to a new or existing vessel. In some cases the potential to recoup the installation costs would not be possible given the remaining useful life expectancy of a particular vessel. This is one of the prime areas that Flexitab is presently working towards with the develop of the tools necessary to identify all possible cost factors so that a potential owner can make a valid assessment of the financial risks involved in pursuing the state of the art in marine propulsion. Flexitab is confident that this innovative design will be successful and, buoyed by the encouraging preliminary results thus far, have filed for European and International patents based on the K-Drive principle. On-going research and developmental work is continuing and funding has been sought through various European grant programs in order to sustain the drive to bring this technology to fruition.


Bollinger


Sørensen


Doyle


Basu


Keane


Skogseth

Dick Bollinger Passes Away

Donald T. Bollinger, Chairman, President and CEO, Christopher B. Bollinger, Executive Vice President; Benjamin G. Bordelon, Executive Vice President, Repair; and Charlotte A. Bollinger, Executive Vice President,and Corporate Secretary, said: "One of the patriarchs and the dearest member of the Bollinger family has passed away. It is our great sorrow to tell you that **Dick Bollinger** died this morning. Dick—the President Emeritus of Bollinger Shipyards-- died at home surrounded by his loving family." Founded in 1946, Bollinger Shipyards, Inc., is a family-owned company that operates 12 shipyards on the U.S. Gulf Coast.

Sørensen New CEO of Maersk Tankers

Hanne B. Sørensen has been appointed new CEO of Maersk Tankers. She was the Chief Commercial Officer (CCO) of Maersk Line and replaces Søren Skou, who recently assumed the position as Maersk Line CEO. Maersk Tankers operates 300 modern crude oil, product and gas tankers and is a core businesses in the Maersk Group.

Castaing Nominated GM of STX France

Laurent Castaing was named the new General Manager of STX France in replacement of Jacques Hardelay.

Doyle Named VP at USMRC

The United States Maritime Resource Center (USMRC) and the Maritime Simulation Institute said that M**argaret Kaigh Doyle** has been appointed VP, Development. Doyle has more than 25 years of experience in the maritime industry and the majority of her career has focused on representing the interests of various sectors in the industry including ship owners and operators, government agencies and salvage and firefighting organizations. Prior to joining USMRC, Doyle was General Manager of the Marine Response Alliance.

GAC Bunker Fuels Names Exec

GAC Bunker Fuels unveiled plans to relocate the headquarters of its global bunker fuel services to Dubai under the new company name, GAC Bunker Fuels Ltd. The company also announced the appointment of Nicholas Browne as the new Global Director of GAC Bunker Fuels and Anthony Mollet as Commercial Director – Shipping (GAC UK). GAC Bunker Fuels' relocation to Dubai will take place in August 2012.

Dr. Basu Joins Webb Institute Faculty

Dr. Roger Basu has joined the faculty at Webb Institute as Associate Professor of Naval Architecture. Dr. Basu has enjoyed a long and distinguished career in the marine industry primarily involved with the analysis and reliability of ship and offshore structures. He recently retired from the American Bureau of Shipping as the Director of Shared Technology.

Svanes Joins NAVTOR as MD

E-navigation company NAVTOR said that Tor A. Svanes, the founder of C-MAP Norway, has joined the business in the position of Managing Director. Stavanger-based Smedvig established NAVTOR in June 2011 after the firm spotted an emerging opportunity in the maritime marketplace.

Gibbs Brothers Medal to Keane Jr.

Stevens alum **Robert G. Keane Jr.** (M. Eng. '67) will receive the Gibbs Brothers Medal from the National Academy of Sciences. The Gibbs Brothers Medal is awarded every three years for outstanding contributions in the field of naval architecture and marine engineering. It was established through the Gibbs Brothers Fund by gift of William Francis Gibbs and Frederic H. Gibbs and is presented with a $20,000 prize. Keane is being honored for continued excellence as a naval architect. Throughout his 45-year career, he has played a major role in designing numerous outstanding naval warships. For 35 years, Keane held technical leadership positions at the Naval Sea Systems Command (NAVSEA).

Leach Heads Career Services at MMA

Dr. John Barlow, Vice President for Academic Affairs and Academic Dean at Maine Maritime Academy (MMA), announced the appointment of Captain Timothy N. Leach, of Castine, Maine, to the post of director of career services and cadet shipping at the Castine college.

New Exec for Cargotec Offshore Business

Pasi Lehtonen has been appointed as Senior Vice President of Cargotec's Offshore business segment, effective from the beginning of January. Lehtonen has worked with Cargotec since 1995, his most recent position being Senior Vice President of Finance for Cargotec's Marine business. He will continue as a member of Marine's management group. In an earlier announcement, Cargotec confirmed the appointment of Tom Svennevig as Vice President for its Offshore segment's advanced load-handling business, and Ilpo Heikkilä as Vice President for its Offshore segment's winch business.

Largest Wind Power Offshore Platform

Drydocks World entered into a contract with Aibel, a Norwegian provider of services to the energy industry, for building a Wind Power Offshore Platform structure, to receive power generated from offshore wind farms. The — signed by **Jan Skogseth, Aibel CEO** and Khamis Juma Buamim, Chairman of Drydocks World, project will be implemented at the Dubai shipyard. The platform named DolWin beta will be built for the large DolWin wind farm cluster near Dollart, in the German sector of the North Sea. Drydocks World will carry out the building of the platform structure for Aibel, who is a supplier to ABB.

Inland Salvage Wins Salvage Deal

Inland Salvage Inc. (ISI) was selected as Salvor to conduct Wreck Removal Operations of a 2,650t Inland Drill Barge. The barge partially capsized in Bayou Shaffer, near Morgan City La., on September 4th, 2011. ISI provided initial emergency response, dive and lightering services after the barge capsized due to Tropical Storm Lee's storm surge.

Following extensive dive surveys, ISI's COO David Grecho, assembled ISI's Salvage Management Team, drawing from each member's particular field of expertise, to develop a Salvage Plan approved by Inland Salvage CEO Eli Zatezalo.

Work commenced January 17 with the arrival of ISI's salvage fleet of 2 Heavy Lift A-Frames, Crane Barge, Tug Boats, Receiver Barges and Crew support vessels.

• COSL Installs AMOS Software

China Oilfield Services Limited signed a deal to implement the fleet management software AMOS from SpecTec Asia Pacific East Ltd across three units of its fleet. The two parties have signed a contract which includes the supply of AMOS software suite, databases and associated consultancy services. AMOS is going to be installed onboard a 3000 meter semi-submersible drilling platform (COSL 981), delivered in 2011, as well as onboard two jack-up drilling rigs (HYSY936 and HYSY942).

• Certification for ECDIS Course

ClassNK issued generic training course approval to an Electronic Chart Display and Information System (ECDIS) course offered by K Line Maritime Academy (Philippine) (KLMA (Phili)), a group company of Kawasaki Kisen Kaisha, Ltd. The approval, which certifies that this course complies with International Maritime Organization (IMO) standards and the leading classification society's new Standard for Maritime Education & Training, is the first of its kind issued by ClassNK in the Philippines.

• Formosa Selects ABS Nautical

ABS Nautical Systems announced that its fully integrated asset management software suite NS5 has been selected for trial by Formosa Plastics Marine Corp. (FPMC), part of the Formosa Plastics Group - the only privately owned Taiwan oil refinery and the second largest gasoline and gasoil producer in Taiwan.

• Complete Propulsion Package

Weihai Haida Ferry Co., operating in northeast China, has placed an order for a 2,200-passenger/1100-lane-m RoPax ferry featuring a MAN Diesel & Turbo propulsion package. The ship will be built at local Huanghai shipyard and will be called 'Shen Shen 2'. It will feature a twin-screw propulsion plant comprising two MAN 9L32/40 (IMO Tier-II compliant) four-stroke engines manufactured by MAN Diesel & Turbo in Augsburg (Germany), two Renk single-reduction gearboxes with PTO shaft to drive alternators, and two MAN CP propellers using the Alpha VBS1020 Mk 5 design. Alphatronic 2000 has been designated as propulsion control system.

• AKA, Niigata's Hybrid System

Aspin Kemp & Associates (AKA) announced a partnership agreement with Niigata Power Systems to co-promote AKA's XeroPoint Hybrid Marine Propulsion System and Niigata's Z-Peller propulsion package. The partnership offers a hybrid propulsion package for the marine industry that reduces emissions and engine maintenance, while offering significant fuel savings for vessel operators.

• Lankhorst Wins Technip Contract

Technip USA, Inc. has contracted Lankhorst Ropes to manufacture the polyester mooring ropes for a new spar platform for the US Gulf of Mexico. The 23,000-ton Lucius truss spar hull will be installed in a water depth of 7,100 feet, and is designed to produce 80,000 bopd of oil and 450 MMcfm/d of gas. First oil from the project is scheduled for 2014.

BUYER'S DIRECTORY

This directory section is an editorial feature published in every issue for the convenience of the readers of MARITIME REPORTER. A quick-reference readers' guide, it includes the names and addresses of the world's leading manufacturers and suppliers of all types of marine machinery, equipment, supplies and services. A listing is provided, at no cost for one year in all issues, only to companies with continuing advertising programs in this publication, whether an advertisement appears in every issue or not. Because it is an editorial service, unpaid and not part of the advertisers contract, MR assumes no responsibility for errors. If you are interested in having your company listed in this Buyer's Directory Section, contact Mark O'Malley at momalley@marinelink.com

ATTORNEYS

Blank Rome, International and Maritime Litigation 600 New Hampshire Avenue, NW, Washington, DC , Germany , tel:(202) 772 - 5800, fax:(202) 772 - 5858, JKimball@BlankRome.com

AUTOPILOT SYSTEMS

AG Marine, 5711 34th Ave NW 2nd floor, Gig Harbor, WA , tel:253 851-0862, fax:253 851-0865

AZIMUTH CONTROLS

Prime Mover Controls, 3600 Gilmore Way, Burnaby, BC V5G 4R8, Canada

BOATBUILDING AND DESIGN

Brunswick Commercial and Government Products, 420 Megan Z Avenue, Edgewater, FL Molde, Norway , tel:(386) 423 - 2900, fax:386-423-9187, BCGPinfo@brunswick.com

BOW AND STERN THRUSTERS

Omnithruster Inc., 2201 Pinnacle Parkway Twinsburg, Ohio 44087, Cleveland, OH 44139, USA , tel:330 963-6310, fax:330 963-6325, widmer@omnithruster.com contact: Kurt Widmer, www.omnithruster.com

CAPSTANS

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

COMMUNICATIONS

Jepessen Marine, Hovlandsveien 52 PO Box 212, Egersund , tel:011 47 51 46 4700, info.marine@jeppesen.com , www.jeppesen.com/marine

COMMUNICATIONS SERVICE

David Clark, PO Box 15054, Worcester, MA 01615, USA , tel:1-800-298-6235, Sales@davidclark.com contact: Sales Department, www.davidclark.com

CONTROL SYSTEM-MONITORING/STEERING

Omega Engineering, One Omega Dr., Stamford, CT 06907, USA , tel:203 359-1660, fax:203 968-7192, kkwait@omega.com contact: Kathy Kwait, www.omega.com

CORDAGE

Helkama Bica Oy, Lakimiehenkatu 4, KAARINA FI-20780, Finland , tel:+358-2-410 8700, sales@helkamabica.fi

DIVING & SALVAGE

Imenco, 16111 Park Entry Dr., Ste 100, Houston, TX , USA , tel:(713) 480-7777, fax:909-626-8326, al.cohen@imenco.com contact: Al Cohen, www.imenco.com

ELECTRIC PROPULSION

Avtron Industrial Automation, 7900 E.Pleasant Valley Road, Independence, OH , tel:216 642-1230/ext 1263, fax:216 642-6037, mduskey@avtron-ia.com contact: Mark R. Duskey, www.avtron-ia.com/marine.htm

ELECTRONICS/NAVIGATION COMMUNICATIONS SERVICE AND

Jeppesen Marine, Hovlandsveien 52 PO Box 212, Egersund , tel:011 47 51 46 4700, info.marine@jeppesen.com , www.jeppesen.com/marine

GALLEY EQUIPMENT

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

LOIPART AB, P.O.Box 694/Metallgatan 2-4, ALINGSAS , tel:+46 322 668 360, fax:+46 322 637 747, loipart@loipart.se

GROUNDING & EARTHING BRUSHES

Sohre Turbomachinery, 128 Main Street, Monson, MA 01082-0889, USA , tel:(413) 267-0590, fax:(413) 267-0592, tsohre@sohreturbo.com contact: Thomas Sohre, www.sohreturbo.com

GYROCOMPASS

AG Marine, 5711 34th Ave NW 2nd floor, Gig Harbor, WA

HOISTS

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

HVAC

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

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

JOINER- WATERTIGHT DOOR-PANELING-CEILING SYSTEM

Thermax Marine-Panel Specialists, Inc., 3115 Range Rd., Temple, TX 76501, USA

LIFESAVING EQUIPMENT

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

LIFT EQUIPMENT

Imenco, 16111 Park Entry Dr., Ste 100, Houston, TX , USA , tel:(713) 480-7777, fax:909-626-8326, al.cohen@imenco.com contact: Al Cohen, www.imenco.com

METEOROLOGICAL INSTRUMENTS

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

MOORING PRODUCTS AND SYSTEMS

PSI/Tideslide, 3075 Shattuck, Ste 801, Saginaw, MI , tel:989-695-2646, fax:989-695-2648, mbaluha@tideslide.com

NAV/COMM EQUIPMENT

Marlink, Offices in: Oslo, London, Hamburg, Brussels, Athens, Dubai, Mumbai, Singapore, Tokyo, Washington DC and Houston , tel:+32 70 233 220, fax:+32 2 332 3327, customer.service@marlink.com

NAVAL ARCHITECTS, MARINE ENGINEERS

BMT Fleet Technology, 311 Legget Dr, Kanata, ON K2K 1ZB, Canada

MCA Engineers, Inc., 1100 Quail Street, Suite 218,, Newport Beach, CA 92626, USA

NAVIGATION

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OFFSHORE SERVICES

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PADLOCKS/LOCKS

Lockmasters USA, Inc., P.O. Box 2532, Panama City, FL , tel:800-461-0620, fax:850-914-9754, sales@lockmastersusa.com

PROPULSION CONTROL SYSTEMS

Prime Mover Controls, 3600 Gilmore Way, Burnaby, BC V5G 4R8, Canada

PROPULSION EQUIPMENT

VOLVO PENTA OF THE AMERICAS INC, 1300 Volvo Penta Drive, Chesapeake, VA , tel:+1 757 3824010, lindsy.shrewsberry@volvo.com

Wartsila, Puotikuja 1, Vaasa , tel:011 35 8107090000 contact: Jessica Akerberg, www.wartsila.com

RIGID INFLATABLE BOATS

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David Clark, PO Box 15054, Worcester, MA 01615, USA , tel:1-800-298-6235, Sales@davidclark.com

Delta Wave Communications, Inc., 8001 Hwy 182 E. Morgan City, LA 70380, Morgan City , tel:(985) 384-4100, fax:(504) 617-6393, tom.clark@deltawavecomm.com

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January **Ad Close: Dec 22**	**February** **Ad Close: Jan 26**	**March** **Ad Close: Feb 23**
US Navy Report	**Cruise Shipping Annual**	**The Ship Repair Edition**
Market: Floating Production Systems	Market: Ports & Logistics	Market:Training & Education: Facilities & Systems
Technical: Ballast Water Treatment Systems	**ROUNDTABLE:** Satellite Communications	Technical: Software Solutions
Directory: Marine Propulsion Equipment	Directory: Marine Electronics Buyer's Guide	Directory: Coatings & Corrosion Control
	Special Report: Germany	
ASNE Day Feb 9-10	**Seatrade** Mar 12-15	**CMA** Mar 19-21 **CIMPS-Europort** April 25-27
April **Ad Close: Mar 22**	**May** **Ad Close: April 26**	**June** **Ad Close: May 24**
Offshore Deepwater Annual	**The Green Ship Edition**	**Annual World Yearbook**
Market: Offshore Wind & Renewable Energy	Market: Patrol, Escort Craft & RIBs	Market: Military Might: Innovative Designs
Technical: Offshore Service Vessels	Technical: The Integrated Bridge: Modern Bridge Technology & Technique	**ROUNDTABLE:** Information Technology & Software Solutions
Directory: Deck Machinery, Winches & Ropes	Directory: Posidonia 2012 Preview: New Technology Guide	Directory: Maritime Fuels, Lubricants & Additives
Special Report: The Netherlands	Special Report: Middle East Maritime Cluster	
OTC April 30 - May 3	**RoRo** May 22-24 **MACC** June **Posidonia** June 4-8	**Don Sutherland Photo Contest**
July **Ad Close: June 2**	**August** **Ad Close: July 26**	**September** **Ad Close: Aug 23**
Arctic Operations	**The Shipyard Edition**	**Marine Propulsion Annual**
Market: Oil Spill Response & Recovery	Market: Maritime Communications	**ROUNDTABLE:** Diesel Engine Manufacturers
ROUNDTABLE: Coatings & Corrosion	Technical: Maritime & Shipbuilding Tools	Technical: Marine Salvage & Recovery
Directory: Training & Education – Facilities & Systems	Directory: SMM 2012 Preview: New Products & Technologies	Directory: Insulation, Pipes, Pumps & Valves
Special Report: Brazil	Special Report: Singapore Maritime Cluster	
	SMM Sept 4-7	**Rio Oil & Gas** Sept 17-20
October **Ad Close: Sept 20**	**November** **Ad Close: Oct 25**	**December** **Ad Close: Nov 22**
Marine Design & Construction	**Workboat Annual**	**Great Ships of 2012**
Market: Maritime, Port & Harbor Security	Market: Offshore Service Vessels (OSVs)	Market: Port & Harbor Dredging Annual
Technical: Deepwater Floating Production Systems	**ROUNDTABLE:** Workboat Academy: Training & Education	Technical: Maritime Fire & Safety Products & Systems
Directory:CAD/CAM & Other Software	Directory:Heavy Lifting: Deck Machinery & Cranes	Directory: World Shipyards: Newbuild, Repair & Conversion
	Special Report:Turkey	
SNAME Oct 24-26 **MAST Americas** Nov 14-16 **Inmex China** Nov 21-23	**Int'l Workboat Show** Dec 5-7	* Please note that the publisher reserves the right to alter this editorial calendar. All planned features are subject to change in light of changing industry trends and developments.

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Lead Project Programmer, Heidmar Inc. Norwalk CT
Job Location: USA, Norwalk

Analyzing and designing n-tier software applications, using computational and quantitative methodologies in .NET technologies, including ASP.NET, C#, and Webservices; Developing n-tier software applications; Designing MS SQL server database; Designing rich UI interface and functionalities; Performing unit and functionality testing; Supporting marketing team and web marketing activities; Optimizing ASP.NET applications to increase performance and scalability; Designing user interface for dynamic rendering of database content; Creating software for efficient ships to shore data communication; Developing "drag and drop" web based mooring diagrams and tank plan diagrams; Developing Vessel/Fleet management, Position list, Certificate management, Approval management, and User management functionalities; Developing highly customizable data interchange systems to process, import, and export to industry standard document formats such as Word, Excel, HTML, and PDF; Developing custom software application systems to support third party interoperable data access from website applications, allowing authorized access to realtime secure data from the website; Developing hierarchical based navigation menus, DHTML Tooltip, and cross browser modal window; Automating builds to reduce human errors in deployment and testing; Developing automated tests to reduce defects in software. BS in Electrical and Electronics Engineering or Computer Science or its foreign equivalent, plus 5 yrs. of exp. in job offered reqd. Fax resumes to 203.662.2788.

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Island Manager
Job Location: Virgin Islands, St. Thomas

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The ideal candidate will possess excellent written and oral communications skills with minimum 7 years general management experience preferably in the steamship cargo or related industry with exposure to all facets of the business to include sales, marketing, vessel operation, equipment control, accounting, and human resources. The candidate will have a Bachelor's Degree in Business Administration, Sales or related field, a valid driver's license and passport. Solid compensation package/full relocation/benefits/vacation/travel/401K.

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ELECTRICAL ENGINEER
Job Location: USA, Gulfport, MS

BSEE with a minimum of 5 years experience, at least some in the marine electrical industry.
Knowledge of maritime regulations (ABS, USCG).
Experience in developing functional designs of marine electrical systems including drawings, calculations and specifications.
Able to give direction to others.
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Experienced in AutoCAD and MicroSoft Office products.

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