

October 2005

# MARITIME REPORTER

AND  
ENGINEERING NEWS

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Bollinger Shipyards' **Robert Socha** had returned to survey his home in New Orleans' West Bank area just about in time to find this edition of the Times-Picayune on his doorstep. He re-evacuated to Texas for Rita. (Photo: Don Sutherland.)



A pair of ocean-going fishing boats blocks Rte. 23, near Empire, LA, carried a considerable distance inland by Katrina's astounding surge. A week after this was taken, Rita further decimated the area of Plaquemines Parish. (Photo: Don Sutherland.)

For Additional images, turn to page 67.

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## Editor's Note

Just when I think the job of covering the marine industry becomes routine, all hell breaks loose ... literally. For those of you who may have been holed up in a cave for the last couple of months, far from any sign of civilization and are just now returning, picking up your October edition of *Maritime Reporter* as your first news source of any type, a pair of Hurricanes last month leveled much of the Gulf of Mexico area, leaving untold devastation to the marine and offshore industry infrastructure. As we put this edition to press, the story is evolving hour by hour, as reports continue to stream in from companies in the area regarding their damage status and projected return to business.

The reports I've been receiving, whether from the nightly news, from the internet, or from personal accounts via friends, colleagues and reporters in the area, are staggering to say the least. While much of the national media attention has been focused on New Orleans, there are countless cities, towns and villages throughout the region, home to the businesses and people that are the fiber of the Gulf of Mexico marine and offshore industry, that have been destroyed.

As with any story so tragic, though, comes a few rays of light. While many initial reports lambasted the Federal government for slowness of response, the job performed by the men and women of the United States Coast Guard, in saving lives and in making a horrible situation more tenable, was and continues to be outstanding. The resilience of the citizens in the region is without compare. Through all of the loss of life, property and occupation, the South's resolve to start rebuilding now, as well as its famous "southern hospitality" is indelible, as attested by our contributing editor Don Sutherland, who has been in the region reporting for nearly a month.

The November 2005 edition of *Maritime Reporter*, as well as that of sister-publications *Marine News* and *Marine Technology Reporter*, will be dedicated to in-depth coverage of the effects and aftermath of the storms. In November we will publish our own "Gulf Maritime Resources Guide" in conjunction with the articles, as the gargantuan task of rebuilding the Gulf of Mexico marine and offshore industry infrastructure begins.

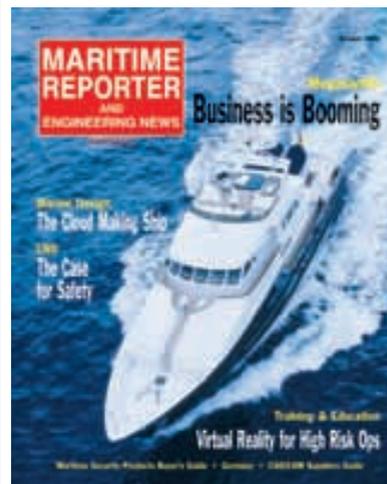


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## On the Cover



**On the Cover:** Pictured on this month's cover the 113-ft. Tri-Deck Top Times, built by Burger Boat Company of Manitowoc, Wis. Burger has had quite a successful run in the burgeoning luxury yacht business.

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## Coming in *Maritime Reporter & Engineering News*

### November 2005 *Hurricane Katrina: Rebuilding the Gulf of Mexico*

Hurricanes Katrina and Rita left a path of destruction throughout the Gulf of Mexico region, leaving an unprecedented level of death and damage. The November 2005 edition of *Maritime Reporter* will offer exclusive reports from the area, documenting damage to the marine and offshore industries, with an exclusive Directory of builders and suppliers standing ready to help rebuild the marine infrastructure.

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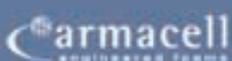
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## John McMullen Dies at 87

**John J. McMullen**, maritime industry icon, former owner of the New Jersey Devils and the Houston Astros, died September 16 at the age of 87.

McMullen founded John J. McMullen and Associates (JJMA) in 1957, a naval architectural and engineering firm that once occupied the 30th floor of One World Trade Center in Manhattan.

At first the firm concentrated on ship containerization and bulk transportation, but it soon became noted for naval engineering and ship design.

The company's current emphasis on defense contracts came later. JJMA is the lead naval architect of the winning design for the U.S. Navy's DDX program.

Though the firm was purchased in 1998 and formed an Employee Stock Ownership Plan (ESOP) Trust, John J. McMullen's influence and prosperity remained.

Dr. McMullen has made numerous innovations in ship design and construction, including systems installed in hundreds of merchant, passenger and naval ships.

McMullen attended the United States Naval Academy and graduated in 1940 with a bachelor of science degree in electrical engineering before serving aboard the USS Yorktown (CV-5) and the USS Stack (DD-406) during World War II.

After the Korean War and 14 years of service, he left the Navy and founded John J. McMullen Associates.

McMullen held a master of science degree in naval architecture and marine engineering from MIT, and a doctorate in mechanical engineering from the Swiss Federal Institute of Technology in Zurich.

He began building his fortune through McMullen Associates and, eventually, the steamship shipping agency Norton Lilly International.

On top of his shipping accomplishments, he became widely known with his involvement in pro sports.

McMullen is survived by his wife of 50 years, Jacqueline; son, Peter, and his wife, Cheryl; daughter Catherine; son John Jr.; and five grandchildren.

## Tankers Being Built Don't Match Phase-Out Profile

The size distribution of tankers 5,000-80,000 dwt to be phased out of the oil trades according to MARPOL 13G is quite different from the size distribution of the orderbook, said Intertanko's Manager of Research and Projects **Erik Ranheim**.

There are about 28 million deadweight tons of single-hull tankers 5,000-80,000 dwt to be phased out — including single hull and double bottom/side petroleum tankers and oil/chemical tankers, but excluding chemical tankers.

The orderbook in this size range is

about the same size.

However, whereas some 63 percent of the fleet (in tonnage terms) to be phased out consists of smaller tankers below 30,000 dwt, only 32 percent of the orderbook (in tonnage terms) is in this size range.

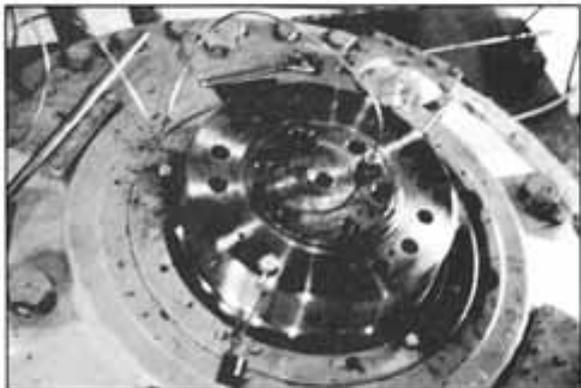
On the other hand there are some 173 larger tankers in the size range 30,000 dwt- 80,000 dwt to be phased out compared to an orderbook in this larger size range of some 330 tankers.

These phase-out figures are based on the information used by the IMO Group

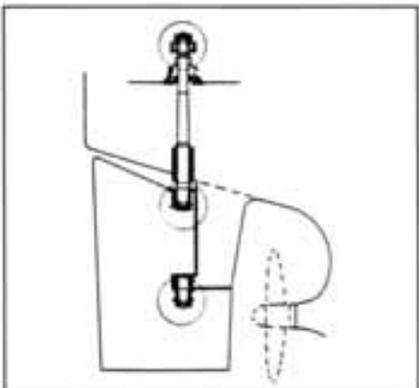

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▲ Pilgrim Nut on Rudder Stock on the M/V "Lopez"



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of Experts that evaluated the consequences of accelerated phase-out after the Prestige accident, and have been adjusted for sales for decommissioning and conversion, as well as on the basis of information received from brokers and owners.

It should be noted, however, that whereas the phase-out period is until 2015 (including any flag state (and port state) extensions), the orderbook for 2008 and beyond has still to be filled and is therefore an unknown quantity. There is still uncertainty over whether

there will actually be a market for single-hull tankers that have been extended by their flag state to trade between 2010 and 2015 until they are 25 years old. Some 10 million dwt of the tanker fleet below 80,000 dwt (or 35 percent of the fleet) would be due to be phased out this

year if the rest of the world took the same stance as the EU countries and barred single-hull trading after 2010, however, a number of countries have already declared that further trading is possible.

### Crowley to Acquire Titan Maritime

Crowley Maritime Corporation Chairman, President and CEO **Tom Crowley Jr.** announced at the International Salvage Union's annual dinner that Crowley has reached agreement with the owners of Titan Maritime, LLC to acquire the company. The deal is expected to close within the next 30 days.

Crowley made the announcement to an audience of about 60 salvors from around the world who had gathered for dinner at the Columbia Tower Club in Seattle as part of the weeklong International Salvage Union's annual conference. He said additional details would be provided after the closing.

Titan, founded in 1980 by David Parrot, is a worldwide salvage company that is headquartered in Ft. Lauderdale, Fla., with offices in Newhaven, UK and Sao Paulo, Brazil and equipment depots in Batam, Indonesia and Dubai, UAE. Over the past 25 years, Titan has performed more than 200 salvage and wreck removal projects worldwide.

### CP Ships Focuses on U.S.

CP Ships last month re-flagged the 3,200 teu CP Yucatan to U.S. flag and changed its name to CP Yosemite in recognition of the ship's enrollment in the U.S. government's new Maritime Security Program which came into effect October 1, 2005 and under which CP Ships is expanding its participation. CP Ships also opened a new office in Washington, D.C. CP Yosemite is one of five vessels operating on the TransAtlantic which CP Ships is committing to MSP and which will be named after U.S. national parks. The remaining four ships will be renamed CP Everglades, CP Denali, CP Shenandoah and CP Yellowstone. CP Ships' new MSP contract represents an increase over its previous three-ship MSP participation. Under the new contract, government subsidy of \$145 million is provided over the next 10 years to offset the cost of operating five ships under U.S. flag. MSP was created to ensure that in times of war or national emergency the Department of Defense has ready access to a fleet of modern and efficient US-flag ships like CP Yosemite.

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AGM sends our hopes and prayers to the Citizens of the Gulf Coast and especially to all of our friends and their families.



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## Hornbeck Unveils Major Fleet Expansion

Hornbeck Offshore Services, Inc. late last month announced a new vessel construction programs for each of its two business segments, making it the company's fourth OSV newbuild program and second tug and tank barge (TTB) newbuild program. Hornbeck is seeking bids from domestic shipyards for the two programs. The company estimates the newbuild program will cost a cumulative \$265 million. The exact number of vessels to be built and their technical specs will be finalized at a later date.

Hornbeck plans to build an additional 20,000 dwt of new generation OSV vessel capacity with an estimated cost of approximately \$170 million. Earlier this year the company announced plans to convert two coastwise sulfur tankers into 370 class multi-purpose supply vessels, or MPSVs, at a currently estimated total project cost of \$65 million. When combined with the company's current MPSV conversion program, the total cost of the two OSV

expansion programs is budgeted to be approximately \$235 million. The company expects to deliver its two new 370 class MPSVs in early 2007. All of the new vessels to be constructed under the latest OSV newbuild program are expected to be delivered by mid-2008, with the first vessel expected in mid-2007.

Hornbeck also plans to build an additional 400,000 barrels of double-hulled tank barge barrel-carrying capacity.

New are plans to construct the related offshore tugs to be used as power units for the new barges. The estimated cost of the new ocean-going tugs and barges will be approximately \$95 million. The company's first TTB newbuild program, which included the acquisition and retrofit of four 6,000 hp ocean-going tugs, is expected to be completed during the fourth quarter of 2005. All of the new vessels to be constructed under the second TTB newbuild program are expected to be delivered during 2007.

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Maritime Reporter & Engineering News

## Six New S&R Vessels for Vietnam

Damen delivered the last Search and Rescue Vessel, out of a series of six vessel to Vinamarine (Vietnam National Maritime Bureau).

The vessel, named SAR 413, was delivered to Vinamarine in the port of Haiphong, and the vessel will be based in Vietnam's southern port of Vung Tau to be deployed in Vietnam's southern coastal areas.

The SAR 413 is a member of the Damen Stan Patrol Series and measures 137.8 x 23 ft. (42 x 7 m). Apart from her modern design and appearance the vessel is provided with all modern (satellite) communication and navigational aids, has towing capabilities, is provided with a sick-bay including medical facilities, survivor room, fire-fighting capabilities, etc.

The boats were built at the local shipyard of Song Cam in the city of Haiphong, with shipping components from the Netherlands and built by local labor.

Circle 92 on Reader Service Card

## Keppel Singmarine Wins \$46M in Contracts

Keppel Singmarine received orders for four offshore support vessels (OSVs) and two tugboats for about \$46 million. The vessels will be progressively delivered to their owners up to first half of 2007.

Keppel Singmarine will build two Anchor Handling and Tug/ Supply (AHTS) vessels each for Saudi Arabia companies, HADI Establishment (HADI) and Zamil Operations and Maintenance Co. A repeat customer since 2001, HADI has ordered from Keppel Singmarine a total of nine vessels including the latest two vessels. Zamil Operations and Maintenance Co. Ltd. (Zamil) is a new customer.

Keppel Smit Towage (KST) has placed an order for two Azimuth Stern Drive (ASD) tugboats, designed by the Marine Technology Development (MTD), Keppel Singmarine's own research and development arm.

A joint venture between Keppel Shipyard and Smit International Singapore, Keppel Smit Towage owns, manages and operates tugs to provide marine support services in the Asia Pacific region.

Circle 90 on Reader Service Card

## Northrop Grumman Wins Brazilian Navy Deal

Northrop Grumman won a contract from the Brazilian Navy to upgrade the primary navigation systems on its com-

bat ships with new-generation state-of-the-art inertial navigation systems.

The inertial-navigation-system equipment will be supplied by Northrop Grumman's Sperry Marine business unit.

The system, based on Sperry Marine's ring-laser gyro technology, is designed

to provide high-accuracy position data and precise attitude, velocity and heading inputs for the ship's navigation and fire-control systems.

The initial \$2.1 million firm fixed price contract is the first phase of a multi-annual acquisition program to replace the installed Sperry Marine

MK29 military gyrocompass systems.

For Phase I, Sperry Marine will supply eight MK39 ring-laser gyro inertial navigation systems with supporting interfaces, accessories and spares. Installations are expected to begin in 2006.

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# Wood Packaging Materials

Potential threats posed by insect pests in raw wood involved in international trade has been recognized for years, with long-standing restrictions and controls on the import of logs from various countries. It was only about 15 years ago that a similar threat was recognized with regard to wood that was used as packaging material, rather than as a commodity. The problem was initially traced to wood used in shipping containers and pallets. Some of the wood so utilized harbored the Asian long-horned beetle, a voracious consumer of many different trees. The beetle became established in some parts of the United States and Canada before its presence was even recognized. Once the problem and the extent of the threat were identified, government agencies moved into action. The U.S. Animal and Plant Health Inspection Service (APHIS) of the Department of Agriculture and its counterpart in Canada (the Canadian Food Inspection Agency) promulgated emergency regulations to control entry

of such wood packing materials from China and adjacent East Asian nations where the beetle was endemic.

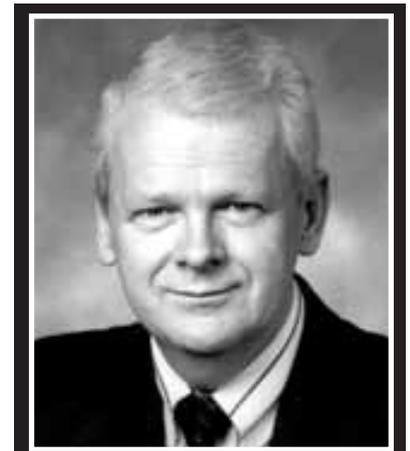
China initially contended that these control efforts were actually intended to deter Chinese trade. It was soon recognized, though, that the threat was real. Further examination revealed that the threat was not limited to the Asian long-horned beetle and the potential host countries for the numerous high-risk insects were everywhere. Wood packaging material came to be recognized as somewhat similar to ballast water in the threat it posed when involved in the highly complex and interwoven international trade networks.

### International solution

For a variety of reasons, including the muted voices of environmental advocacy groups, the various governmental agencies and the industry have been able to fashion a relatively uniform international system for addressing this threat. When it was thought that the problem

involved only raw wood in shipping containers and shipping pallets from East Asia, a program was established involving the treatment of such wood with either heat or fumigants and the issuance of appropriate certificates by authorized government officials in those nations. Once it was realized that the problem was much more extensive, a universal solution was sought.

The International Plant Protection Convention (IPPC), developed under the auspices of the United Nations Food and Agriculture Organization (FAO), provides methodologies for international cooperation in controlling pests to plants and preventing their international spread and for development of technically justified and transparent phytosanitary measures to address problems posed by such pests. Measures involving either heat treatment or fumigation with methyl bromide were agreed upon and designated as International Standard for Phytosanitary Measures (ISPM) #15 - Guidelines for Regulating Wood



Dennis L. Bryant, Senior Maritime Counsel at the law firm of Holland & Knight, Washington, D.C., is a contributing editor of MR/EN.

Packaging Material in International Trade.

Working with the International Organization for Standardization (ISO), a logo was established for marking of wood packaging material for use in international trade. The logo consists of the IPPC designation followed by the



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two-letter ISO country code and the unique number assigned by the national plant protection organization. Beneath that are two additional letters: either HT for heat treatment or MB for methyl bromide fumigation.

Wood packaging materials are to be marked in a visible location on each article, preferably on at least two opposite sides of the article, with the legible and permanent logo that indicates that the article meets the requirements of ISPM #15. The requirement applies to pallets, crates, boxes, and dunnage except for those items made entirely of manufactured wood material (e.g., particle board, plywood, oriented strand board) and wine or whiskey barrels, or wood packaging materials made entirely of thin pieces of wood of 6 mm thickness or less. The paper certification (treatment certificate) is no longer required.

**Domestic enforcement**

In the United States, the restrictions on the entry of regulated wood packaging material are administered jointly by APHIS and the U.S. Customs and Border Protection (CBP). APHIS promulgated detailed regulations on September 16, 2004, with enforcement to commence after one year. The two agencies have now published operating procedures relating to enforcement. Enforcement will take place in a phased manner. During Phase 1 - from

September 16, 2005 through January 31, 2006 - the agencies will adopt an informed compliance program where account managers will be notified of cargo that contains noncompliant wood packaging material and Notices of Violation will be posted in a prominent location on the goods. During Phase 2 - from February 1 through July 4, 2006 - the agencies will reject violative crates and pallets through re-exportation from North America. The informed compliance program during this period will be limited to other types of noncompliant wood packaging material. With the commencement of Phase 3 on July 5, 2006, the agencies will fully enforce the requirements will regard to all articles of regulated wood packaging material entering North America. Noncompliant wood packaging material will not be allowed to enter.

Generally, noncompliant wood packaging material is to be reexported. Reexport refers to the immediate export of the noncompliant wood packaging material. Where the noncompliant wood packaging material cannot be separated from the accompanying merchandise, both will be reexported. Noncompliant wood packaging entering North America is not eligible for treatment or destruction upon entry. In every case of the discovery of an actual pest infestation, the protocol associated with safeguarding or eradication of the pest

threat will supersede wood packaging material enforcement.

Wood packaging material imported into the United States directly from Canada is exempt from the requirement to comply with ISPM #15 to the extent that the material originated therein. Unmarked firewood, mesquite wood for cooking, and small, noncommercial packages of un-manufactured wood for personal cooking or personal medicinal purposes originating in and being imported into the United States directly from the States of Mexico immediately adjacent to the United States (Mexican Border States) are also exempt from the ISPM #15 requirements.

Most other nations have adopted, or are in the process of adopting, programs to enforce ISPM #15 with regard to imported wood packaging material. Canada and Mexico have adopted enforcement programs that mirror those of the United States.

**Who pays?**

If either CBP or APHIS determines that separation of the noncompliant wood packaging material and the merchandise is feasible, then the merchandise will be separated at the importer's expense at a time and place selected by CBP or APHIS.

All expenses incurred for the services of CBP officers and APHIS specialists involved in the separation of cargo from

noncompliant wood packaging material will be billed to the importer or other party of interest. Noncompliant wood packaging material and any associated merchandise from which it cannot be separated will be reexported at the expense of the importer or other party of interest. In the event that the identity of the importer is unknown or otherwise not available to CBP or AHPIS, the importing carrier will be held liable for expenses related to the costs of reexportation of the noncompliant wood packaging material and associated merchandise.

It is recommended that carriers examine cargo prior to lading for compliance with requirements of ISPM #15. Carriers should also include in their tariffs and bills of lading provisions requiring shippers to comply with ISPM #15 and provisions clearly making any additional expenses incurred by the carrier for noncompliance with ISPM #15 will be for shipper's account.

**Conclusion**

When faced with this multi-billion dollar threat, the various national enforcement agencies and the regulated community developed a logical, phased program to minimize the risk without unnecessarily impeding the flow of commerce. This approach may serve as an example for the handling of other transnational issues.

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## Kongsberg Sells Simrad

Simrad, Inc., a subsidiary of the Kongsberg Group, announced that Kongsberg has sold the company to Altor, a Nordic investment fund. The sale involved all four European Simrad factories, the holding company Simrad AS and distribution companies in addition to Simrad, Inc. including Simrad AB (Sweden), Simrad GmbH (Germany), Simrad SA (France), Simrad BV (the Netherlands) Simrad Srl (Italy), and Simrad Canada Ltd.

"We view this as a very positive development for Simrad, Inc. and the marine electronics industry in North America," said **Brian Staton**, President of Simrad, Inc. "This will result in a fresh wave of investment in our important recreational yachting and commercial markets. We're looking forward to building our business and strengthening our position in the market under new ownership."

## Art Anderson Announces New Hires



Parker



Campbell

Art Anderson Associates has added **James Parker** and **Mike Campbell** to its team of naval architects and marine engineers. Both will support the company's marine projects.

A recent graduate of the Florida Institute of Technology, where he obtained his master's degree in Ocean Engineering, Parker was hired as a Naval Architect and will be working on several of Art Anderson Associates'

Small Business Innovative Research contracts with the U.S. Navy. Campbell was hired as a Senior Marine Designer and will be developing ships arrangements and structural designs for Art Anderson Associates' existing contracts with the National Oceanographic and Atmospheric Administration (NOAA) and Washington State Ferries (WSF). Campbell has more than 23 years of design experience in a wide variety of marine design disciplines and successfully managed a five-year U.S. Navy design contract renovating all U.S. Navy Pacific-based aircraft carriers.

## SeaWave Names Green Sales Manager

SeaWave promoted **Tim Green** to Manager of Sales: Americas effective immediately. He will continue to be based in SeaWave's Florida office where he formerly served as regional sales manager. Green's new responsibilities will include management of all sales personnel in the USA, as well as promoting SeaWave products to the large shipping and workboat accounts. He holds a Bachelor of Science degree in Marine Transportation from the United States Merchant Marine Academy, Kings Point.

## Northrop Grumman Awarded Ship Contract

Northrop Grumman was awarded a contract from Maersk Line for maintenance work on the military repositioning ship M/V Pvt. Franklin J. Phillips.

Northrop Grumman's Newport News sector is the prime contractor for the work, which will include dry-docking, maintenance and repair. The Phillips arrived at the shipyard on Sept. 26 and will remain for approximately five weeks. Work during this period will include upgrades to the habitability spaces; replacement of the cargo cranes; propeller and rudder maintenance; and underwater hull painting. The contract is valued at \$9.49 million.

## Wilh. Wilhelmsen, SvitzerWijsmuller Join

Abeer Marine Services (AMS), a company in the Wilh. Wilhelmsen group (WW) will establish a joint operating company with the Maersk-owned SvitzerWijsmuller (SW). The 50/50 joint company will be named Express Offshore Transport Pte. Ltd. (EOT), will be operational as of November 1, 2005, based in Singapore and have 80 shore-based personnel. The application for approval of the new joint company is being considered by the European Commission under the EC Merger Regulation. EOT will deploy a fleet of 55 light supply vessels, ranging from 68 to 135 ft., including six vessels currently under construction. The vessels will offer the oil industry in The Arabian Gulf and Asia offshore transportation of personnel and supplies.



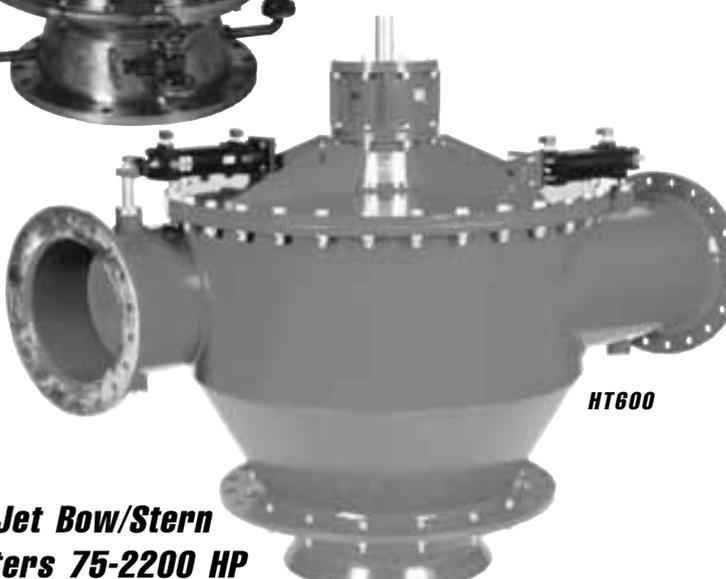
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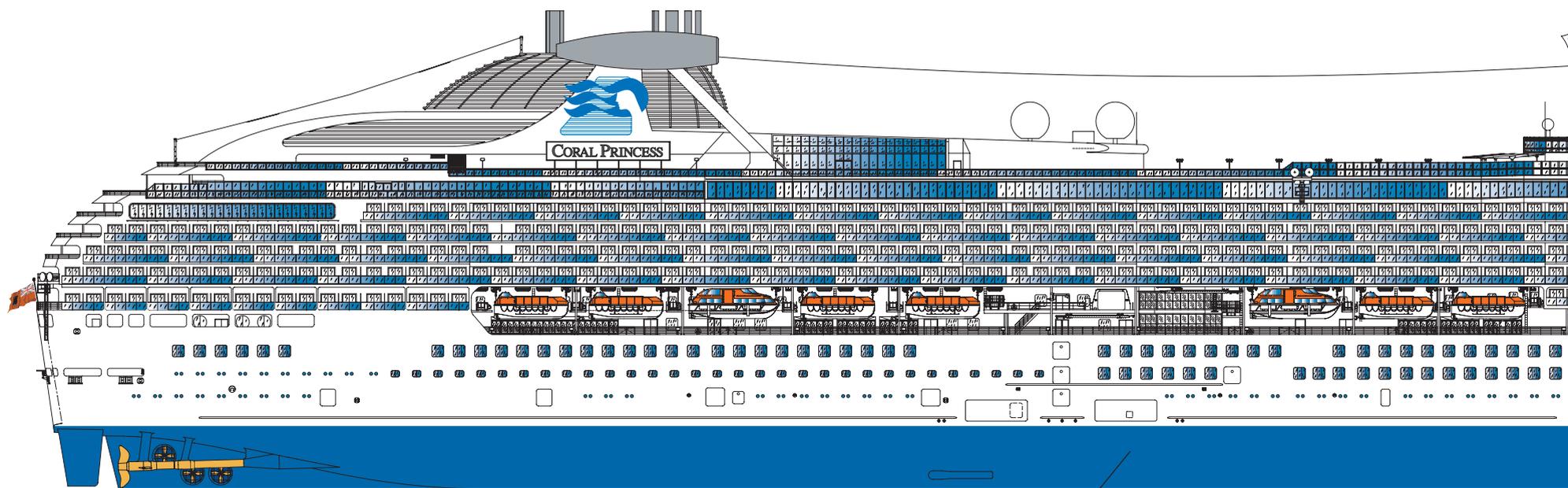
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# Confidence

on board



As it cruises the Gulf of Alaska each summer, the Coral Princess spends only limited time in zones where bilge water can be discharged. For complete certainty, the ship uses EcoStream from Alfa Laval.

EcoStream is a high-speed centrifugal separation system for bilge water treatment. Without chemicals or absorption filters, it generally reduces oil content to less than 5 ppm – even when emulsions are present.

“My choice of Alfa Laval is clear,” says Paul Barrett, Fleet Technical Superintendent for Princess Cruises. “In my opinion, EcoStream is the most effective way of reaching 15 ppm.”

With EcoStream aboard the Coral Princess, the ship’s compliance with IMO regulations is certain. And so is the protection of Alaska’s sensitive waters.

For more on EcoStream or its performance aboard the Coral Princess, please visit us at [www.alfalaval.com/marine](http://www.alfalaval.com/marine) or contact Noreen Comerford at +1 215 443 4021 or [noreen.comerford@alfalaval.com](mailto:noreen.comerford@alfalaval.com)



#### EcoStream

The Coral Princess uses EcoStream, a centrifugal separation system for bilge water treatment. Designed for real-life operating conditions,

EcoStream allows continuous operation – even on rough seas. Oil content is generally reduced to less than 5 ppm, with minimum waste to deposit on shore.

**Visit Alfa Laval's booth at the upcoming shows!**

**SNAME - Houston, Texas - October 19 - 21, 2005 : Stand number 713**

**Pacific Marine Exposition - Seattle, Washington - November 17 - 19, 2005 : Stand number 618**



[www.alfalaval.com/marine](http://www.alfalaval.com/marine)

Circle 204 on Reader Service Card



As the world of yacht architecture and design continues to evolve into ultra contemporary styling with wild elliptical curves, severe angles and curious shapes, one couple, **Ray** and **Elsie Catena** are committed to recapturing the splendor, grace and charm of an era gone by in their newest yacht, a 143-ft. (44-m), fantail cruiser, Sycara. Ironically, Mr. & Mrs. Catena, a well-known yachting family, also own a classic/contemporary-styled 188-ft. (57-m) megayacht, Sycara III. However, the vision and plan for the two yachts are as diverse as the yachts are themselves.

The simple pleasure of yachting was

their inspiration for Sycara, a beautiful traditionally-styled, early-1900's era Fantail Cruiser. The yacht design will be true to the period, but will be outfitted with the latest engineering. This project is the culmination of a dream the Catenas have had for more than 20 years. While they've cruised distant ports of the world with the other vessels they've designed and built, the vision for this "family yacht" is to see America and its surrounding waters. As the yacht is designed with a relatively shallow draft and excellent seakeeping characteristics, it will also make regular excursions to the Bahamas and the Caribbean.

After numerous design efforts over the years by various naval architects and designers, and after visiting and considering many different shipyards to bring their vision to reality, the Catenas chose Manitowoc, Wis.-based Burger Boat Company. From the initial design brief to a fully developed plan, there has been an close collaboration between the Catenas, their project manager **Steve Narkawicz**, and the entire Burger Design Team. **Bruce King** designed the hull with its classic schooner bow and fantail stern; the Burger Design Team created the exterior styling; **Craig Beale** of Pure Detail developed the interior

layout; and **Ken Freivokh** will collaborate on the interior design and exterior details.

The Catenas have been involved in every stage of the design, and all of the pre-construction planning has been extensive. This past January, successful tank testing was completed at the Davidson Laboratory of the Stevens Institute giving everyone great confidence in the performance criteria of the hull. Sycara will be fully ABS Certified and will reportedly be the first yacht built in America using the ultra-high strength and corrosion resistant alloy, Alustar.

"This vessel has to be perfect inside and outside to successfully blend the latest in technology with the re-creation of a classic style that started the opulent era of yachting. We've been planning this yacht in our minds for many years and I can't imagine any facility, design team and craftsmen better than Burger's to bring our dream to fruition." said Ray Catena.

"Mr. & Mrs. Catena are a highly respected yachting family that have designed and built several outstanding yachts. I can't begin to say how proud and honored we are to be selected to create this very special vessel. There's little question that this incredible project will showcase our craftsmanship, creative abilities and especially our diversity," says **David Ross**, Burger's President & CEO.

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Sycara under construction at Burger Boat in Manitowoc, Wis.

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Sonar image courtesy of Canadian Navy,  
Route Survey Office, Halifax, NS



# Cheoy Lee Debuts New 95-Ft. Model

The 95-ft. (28.9-m) Sport Motor Yacht is the latest addition to the new generation of motor yachts offered by Cheoy Lee Shipyards. This generation of yachts coincides with the relocation of the shipyard to a new, 32-acre facility in Doumen, with 430,000 sq. ft. of covered yacht and ship construction space. The move provided the company with state-of-the-art capacity for yacht construction including two climate-controlled paint sheds, improved mechanical and woodworking spaces, and the facilities necessary to produce all components, hulls, decks, bulkheads, and superstructures using the latest resin infusion technology.

The vessel's 22-ft. (6.7-m) beam and three and a half deck layout is designed to offer tremendous interior volume.



The two master staterooms, two-guest stateroom layout provides flexibility in the accommodation areas. Likewise the main salon, observation deck, and sky lounge give abundant room for relaxation.

The aft deck and sun deck aft of the pilothouse provide ample opportunity for alfresco dining and relaxation.

The interior surfaces are covered in a fine mahogany veneer and countertops are granite or marble.

The engine room and mechanical spaces reflect the shipyards commercial experience. The feel is of a much larger yacht as all spaces are well organized with wiring and piping runs hidden and the components logically and conve-

Main Particulars	
Length, o.a.	96.5 ft. (28.9 m)
Beam	22 ft. (6.7 m)
Draft	5.8 ft. (1.8 m)
Weight, dry	200,000 lbs
Fuel capacity	4,000 gal.
Water capacity	600 gal.
Top speed	26 knots
Cruise speed	22 knots
Construction	Divinycell cored hull, decks, bulkheads and superstructure
Design	MG Burvenich, Inc.
Interior design	Lisa Pirofsky Design

niently located. The standard twin Caterpillar C32 main engines are designed to provide a 22-knot cruise speed and a 26-knot top speed.

Due for delivery in mid to late summer 2005, the Cheoy Lee 95-ft. Sport Motor Yacht will be displayed at the Ft. Lauderdale International Boat Show.

**Circle 11 on Reader Service Card**

# WorldSpan Marine Expands Yacht Building Capacity

Earlier this year WorldSpan Marine acquired Crescent Custom Yachts, adding to WorldSpan's portfolio that includes Queenship Marine Industries, builders of custom and semi-custom fiberglass motor yachts from 70 to 95 ft. **Steve Barnett**, Chairman of Worldspan, said that the company will continue its expansion which will include further acquisitions as opportunities arise.



**Two recent launches from Crescent Custom Yachts. The vessel in the foreground is the 121-ft. Crescent Lady and the vessel behind is the 112-ft. M.V. Centinella.**

"It is our desire to become a full service operation within the marine sector encompassing all facets of the ever expanding yachting community. Our goal is to cover all potential needs of the industry from new builds to service and ultimately moorage."

Crescent Custom Yachts is a Pacific Northwest builder of fiberglass motor yachts from 110 to 135 ft. "With Queenship already in place, the acquisition of Crescent Custom Yachts continues to fill out WorldSpan's product line of luxury motoryachts," said **Jim Hawkins** COO Queenship Marine and Crescent Yacht Yachts.

Queenship Marine Industries of Vancouver, British Columbia, features a new purpose-built 90,000 sq. ft. production facility and shipyard, strategically located on the Fraser River 35 miles east of Vancouver.

It can accommodate the simultaneous construction of 10 yachts, as large as 150-ft. in length.

With 1,400 ft. of deep water frontage at the Queenship yard there is plenty of room for growth.

Expansion plans include a new travel lift which will enable the company to make its giant state of the art paint facility readily available to the refit market, and construction of a new dedicated

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## New Megayachts from Appledore Facility

Although the end of 2003 saw the demise of the U.K.'s Appledore Shipbuilders, the former company's main asset, the fully-enclosed yard in north Devon has been put to use in a new field. Following the lease of the shipyard by the DML Group, which runs Devonport Royal Dockyard, Appledore has entered a new era of industrial activity as a production point for the emerging generation of megayachts. The move has enabled DML's Devonport Yachts division to strengthen its capacity and market reach in the upper echelons of the global large yacht business.

Devonport Yachts' current orderbook includes three superyacht newbuilds, comprising vessels

of 164, 253 and 262.5 ft. (50, 77 and 80 m), the last of which is taking first form at Appledore. Appledore offers the capability for construction of vessels up to around 426.5 ft. (130-m) in length. The first 262.5 ft. (80 m) superyacht contracted from Devonport by an unidentified owner was laid down at in February this year. The steel hull is expected to be ready for transfer to Devonport towards the end of 2005, to be mated with the aluminum superstructure and for subsequent outfitting. Dubbed Project 54, the newbuild is claimed to be the largest yacht ordered in the UK since the royal yacht Britannia, now decommissioned. — *David Tinsley*



The steel hull of the 253-ft. (77 m) megayacht Lana was constructed in Appledore's enclosed building dock under contract to Devonport.

## Tiger Woods Sues Yacht Builder

A federal court in Miami ruled that golfer **Tiger Woods'** lawsuit against Christensen Shipyards, Ltd. will proceed in the U.S. District Court for the Southern District of Florida and that an order enjoining Christensen from the unauthorized use of Woods' name or photographs of his boat will remain in place. Woods filed his rights-of-publicity suit against Christensen last October in the U.S. District Court for the Southern District of Florida. The suit alleges that the luxury yacht manufacturer, based in Vancouver, improperly used Woods' name, his wife's name, and photographs of a yacht built for Woods in connection with the advertising and marketing of Christensen's products. Woods also seeks injunctive relief from Christensen.

After a November 8, 2004 hearing, Chief Judge **Howard J. Zloch** entered a consent preliminary injunction prohibiting Christensen from improperly using Woods' name and photographs of the yacht to promote and advertise the company. On December 8, 2004, Christensen filed a motion asking the Court to dissolve the preliminary injunction and dismiss the case under a "forum selection clause" in the yacht contract opting for Washington State Court to resolve certain disputes. Ms. Woods is not a party to the yacht contract and is not bound by the "forum selection clause."

On September 23, 2005, after extensive briefing on the issues, Judge Zloch denied Christensen's request and held that "the result of enforcement of the forum selection clause would be parallel proceedings in different forums on the same set of facts and legal issues...The Court finds that enforcement...would lead to...unreasonable and, arguably, unjust results..." In other words, enforcement of the clause would result in the unreasonable situation of requiring Woods to sue in Washington while his wife's case would proceed in Florida.

The Woods' attorney, **J. Douglas Baldrige** of Washington, D.C.-based Venable LLP, said "We firmly believe that the evidence will show Christensen violated and exploited the Woods' valuable rights for the company's own commercial gain. We are pleased with today's ruling and look forward to presenting the merits of this case in Florida where the Woods reside." The case will remain in Florida and the preliminary injunction against Christensen remains in tact.

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## Megayachts

(Continued from page 20)

high tech building to house the leading edge composite construction for which Queenship has become so well known.

In addition to custom yachts of all designs, Queenship presently builds

three semi-production series: the Admiralty series from 61 to 70 ft.; the 70 to 77 ft. Berretta series; and the Caribe series with models up to 96 ft.. Design work and retooling is already

underway which will see increases to the beam and length to the hulls as well as styling upgrades to each of these series.

Circle 84 on Reader Service Card

## Motoryacht Ad Lib Launched



The motoryacht Ad Lib went into production at Alloy Yachts in January 2004 and was launched on September 7, 2005. The 131 ft. (40m) Ad Lib is similar in design to the motoryacht S.Q.N. launched by Alloy Yachts in February 2003, but is one meter longer and has some changes in equipment, interior layout and finish. As with S.Q.N., the yacht was designed by Dubois Naval Architects with a Don Starkey Design interior. She is owned by Gary Lane, the Chairman of Alloy Yachts. Ad Lib has an aluminum hull and superstructure and is sports a 27.8 ft. (8.5m) beam. Waterline length is 113 ft. (34 m) and draft 6.2 ft. (1.9 m). The vessel displaces 224 tons. The engine room aft, houses two Caterpillar 3412 engines, each 1,400 hp at 2,300 rpm. Two Northern Lights 66 kW generators are fitted together with two 35 kW Mastervolt shore power converters. The 5.3 m tender is stored in the lazarette with side door access to the water on the port side. A docking station is fitted on the starboard side of the aft cockpit. The yacht is fitted with a Naiad stabilizer system. The vessel carries 36,000 liters of fuel and has a maximum speed of 16.5 knots and a cruising speed of 14.5 knots, with a range of 4000 nm at 10 knots. There are two watermakers producing 4,500 liters each per day. Storage capacity is 10,000 liters. The Cayman Islands-flagged Ad Lib is built to Lloyd's classification in compliance with The Large Yacht Code and will leave New Zealand in January.

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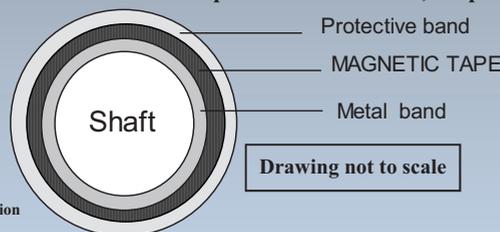
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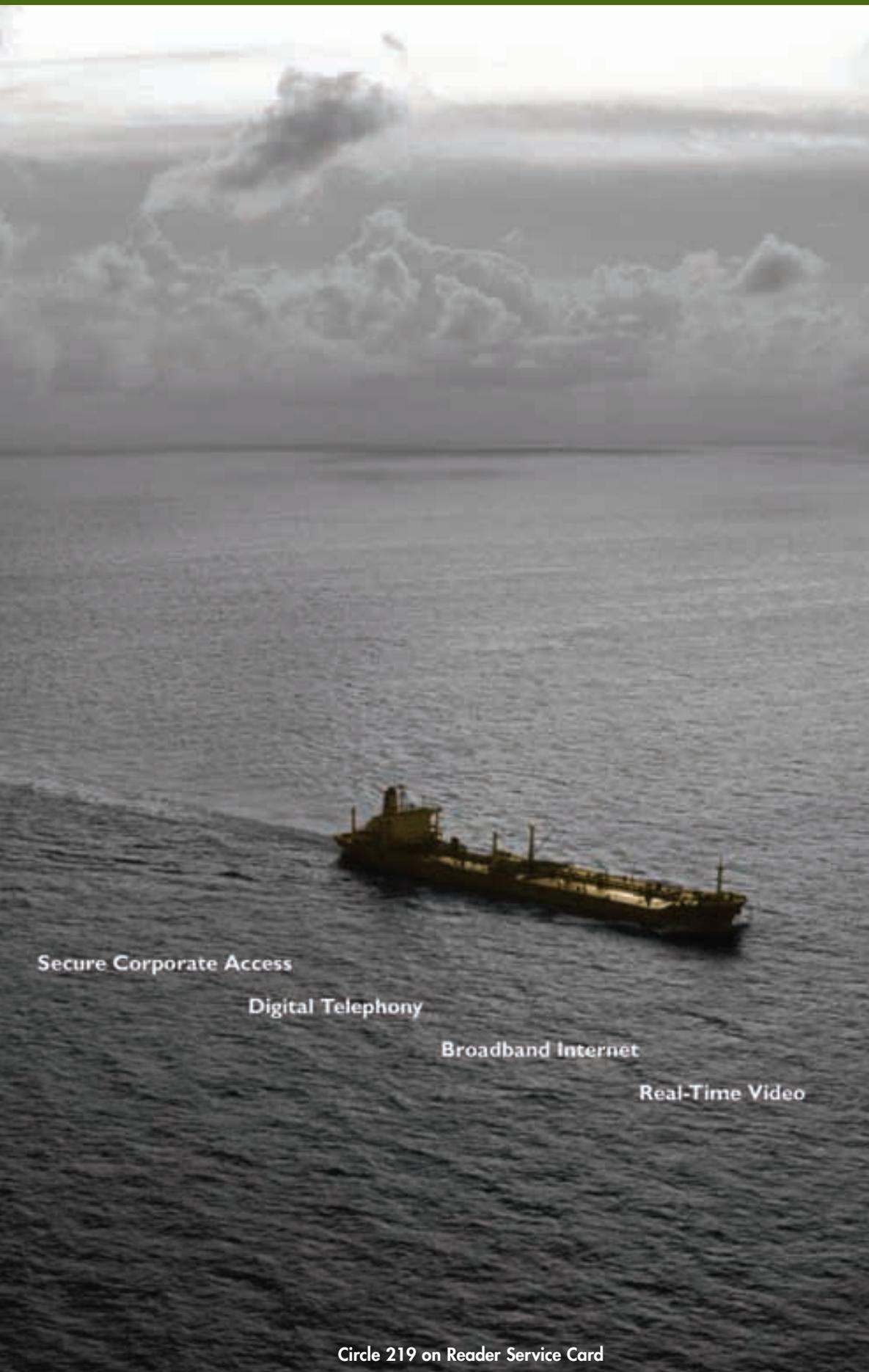
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## K&C Preps for Expansion in Megayacht Repair

In preparation for new business opportunities in the megayacht repair/refit market, San Diego-based Knight & Carver YachtCenter is expanding its workforce by hiring experienced project managers and craftsmen in all marine trades - including carpentry, electrical, electronics, paint, fairing, mechanical and fiberglass.

Currently, the company is performing a major refit of the 192-ft. (58.5-m) M/Y Ronin, owned by Oracle founder/CEO Larry Ellison. Several more megay-

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# Widebody Yacht Delivered in Italy

Italy's Intermarine earlier this year delivered the fourth example of its Conam 75 Wide Body, dubbed Andrea 1921. The Conam 75 WB is entirely built and fitted out in Rodriquez Cantieri Navali's Intermarine yard in Sarzana, a company involved in the production of fibreglass and composite vessels. The fifth 75 WB was delivered shortly after, while numbers 6 and 7 are under construction.

Rodriquez took over the activities of Conam in the beginning of 2002 and immediately started with the development and designing of new models. This led to the first Conam 75 Wide Body being introduced in 2003 at the Genoa Boat Show, and was followed a year later with the presentation of the Conam 80 Sport design. The Conam series is designed to

be a union of a sports and polished style, characterized by the "wide body" or "full beam" concept, which is designed to maximize space on board without compromising performance. The lateral passages on the main deck disappears to give space to the living-room inside in that the interior volume can be compared to that of a 98.4 ft. (30 m) yacht yet with all the advantages of owning a boat of less than 78.7 ft. (24 m). Andrea 1921 sports a beige-colored hull and a contemporary interior finished in Vengé wood and light-colored leather. The fibreglass hull is designed to ensure a stable and comfortable passage, even in rough seas. The Conam 75 Wide Body tops out at 30 knots with signature stability.

The vessel is propelled via two 1,570 hp engines, paired to fixed pitch propellers in a V-drive configuration. The boat has a 400 miles cruising range and reaches its 28-knot cruising speed quickly and efficiently. Conam produces four models in two styles: Sport and WideBody. The WideBody line includes the 60 WideBody and the 75 WideBody models, which measure 60 (18.3 m) and 75 ft. (22.9 m), respectively. These are fly bridge yachts, all characterized by the full beam (WideBody) superstructure rendering the interior space incredibly versatile and compatible to the interiors of larger boats. The production of boats up to 60 ft. (18.3 m) is carried out at the Conam yard in Pozzuoli, which covers an area of 4,000 sq. m. The 75 WideBody and the 80 Sport, the Conam flagships, are designed and built in Sarzana, at the sister yard Intermarine. In more than 20 years, Conam has built more than 300 boats.

Circle 85 on Reader Service Card



achts, sized from 120 ft. (36.5 m) to more than 300 ft. (91.4 m), are scheduled to be serviced at Knight & Carver over the next year.

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## MPT Receives Approval

Maritime Professional Training of Fort Lauderdale, Fla., has been recognized as an approved examination center by the Scottish Qualifications Authority (SQA). This approval will enable Yachting Professionals of all nationalities to take their MCA Engineering Examinations at MPT's Campus. MPT will now add all of the MCA Yacht Engineering Programs to its list of approved courses offered year round. MPT will launch all of these courses in the Fall 2005, just in time for mariners to obtain their training either before or after the Fort Lauderdale International Boat Show. These courses are all approved by the MCA and certificated through the National Sea Training Center at Northwest Kent College in the United Kingdom. **Gordon Winchester**, an MCA Chief Engineer Unlimited with

30 years of sea going experience joins MPT's Faculty as the Assistant Director of Engineering.

Circle 87 on Reader Service Card

## Beier Docking and Maneuvering System

Beier Radio's Integrated Vessel Control System, Beier IVCS2000 is a docking and maneuvering system is designed to give yacht owners total control of their vessel. With the Beier IVCS2000 the captain controls his engines, rudders and thrusters automatically with the push of a button or manually with a single joystick control. The system is designed to ensure the safest possible control of the vessel by reducing the captains' workload.

The manufacturer claims that the IVCS2000 could even help to reduce the cost of paint and hull repairs due to inadvertently bumping the dock. It also reduces wear and tear on gears as it clutches from full forward to full reverse faster than a person can. In addition, owners who want to be "hands-on" can operate their yacht with as little as 15 minutes of training.



The Beier IVCS2000 interfaces all systems on a vessel to one control station. The vessel's steering system, propulsion system, thrusters, gyro compass, anemometer and DGPS are all integrated into, and controlled by the Beier IVCS2000. "Our system, in an emergency or critical situation, can hold a vessel in a given spot at the push of a button" said Karl Beier, president of Beier Radio. The system is Windows NT based, using a marine grade and shock-mounted computer, and a system constructed of non-proprietary parts for easy maintenance.

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## Carlisle & Finch Lights the Way

Carlisle & Finch Co. has been privately owned by the Finch Family for 111 years. In the mid 1970's the company pioneered Xenon Technology in a marine searchlight. About five years ago, the company developed a 15 million candlepower "streamline style" searchlight for Luxury Yachts, a development touted as providing 2.5 times the candlepower while being 31 percent lighter. In addition to performance, the company this year started offering Custom powder coat colors to match a yacht's color. The company installed a new computer-controlled five-stage pre-treatment and powder coating system. Another development this year is a Low profile mount option for all classic style lights, making some the lights highly suitable for the 40 to 60-ft. crowd while the company continue to serve the 61 to 400-ft. megayacht class Mega-Yachts from 61 to 400 ft.



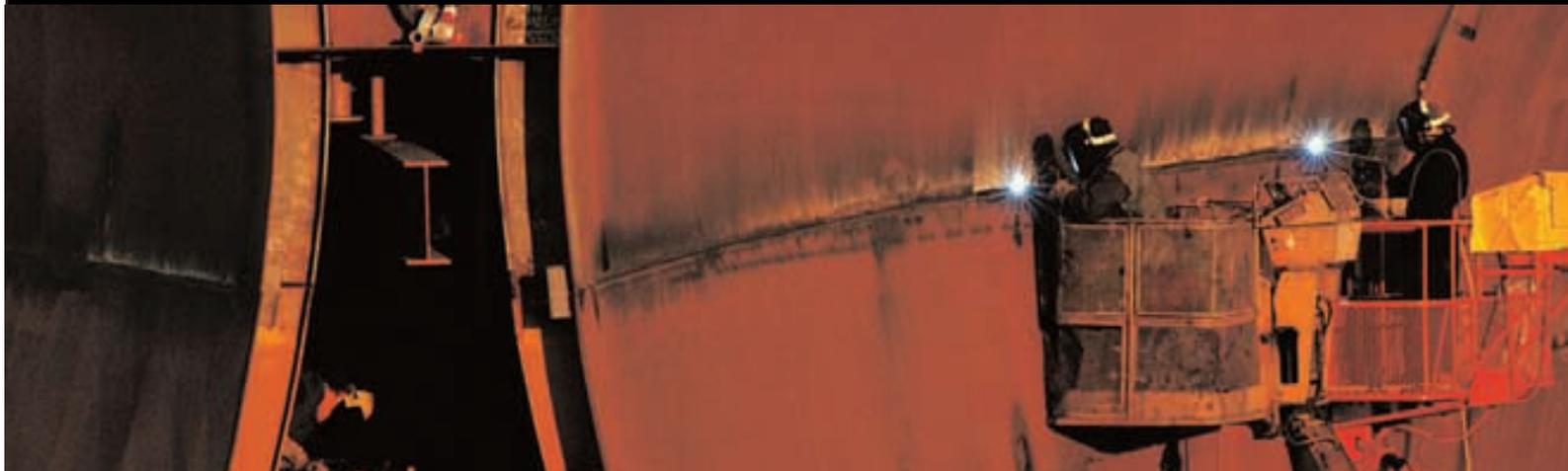
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## Yanmar's New Diesel



Yanmar Marine announced the second in its new SY-STP series of big-capacity diesel engines for high performance cruisers and motor yachts, this time at 900 hp. The 16-liter Yanmar 8SY-STP is a 90 degree V8, designed for more power with less weight, maximized torque at low revs, improved fuel economy, reduced emissions and simplified servicing. This latest Yanmar has an electronic engine management system, monitoring and processing data such as engine speed, boost pressure, coolant temperature and throttle setting. The system adjusts injection timing and the amount of fuel injected in response to changing operating conditions, maximizing power and efficiency. The 8SY-STP is approximately 3,637 pounds fully equipped. The engine measures 51 x 49 x 42 in.

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# AVEVA

# Navigating New Yacht Regulations

By Nick Gladwell

Regulations that affect yachts can be confusing, especially with all the recent conventions that have come into force over the past few years. Many Captains ask "Why do we have to comply with a particular rule when another similar yacht does not?" The answer is that similar vessels come under separate regulations when they are registered with different flag states; cross a critical tonnage level or are being used for different purposes; i.e., private or commercial.

Regulations emanate from IMO Conventions that may be signed up to and implemented by Flag and Port States. The laws apply to the waters of a signatory country and to all vessels on their register. This means, for example, that a United Kingdom regulation on sewage applies to all UK registered vessels and any vessel of any flag state that is in the UK waters, subject to them meeting the criteria cited in the regulations. At the beginning of every set of regulations will be the application section (e.g. these regulations apply to all commercial vessels over 400 gross tons).

It is common to apply regulations to commercial but not private vessels. The exceptions to this 'rule of thumb' are the

pollution (MARPOL) and collision regulations (COLREGS). These regulations are unusual in that they apply to all vessels regardless of whether private or commercial. In this context a vessel that charters is considered to be a commercial vessel whilst chartering, unless the charterer is the owner. A tonnage limit may also be set for a particular rule or set of regulations. For example, most SOLAS based regulations apply to vessels over 500 gt and Radio regulations pertain to vessels over 300 gt. Recent new regulations for some countries are:

## MARPOL Annex VI - Air Pollution

These regulations came into force for signatories to the convention and vessels in their waters from the 19th May 2005. They are concerned with fuel specification and controlling emissions from diesel engines and boilers. Vessels over 400 gross tons are required to have an International Air Pollution Prevention Certificate (IAPP Certificate). In the case of ships of less than 400 gross tons, the Flag State may establish appropriate measures in order to ensure that the applicable provisions of this Annex are followed. Engines over 130 KW are required to be tested and to obtain a type approval certificate (EIAPP Certificate).

This is to prove that the exhaust gases meet certain nitrous oxide (NOx) limits, or to prove that an approved exhaust gas cleaning system to reduce the NOx emissions to at least the limits required in Regulation 13(3)(a) is fitted. The fuel oil bunkers must also meet a general specification and, depending on the location of the vessel, may have to meet a lower limit for sulphur content. Bunker samples and the Bunker Delivery Note must be kept aboard to verify the specification of bunkers that were loaded and to prove what type of fuel is in use. The United States has not yet signed up for this part of the Convention and is not enforcing these rules in US waters, but many European countries are.

## MARPOL Annex IV - Sewage

These regulations were informally introduced on 27th September 2003 (formally 1st August 2005) and apply to all vessels over 400 GT carrying a total complement of more than 15 persons. The regulations came in immediately for new vessels but existing vessels, depending upon their size and the number of persons aboard, will not have to comply for 5 or 15 years. This Annex describes how black water (sewage)

must be treated, and limits where it may be put over the side. The original text of the Annex was revised and the formal date (1st August 2005) is the new revised version.

## SOLAS, ISPS Code - Security

These apply to all commercial vessels over 500 gross tons and came into force on 1st July 2004. A company is required to have a company security officer (CSO) who has been on an approved security course. The CSO should ensure that all applicable vessels have a Ship Security Assessment (SSA) and a Ship Security Plan (SSP). Each vessel must also have aboard a Ship Security Officer (SSO) who is responsible for making sure the SSP is in use aboard the vessel. There are also requirements for bridge equipment such as an automatic identification system (AIS) and a ship security alert system. The Flag State is responsible for approving the SSP and the certification of the vessel for this area.

## SOLAS Chapter II-2

This relates to the necessity for double-skinned, high-pressure fuel pipes on all diesel engines. The laws came in quietly in July 1998 for new vessels but there was a five year phase-in for enforcement with existing vessels. It

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## regs4yachts' New CEO

Nick Gladwell was appointed CEO of regs4yachts, a company dealing in regulations and compliance for large yachts, effective September 1, 2005. Until recently Gladwell was the

Director of Safety & Survey at the Cayman Islands Shipping Registry (CISR). Before joining the CISR Nick was a Principal Surveyor with the MCA. He has served at sea



as a Chief Engineer and has extensive experience as a Superintendent. The Cayman Islands Shipping Registry is the largest super-yacht registry in the world and Gladwell is a renowned expert in building and operating yachts to the MCA Code.

regs4yachts provide a range of consultancy services and products designed to assist yacht owners to comply with codes and regulations.

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applies to all commercial vessels over 500 GT but is a recommendation by most flag states for all vessels. Engine room fires from high pressure oil pipes (fuel or hydraulic) account for most shipboard fires and double-skinned pipes, and the attached pipe failure alarm system, are considered financially expensive but a sound investment if compared to the alternative fire incident.

Recent regulations for existing Convention-contracting countries are:

#### May 2004 SOLAS Amendments

These come into force for commercial vessels over 500 GT on July 1, 2006. They are varied and apply at the first safety equipment survey after the above date. The items of note are new regulations increasing the number of immersion suits to be carried, and the maintenance procedures and inspections that must be carried out on such suits. An immersion or anti-exposure suit must be

supplied for all crew members and passengers. The new periodic testing requirements stipulate that there must be monthly visual inspections, and air pressure testing every three years. There is also a requirement for ships over 500 GT, on international voyages longer than 48 hours, to report daily to the owner's office.

#### December 2004 SOLAS Amendments

These also come into force on the 1st July 2006 and involve the mandatory carrying of Voyage Data Recorders (VDR) for commercial vessels over 500 GT. This equipment must be fitted by the first scheduled dry-docking after the above date.

#### The Antifouling (IAFS) Convention

This comes into force on 1st January 2008. Anti-fouling systems containing organotin (TBT) must have been replaced or sealed from the seawater on

this date.

#### Port State Control Inspections

Port State Control authorities usually have a theme from a particular convention for a set period of time. Once the inspector has checked the vessels details and certification, the themed topic will be the focus of their attention. In Europe the theme has recently been crew working and living conditions. Accommodation and food are not usually a problem area for most yachts but the hours of work and periods of rest can be.

MARPOL Annex I will again be a theme in Europe from January 1, 2006. Oily water separators (OWS) will be inspected with the overboard discharge valve expected to be closed and locked shut. Machinery Oil Record Books will be under close scrutiny to make sure all lubricating and fuel oil bunkering has been correctly documented. All bilge pumping and OWS operations should be

correctly logged with all the required details. Paperwork such as the IOPP Certificate and the details on the attachment should all be correct e.g. are your bilge water tank and waste oil tank details on this form correct? Does your SOPEP contain the latest MEPC circular of coastal state contact details that is issued every December by IMO on their website? If you are not being kept up to date with Convention regulations by your Flag State or Classification Society then a service such as Regs4yachts (www.regs4yachts.com) may be useful to alert you promptly to new requirements. In summary, regulations apply depending upon your vessel size and status i.e. whether you are commercial or private. Regulations applicable by your Flag State and the Port State where you are berthed are also relevant. Compliance is less painful and more cost effective if you know the rules and plan your compliance.

## Costa Serena Takes Shape in Italy

Costa Crociere announced the name of its new ship, which will join the fleet in May 2007. The ship was named Costa Serena during a ceremony marking the laying of the first building block for the ship in the dock at Fincantieri's Sestri



Ponente shipyards in Genoa. This first block, an aft section, measures 55.7 ft. (17 m) long and 72 ft. (22 m) wide, and weighs approximately 500 tons.

Like sister ship Costa Concordia, which is currently under construction at Sestri Ponente and is due for delivery in July 2006, Costa Serena will be Italy's largest cruise ship: 112,000 gt, 951 ft. (290 m) long with 1,500 cabins for 3,780 passengers. Costa Crociere has invested more than \$1 billion on the building of the Costa Serena and Costa Concordia.

## PSV Normand Aurora Delivered

The platform supply vessel (PSV) "Normand Aurora" was delivered from the Dutch Merwede Shipyard on September 16. The PSV is significant for designer Ulstein Design, in that it is the first external project for the company.

"The vessel was delivered on time and we were very pleased with the pace of progress at Merwede Shipyard," said Solstad's project manager, Odd Nordam. "Ulstein Design supplied the



design and equipment package, and there has been a good dialogue throughout the project between Solstad, Ulstein Design and the shipyard."

The vessel is going directly onto the spot market in the North Sea and will operate out of Solstad's base in Skudeneshavn, Norway.

Normand Aurora is an Ulstein P105 design, measuring 282 ft. (86 m) long with a 62.3 ft. (19 m) beam. It can carry a deck load of 2,725 tons and the cargo tanks can carry eight different materials

Circle 77 on Reader Service Card

## New Bulk Carrier Design Launched

The Graig Group launched a unique double-hull handysize 34,000 dwt bulk carrier design with an eight-ship order in Vietnam. Graig has contracted four Graig Carl Bro-designed Diamond 34 bulkers, with four options, to be built at Vinahsin's Pha Rung shipyard. Delivery dates begin in mid 2007.

The Diamond 34 is a new five-hatch, double-hull bulk carrier design.

"This expansion of the Diamond concept into a new size range makes all the proven success factors of the Diamond available to handysize operators. We have had excellent feedback from the five Diamond 53's already delivered, and we have developed this new Diamond 34 based on the same concepts, said **Hugh Williams**, Graig CEO. The bulkhead framing and side frames are all outside the holds, designed to ensure clean surfaces in the holds. Although there is a floodable ballast hold, normal ballast condition does not require the hold to be flooded, and all ballast can be sequentially exchanged at sea. The vessel is fitted with four cranes,

with up to 36 ton capacity each.

The double side skin ensures safe access for close-up survey of the complete hull structure, even when the vessel is loaded. Furthermore, green water protection - by the forecastle and the protected underdeck passage to the fore

decks - improves the safe operation of the vessel.

### Damen Delivers MultiCats

Following delivery by Damen Shipyards Hardinxveld of two shallow draft Multi Cats 1908 to Coastal

Shipping, these workboats were named by Miss Marina van Oord and Mrs. C. Ybema on September 6, 2005. Named CS Marine and CS Carmen the vessels will be used for anchor handling, supply duties, towing, hose handling and survey activities. The 62.3 ft. (19 m) ves-



sels will be deployed in the Caspian Sea on a long term contract, supporting the local oil- and gas industry. Because of the local conditions the draft is limited to one meter and despite this limited draft, the vessels have a bollard pull in excess of 9 tons.

Propulsion is provided by twin Caterpillar engines, an Effer deckcrane as well as a towing winch are included in the deck lay-out.

Circle 78 on Reader Service Card

### Malaysian Firm Takes Delivery



Syarikat Borcos Shipping, based in the city of Miri in Sarawak East Malaysia, has taken delivery of the first of two fast crew boats from Strategic Marine Singapore. A sister ship is scheduled for delivery to the firm in the late fall of 2005. Most of the aluminum for the 132 x 24.6 ft. (40.3 x 7.5-m) boat was cut in Australia and shipped in containers to the company shipyard in Singapore for assembly.

Strategic Marine Singapore Pte. Ltd. is a wholly owned subsidiary of the Australian parent company. The parent firm has delivered over 150 high-speed aluminum vessels with 40 percent of their production going to the international market. The new vessel, Borcos Firdaus I, was built to specs by Southerly Design of Australia. They feature tankage for 55,000 liters of diesel fuel and 25,000 liters of fresh water. Accommodation is provided for ten crew and 80 passengers. The 89 sq. m. after deck has a 50-ton cargo capacity. The Borcos Firdaus I is powered by two V12 1350 hp (1007 kW) at 1950 rpm Cummins KTA38 M2 main engines and a single center-mounted V16 Cummins KTA50 M2 generating 1800 hp (1343 kW) at 1900 rpm. Its sister ship will have all the same specs except it will

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have three V12 1350 hp (1007 kW) at 1950 rpm Cummins KTA38 M2 main engines. Auxiliary power on both vessels is provided by Cummins 6BT-powered 68Kwe, 3 Phase, 415 volt, 50 hz generators.

Circle 79 on Reader Service Card

## Rigdon Christens M/V Esplanade

Rigdon Marine took delivery of the tenth and final contracted GPA 640 platform support vessel from Bender Shipyard & Repair Co. **Debbi H. Ducote** christened the M/V Esplanade before it was deployed under contract to a major oil company in the Gulf of Mexico. Debbi is the wife of **James A. Ducote, Jr.**, Compliance Coordinator in the Technical Services Department of Rigdon Marine.

The GPA 640 vessels are 210 x 54 x 19 ft. (64 x 16.4 x 5.8 m) diesel-electric PSVs with Dynamic Positioning Class 2 (DP-2) certification and a hull designed for fuel efficiency with top speeds of 13 knots fully loaded and 15 knots in light conditions. These vessels are capable of carrying 7,135 cu. ft. of bulk material and 5,150 barrels of liquid mud in self-cleaning oval tanks. The vessels' two pumps can deliver mud to a height of 196 ft. above water. Additionally, the two 80-PSI air compressors can deliver 50 metric tons of dry cement or barite per hour to the same height.

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## Aker To Build Subsea Vessel

Aker Yards signed a contract worth approximately \$75.4 million to build a Subsea Inspection, Maintenance and Repair (IMR) vessel for Østensjø Rederi AS, scheduled for delivery in the summer of 2007.

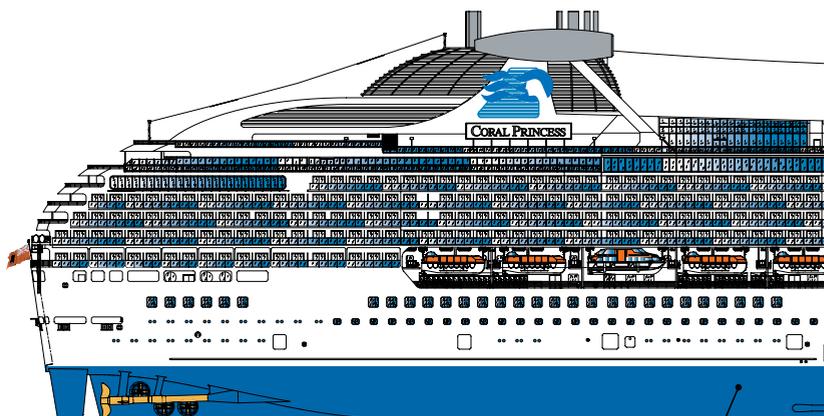
Main duties for the new vessel will be inspection, maintenance and repair, including tasks within ROV operations and light construction work. The vessel will be equipped with two hangars with a totally integrated module handling tower, skidding systems and Launch & Recovery systems for Work ROV's. All the main operations will take place inside the closed hangars. Østensjø Rederi AS has been assigned a five years contract with 3 x 1 years option by DeepOcean AS and Statoil. Deep Ocean is in the process of being listed at the Oslo Stock Exchange. The last vessel delivered to Østensjø from Aker Yards was in 1997.

Circle 81 on Reader Service Card

### Main Particulars

Vessel type	.....ST 255, Sub Sea IMR Vessel
Contract value	.....\$75.4 million
Yard	.....Aker Brattvaag; Brattvaag Skipsverft
Delivery	.....Summer 2007
Length and width	108.70 meters long, 23 meters wide
Offshore Crane AHC/CT	.....100 tons-15 meters
Dieselelectric propulsion	.....6 off generator sets, each approx 2000 kW
Main propellers	.....2 x 3500 kW
Helideck	.....For Sikorsky and Super Puma
Accommodation	.....90
Deadweight	.....6,200 tons
Design	.....Skipsteknisk AS, Ålesund

# Confidence on board



As it cruises the Gulf of Alaska each summer, the Coral Princess spends only limited time in zones where bilge water can be discharged. For complete certainty, the ship uses EcoStream from Alfa Laval.



EcoStream is a high-speed centrifugal separation system for bilge water treatment. Without chemicals or absorption filters, it generally reduces oil content to less than 5 ppm – even when emulsions are present.

### EcoStream

The Coral Princess uses EcoStream, a centrifugal separation system for bilge water treatment. Designed for real-life operating conditions, EcoStream allows continuous operation – even on rough seas.

“My choice of Alfa Laval is clear,” says Paul Barrett, Fleet Technical Superintendent for Princess Cruises. “In my opinion, EcoStream is the most effective way of reaching 15 ppm.”

With EcoStream aboard the Coral Princess, the ship's compliance with IMO regulations is certain. And so is the protection of Alaska's sensitive waters.

For more on EcoStream or its performance aboard the Coral Princess, visit us at [www.alfalaval.com/marine](http://www.alfalaval.com/marine)



Circle 203 on Reader Service Card

## Patrol Boat Exceeds Contract Speed

Twin UltraJet 376 waterjets were chosen by the Portuguese Navy for two new aluminum 16.1 m Patrol Boats built by Arsenal do Alfeite in Portugal for the Portuguese Navy. Twin Scania DI12M diesel engines rated at 460 kW at 2200 rpm, direct coupled to UltraJet 376 waterjets power the vessels. During sea trials in Sesimbra Bay the required contract speed of 23.5 knots with a displacement of 19 tons was exceeded, as the vessels reached 27.5 knots at 2000 rpm at a displacement of just under 20 tons. The vessels' deep-V hull design works well with the Scania/UltraJet propulsion system, designed to provide a comfortable ride in waves. Both boats will be in service with the Direcção Geral de Autoridade Marítima - Polícia Marítima, their primary mission undertaking SAR, maritime coastal and fishing surveillance along the Portuguese coastline. Fitted with two independent electrohydraulic control systems, a conventional steering wheel and twin lever reversing system for use in rough seas, which is backed up with an UltraJet joystick control system for ease of operation at lower boat speeds. High resistance to cavitation inherent in the UltraJet design allows full power to be safely and efficiently applied at low boat speeds for good acceleration.



### Main Particulars

Boat Builder	Arsenal do Alfeite
Boat Owner	Portuguese Navy
Boat Designer	Arsenal do Alfeite
Length	52.8 ft. (16.1 m)
Waterline length	45.2 ft. (13.8 m)
Beam	14.4 ft. (4.4 m)
Deadrise at transom	19 degrees
Deadrise at mid-waterline	19 degrees
LCG	-10%
Center of Gravity	5.3 m from transom
Construction	Aluminum
Speed	30 knots max
Waterjets	Twin UltraJet Model UJ376
Engines	Twin Scania DI12M
Crew	3 + 9
Fuel Range	200 nm

Circle 82 on Reader Service Card

In conjunction with the upcoming SNAME Maritime Technology Conference & Expo and Ship Production Symposium, scheduled to be held at the George R. Brown Convention Center in Houston on October 20-21, 2005, MR takes a look at some unique marine designs and design tools. For information on attending the SNAME event, visit [www.sname.org](http://www.sname.org). Turn to page 67 for the **SMTC&E Exhibitor's List**, and page 68 for **SMTC&E Technical Program** details.

# Meet the Cloud-Making Ship

*Fleet of up to 30,000 vessels theoretically would help slow global warming*



Photo Credit: John MacNeill Illustrations



As concerns surrounding global warming fill the newswires nearly every day, science again comes to the forefront to offer potential solutions. One such solution hails from the maritime niche, in the form of a cloud making ship.

While some proposed solutions to global warming entail the capture of carbon dioxide, this solution focuses on turning down the heat by deflecting or filtering incoming sunlight.

On a given day, clouds blanket approximately one-third of the world's oceans. Seeding clouds with tiny salt particles would enable more droplets to form-making the clouds whiter and therefore more reflective. According to physicist **John Latham**, a senior research associate at the National Center for Atmospheric Research in Boulder, Colorado, boosting reflectivity, or albedo, in just 3 percent of marine stratocumulus clouds would reflect enough sunlight to curb global warming.

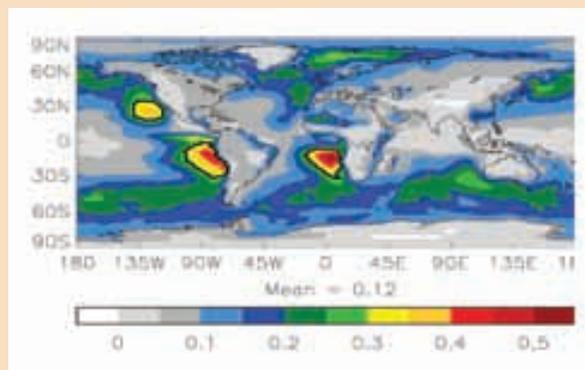
Latham is collaborating with **Stephen Salter**, Emeritus Professor of Engineering Design, School of Engineering and Electronics, University of Edinburgh.

"The physics goes back to **Sean Twomey** who showed that the reflection from clouds depends on the size distribution of the drops in them with lots of small drops reflecting more than a small number of big ones. There is a shortage of drops in clean marine air," said Salter.

The idea is that the yachts will be distributed evenly

through regions which frequently have the right type of clouds. The yachts will be remotely controlled, propelled by Flettner rotors rather than sails, be fitted with GPS and satellite communications. They will sail back and forth across the sea perpendicular to the local wind dragging 'propellers' working backwards to generate electrical energy. A small amount will be used to spin the Flettner rotors and the rest for generating spray.

Spray will be 0.8 to 4 microns in diameter. It will evaporate almost immediately and the residual salt crystal is an ideal cloud condensation nucleus. Turbulence will move many of the crystals up to cloud



The global distribution of fractional coverage of marine stratocumulus clouds. Cooling sufficient to compensate for a doubling of atmospheric CO<sub>2</sub> could be produced by seeding the 3 yellow and red regions which together cover about 3% of the Earth's surface. Further cooling could be produced by seeding the green regions.

level. There is about 40,000 tons of salt a second going into the atmosphere now in a wide range of sizes. The concept would add a tiny fraction, but in a size range to do the albedo adjustment.

Adding a few hundred yachts each year will keep world temperature steady despite the present rate of increase of CO<sub>2</sub>.

According to Salter's economic analysis, the project would need approximately \$44.4 million for research and development and \$53.3 million for tooling before the returns begin. Depending on spray rates and distribution effectiveness it is possible that 500 spray vessels costing \$1.8 million each with a life of 20 years could cancel the thermal effects on a one-year increase in world CO<sub>2</sub>.

Currently, it is impossible to gauge the fleet size needed to slow global warming, as tests of the concept are needed. However, a fleet between 5,000 and 30,000 is an estimate.

Albedo control will produce only a thermal effect and does nothing about the chemical effects of CO<sub>2</sub>. However computations indicate that some extra CO<sub>2</sub> could be beneficial for crop production and that this might to some degree compensate for the problems cause by increased acidity of the oceans. Albedo control would also be able to regulate temperature rises which are not connected with CO<sub>2</sub> such as variation in solar inputs.

# Autoship Systems Develops Autoship 9

Autoship has been given a major upgrade, with new design aids in the new version Autoship 9.

**Feature Patches** Autoship 9 introduces a system of introducing local shape control on a surface without dealing with unwanted control points. A Feature Patch has default or user-defined boundaries.

It can be shaped by one or more control points.

The patch blends at its edges to the shape of the parent surface. The blend transition may be positional, tangent or curvature continuous.

When a surface has a patch applied, it is still fully editable using only the original control points. When the parent surface shape is changed the patch moves with the change, retaining its own shape. Patches may overlap and be nested.

**Edge Mate** Ship hulls and superstructures are often designed as several surfaces that must be joined at their edges without leaving gaps. The Edge Mate facility allows all or part of one surface to be matched exactly to all or part of another surface's edge with full control over the shape of the transition. The user can choose positional, tangent or curvature continuity from one surface to the other. The portion of the surface used to make the transition is user-controlled. When only part of an edge is mated, there is full user control over the transition area at the end of the mate. Any or

all of the edges of a surface can be mated.

**Project Integration and Export Surfaces** which incorporate Feature Patches and/or Edge Mates are fully integrated into their Autoship project.

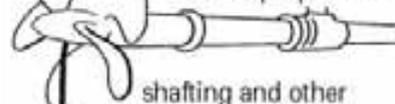


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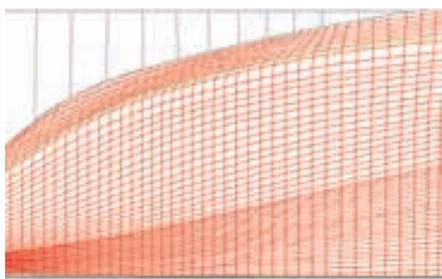
The Royal Flush Hydro-Vac is built around a simple, no-nonsense, water jet macerator. The reliability of this technology has been proven for over a decade by earlier Royal Flush models and has been demonstrated at trade shows annually by repeatedly flushing rags, and quarters while customers stare in disbelief. Royal Flush Hydro-Vac marine toilets operate on a simple principle of accelerating pressurized water through a jet to create an instantaneous local vacuum, that macerates and discharges sewage to the vessels holding tank or treatment system. There are no complicated mechanical devices such as motors, impellers, mechanical macerators, or vacuum generators to maintain. The one-piece Hydro-Vac is ideal for commercial vessels, where an easily installed, reliable, non-electric system is required. Our toilets are also available in elongated, and wall hung versions and each has a 5 year warranty and all colors match Kohler fixtures.



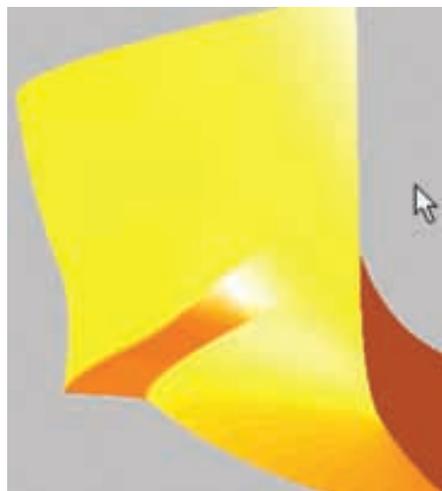
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A rendering of the boat hull, showing the spray rail introduced as a feature patch.

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# Two New Brazilian Hull Concepts

Petrobras's first mono-column platform will be installed in the coast of Brazil's Northeastern state of Sergipe. Hired from Sevan Marine Production ASA, the SSP300 floating unit has the capacity to produce 20,000 barrels of oil per day and to store 300,000 barrels. It will start to produce light oil (43° API) in water depths varying from 1,000 to 1,600 m in 2006.

Its double, circular hull unusual geometry is what most interests Petrobras. By the similarity in concept, it will serve to test the recently completed project of a mono-column type platform known as MONOBR. "The MONOBR has design items, such as an external

'beach' and an internal 'moonpool', that reduce the movement caused by the ocean swell," said **Isaiás Masetti**, the engineer responsible for the MONOBR project.

Although the tests are being carried out in Brazil, the first MONOBR unit most likely will be used abroad. A version, called MONOGOM, has been designed for the Gulf of Mexico. "We have considered the use of the MONOBR in the Roncador field in the Campos Basin, and the use of a version for oil storage in the United States, where Petrobras operates in partnership with another company," said Masetti.

Another project to be launched is the FPSOBR. The basic concept is that future FPSOs will no longer be conversions of existing very large crude carriers (VLCCs). Instead, they will have new hulls specifically designed for oil production needs. "A ship is designed to travel at sea and to work with constant levels of load. An FPSO, on the other hand, is constantly loading and offloading oil," said engineer Marcos Donato Ferreira.

The FPSOBR has many advantages. "Its more square appearance facilitates construction, since its plates do not need to be bent. Also, its dimensions have been designed to allow more appropriate rolling motions than conventional FPSOs: conventional FPSOs roll up to 17 degrees to each side, but FPSOBR rolls only 4



First model of the MONOBR, Petrobras's mono-column platform



The FPSOBR, another hull concept created by Petrobras

degrees. Theoretically, converting an old tanker is cheaper than building an FPSOBR. But we must take into account the quantity of interventions needed in common ships, due to fatigue of their structure, and the fact that the processing plant equipment has to be heavier and more expensive in a converted tanker to support larger rolling motions. There are also great loads on the risers of an FPSO," Ferreira said. The FPSOBR will probably be adopted in Phase II of the Jubarte field, planned for 2010.

(Source: Petrobras Magazine)



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# AVEVA Offers New Shipbuilding Solutions

Seven months after acquiring Tribon Solutions AB; AVEVA has released a package of enhancements for the Tribon M3 ship design and construction system.

Tribon M3, Service Pack 3 includes a number of significant new functions such as Clash Detection and Management, analysis tools in basic design, and linkage between Tribon M3

and AVEVA's 'Review' visualization solution. In addition to the existing clash detection function in the Tribon M3 Shipbuilding system, a new detection and management function has been developed.

It is based on a new interference detection algorithm that analyzes large 3D models for clashes within seconds including, if desired, any objects that are within a certain capture distance from a specific object.

This feature can be used for analysis of shock-mounted objects that may vibrate or move in operation. It can also be used to determine service space and access to equipment items.

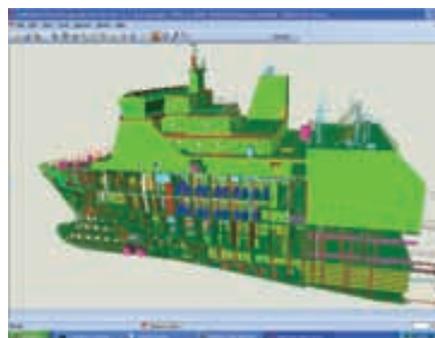
Information about clashes (proximity and physical space violation) is stored with the data model and there is a set of management tools for presentation, approval and reporting of clashes. The calculation speed, ease of use and efficient reporting tools represent an important, practical step towards totally clash-free 3D models.

### New Analysis Tools in Basic Design

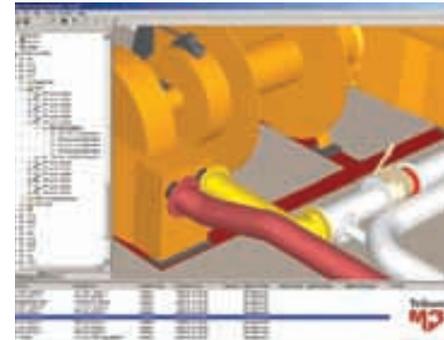
In addition, the Basic Design application of Tribon M3 gains two new major features for early estimations in planning, assembly, transport and lifting. Weld lengths for blocks or assemblies can now be calculated based on a preliminary steel model and all individual weld lengths can be reported. Preliminary block weights and Centers of Gravity can also be quickly obtained for any selected part of the model. This allows alternative block divisions to be analysed quickly, thereby determining optimal final block divisions.

Together with the existing capabilities of Tribon M3 Basic Design, these new functions extend the solutions capabilities for integrated basic structural design, analysis and development of classification drawings.

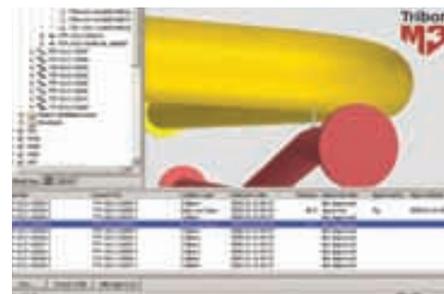
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Screen shot from AVEVA's 'Review' visualisation solution showing part of a ship product model imported from Tribon M3.



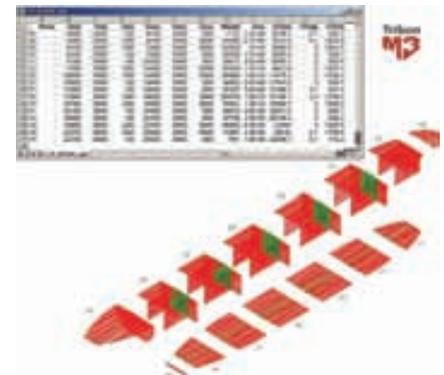
New collision detection and management system in Tribon M3 Service Pack 3. The two pipe flanges connecting to the mooring winch collide and this is reported in the list window in the lower part of the screen.



Shortest distance between two objects reported (42.7 mm as reported in the list window). The place of shortest distance is also illustrated by a blue stick symbol in the graphics.



Welds automatically detected and report showing weld lengths and types.



Result of preliminary block splitting in Tribon M3 Service Pack 3. Report file showing weights and COGs (Center of Gravity) for a preliminary hull block definition.

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## Radio Holland Supplies UniMACS Blue Line IBS



The Dutch Transport & Water Management Inspectorate (IVW) confirmed that the UniMACS BlueLine system of Imtech is permitted for use on board Dutch commercial vessels. The Blue Line configuration has the technical requirements needed for Dutch flag vessels to be exempted by IVW from carrying a portfolio of paper charts. The certified ECDIS component of the Blue Line configuration is equipped with radar and AIS overlay and is approved to function as replacement of the paper chart. Radio Holland Netherlands in Delfzijl booked a large number of orders in the past months, all involving the supply and installation of uniquely innovative Blue Line integrated bridges, amongst others to ship owners Wagenborg Shipping and JR Shipping. Since its introduction end of 2004, a total of 15 units have been sold.

In 2004 the Blue Line won the Maritime Innovation Award, handed over by Dutch Minister Peijs. To date, orders for 15 Blue Line bridges have been received for installation from October 2005. The Blue Line bridge intended for shortsea, smaller and conventional craft, and offers the advantages of an integrated information presentation. The UniMACS Blue Line bridge consists of ECDIS, X and S-band Radars, a Conning display, an adaptive 'heading pilot' and optionally a track pilot, but is actually tailored to the needs of each customer by Radio Holland. Radio Holland recently equipped the Blue Line with Furuno radar scanners. Above 3.000 GT a VDR can be added to the Blue Line.

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## China Adopts Malaysian-Style Ferries

The city of Sibuan in Borneo's Sarawak province of east Malaysia is noted for its distinctive slim river ferries. Said to have derived from dugout canoe designs a single Cummins KTA38 engine now often drive the powerful ferries. These ferries have found ready markets in the Philippines and can be seen on the

Mekong in Cambodia as well as on Chinese rivers. In China, around the numerous islands off the coast of Ningbo to the southeast of Shanghai, similar ferries, showing their Malaysian influence, serve as fast efficient links among the islands and with the main-

land. Based in the town of Ding Hai on Zhou Shan Island, the Tang Da High-Speed Passenger Vessel Company Ltd. operates eight of these vessels. The sister-ships are each 90.7 x 14.1 ft. (30.4 x 4.3 m) and are each powered by a pair of 500 hp (339 kW) six-cylinder Cummins

engines. These will push the boats at speeds around 20 knots with up to 70 passengers and six crewmembers. The ferries have been built by the Wuhan Nanhua Shipbuilding Company over the past several years.

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# SWEEP: A New Hull Concept

A pending ship hull concept dubbed SWEEP (for Ship with Wave Energy Engulfing Propulsors) - touted as greatly reducing the wave drag of high speed displacement hulls - has been proposed by SeaSpeed SWEEP, Inc. of Miami.

The following is a presentation of the design and the engineering logic behind the creation, according to Don Burg of SeaSpeed SWEEP, Inc.

Wave drag increases dramatically as ships operate beyond hull speed. As such, the operating speeds of most displacement hulls remains low. Wave drag makes up 70 percent of total drag at 45 knots on a 400 ft. (122 m) length waterline (LWL) ship. Further, wave drag has increased 25 times at 45 knots over its value at 15 knots for that 122 m ship.

The bulbous bow is employed to reduce wave drag and is used on most of today's ships where it reduces total drag by 10-15 percent at high speeds. Friction reducing air layers have also been employed; however, friction drag makes up less than 20 percent of total drag of our example 122 m ship at 45 knots. Air layers, while effective at low speeds where friction drag predominates, only help marginally at high speeds.

What the patent pending SWEEP technology does is utilize inlet water flow into large water propulsors to engulf or suck in wave energy thereby reducing wave drag. It optimally does this by taking in water aft of mid-point on a bulbous bow where the water is turning inward thereby accelerating and increasing the water flow that would normally be parasitic wave making drag.

When considering the water flow around a sphere, standard bulbous bow, the water flow detaches from the sphere in high drag eddies after following the contour of the sphere inward aft of the sphere's midsection. The standard bulbous bow takes advantage of this inward turning of the water as a means of absorbing or sucking in part of the wave energy while avoiding the separating eddies of the sphere. The SWEEP invention



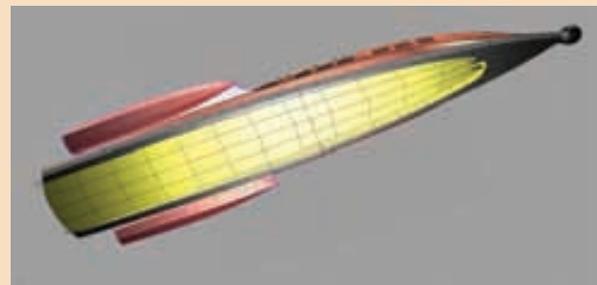
takes this a step further by accelerating the wave making water flow into a high flow propulsor(s).

The water flow into a SWEEP's propulsor(s) is truly huge with the water flow into a typical bow oriented water propulsor(s) of a 400 ft. (122 m) LWL, 12,000 ton SWEEP Freighter being about 22,650 cu. m./min. (800,000 cu. m./min.). This tremendous flow of water into a SWEEP's bow oriented propulsor(s) subtracts from the energy in the bow wave thereby reducing propulsive power needs.

In order to maximize its efficiency gains, an optimum SWEEP discharges its bow propulsor(s) water jet flow into a raising air layer under the hull. This air layer is similar in concept to the previously mentioned ALS where the air layer raises going from forward to aft and is disposed aft of a displacement hull's sub-

merged bow. Such a rising air layer requires very little blower power to be maintained. Compare this to a Surface Effect Ship (SES) that has its bow at the water surface so that the SES's blowers must supply air at sufficient pressure and flow to depress the water going from bow to stern. The ALS's rising air layer requires only about 15 percent of the blower power needed by a similar size and displacement SES. As a point of interest, a very large SES can reach the point where its blower power requirements equal its propulsive power requirements.

What all of this means is that a SWEEP can be efficient over a large operating speed range. It takes advantage of ALS technology at low speeds where friction drag predominates and then takes advantage of SWEEP technology where wave drag predominates,



Typical SWEEP hull.



Typical SWEEP bow section.

effectively using both ALS and SWEEP technology at all speeds.

There is great advantage to discharging the SWEEP's propulsor water jet into an air cavity rather than underwater. This approach avoids turbulent mixing losses that would occur if the discharge jet(s) was underwater.

Yet another advantage of discharging a SWEEP's waterjet propulsor into an air layer is that a steering and reversing system can be positioned at the jet discharge that is forward in the hull thereby giving unequaled steering and reversing abilities. This is done with no increase in high-speed drag since the steering and reversing systems do not make water contact during forward high speed operation. What are the potential efficiencies to be gained by a SWEEP? Making a comparison of several 450 ft. (137 m) high-speed ships having Waterline Lengths (LWL) of 400 ft. (122 m) - conventional hulls vis-à-vis SWEEP hulls - indicates significant reductions in powering requirements for the SWEEP hull. These comparisons of 450 ft. (137 m) ships were made based on potential applications of SWEEP to fill high-speed needs

Presenting these in terms of propulsive power required in KW (HP), we have:

<b>137 M 2,500 Ton LCS</b>	
Vknots	35
Conv.	29,800(40,000)
SWEEP	19,090(25,600)
<b>137 M 2,500 Ton LCS</b>	
Vknots	45
Conv.	49,200(66,000)
SWEEP	29,530(39,600)
<b>137 M 3,200 Ton Ferry</b>	
Vknots	35
Conv.	38,030(51,000)
SWEEP	24,300(32,600)
<b>137 M 3,200 Ton Ferry</b>	
Vknots	45
Conv.	62,640(84,000)
SWEEP	37,660(50,500)
<b>137 M 12,000 Ton Freighter</b>	
Vknots	35
Conv.	141,700(190,000)
SWEEP	89,500(120,000)
<b>137 M 12,000 Ton Freighter</b>	
Vknots	45
Conv.	220,700(296,000)
SWEEP	132,700(178,000)

The blower power required to maintain the SWEEP's pressurized air layer is only a few percent of its propulsive power. Adding that blower power to the SWEEP's propulsive power requirements still shows that the SWEEP has considerable advantage. Studies show that the 122 M (400 Ft.) LWL SWEEP hull, including its air layer blower power, requires only about 63 percent of

the power of a similar conventional hull at 35 knots and 60 percent at 45 knots.

Artist's renderings of a high speed SWEEP Freighter are presented on the previous page, and the design is considered flexible enough for military operations, such as that of a Military Combatant, such as a DD(X). Note that either forward or aft sloping bows can be utilized and that trimaran arrange-

ments, while preferred, are also optional. The SWEEP technology has been studied and found technologically feasible.

Further analysis and model testing is planned as the next step in development. Tests and demonstrations of high speed SWEEP freighters, vehicle ferries, and/or military combatants will then follow.

#### About the Author

**Don Burg** is the inventor of the SWEEP technology. In addition to aerospace engineering it includes design and development of the SeaCoaster SECAT (Surface Effect CATamaran) and advanced technology waterjet and ventilated enclosed rotor propulsors. For more information on SWEEP,

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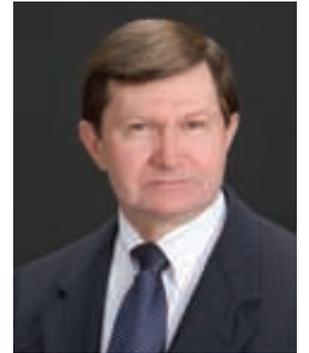
# Waterways Suitability Assessment: A Benchmark for All



Commissioned by Shell Gas & Power to supply its growing number of LNG terminals.



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By Gordon Milne, Head of Risk Assessment Services, Lloyd's Register EMEA, and Ed Waryas, Vice President Marine Business, Lloyd's Register North America, Inc.

Liquefied natural gas (LNG) has been successfully transported and used for more than 45 years and is poised to play a significant role in the world's future energy needs. The industry maintains an exemplary safety record, but concerns are continually posed about the safety of LNG.

Opponents claim the industry's attitude focuses on its own needs rather than the safety of the general public, while proponents cite the results of numerous studies commissioned by private organizations, carried out by respected companies including Lloyd's Register, Sandia Laboratories and Quest, as well as government bodies such as the Federal Energy Regulatory Commission (FERC). The primary objective of these studies was to demonstrate that the risks associated with an LNG incident are minimal and above all, con-

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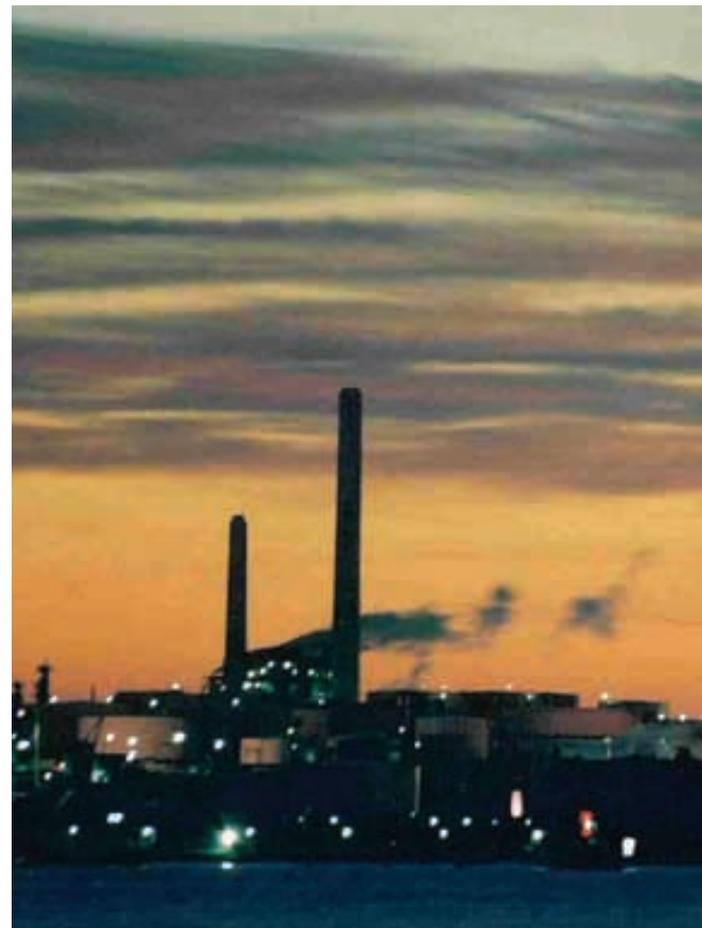
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trolled. These studies have provided good theoretical analysis on the consequences of a major LNG spill and the results have verified the safety of the industry. However, the presence of so many voices, both for and against LNG, has made the industry look fractured and created a perception that it is looking at safety and security issues for the first time.

There has clearly been a need to turn these analyses into a single best practice - a common approach to which the industry could point when challenged. This best practice was established on June 14, 2005, when the US Coast Guard (USCG) released its Navigation and Inspection Circular (NVIC) No. 05-05, providing "Guidance on Assessing the Suitability of a Waterway for Liquefied Natural Gas (LNG) Marine Traffic." The NVIC is intended to provide guidance on the marine traffic safety and security information that must be submitted by those planning to build and operate a shore-side terminal. This information will then be used by USCG in its role of advising FERC on the adequacy of an applicant's Environmental Impact Statement (EIS) and also to provide USCG with guidance when issuing a Letter of Recommendation.

#### Waterways suitability assessment

Pulling together key findings from independent studies on LNG safety and security, the guidance provides a single defined scope and methodology. This

analysis is described as a Waterways Suitability Assessment (WSA) and now forms the main means for identifying and controlling the normal operating and security-related marine risks associated with an LNG terminal and its visiting traffic.

The recommended content of a WSA is split into six parts:

- port characterization: a general summary of the port environment, specifically the interests of decision makers and affected parties
- characterization of LNG facility

and LNG tanker route: description of facilities and shipping alongside site-specific assessment of the normal operation navigation hazards associated with ship transit (other traffic, maneuvers, environmental conditions)

- risk assessment (safety and securi-



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ty): based upon the results of the Sandia National Labs report on assessing an LNG release scenario, the applicant must evaluate the risk from both normal operation and terrorist-related incidents. This includes review of the general threat to the LNG ship and its vulnera-

bility based upon the relative exposure of the site. Consequences are expressed in terms of impact on three zones of exposure: 0 to 500m, 500 to 1,600m and 1,600 to 3,500 m from the tanker

- risk management strategies: the applicant identifies ways in which an

attack may be prevented

- resource needs for safety security and response: based on the risk management strategies identified, this part of the WSA identifies the resources such as manpower, systems and organisation needed to implement suitable control

measures. This should cover all three maritime security levels

- conclusions and recommendations: general summary of the key findings of the work alongside critical actions.

Although the scope of analysis has been defined, a consistently acceptable depth and quality of analysis still has yet to be demonstrated. Since providing one of the key reports that helped the LNG ship Matthew re-enter Boston after September 11th, Lloyd's Register has been at the forefront of developing practical analysis of LNG incidents, producing a large number of privately-commissioned studies on the nature of attacks or accidents, direct consequences to the ship and wider consequences to the general public.

With the introduction of NVIC 05-05, Lloyd's Register has already received a number of requests for assistance on WSA, varying in their scope and level of depth. Technically, the expertise required to cover the requested scope of work and the level of depth required is currently available. However, this does not guarantee that the resulting content will be acceptable to USCG. Until the first WSA studies are delivered and accepted, an evolutionary process will occur.

Initial studies will be subject to significant scrutiny by both those proposing and opposing new LNG terminals. It is reasonable to expect that these initial WSA studies will be responded to in the same manner as the numerous individual LNG risk studies that have been produced in the last five years. Any perceived security or safety weaknesses in the assessments will likely be targeted, and it may be that a new round of counter-studies will take place. Care must be taken to ensure that arguments put forward for and against the siting of LNG terminals are all suitably addressed. Unfortunately, there are agendas in play that have detracted from factual assessments that deal with the real risks, those that are actually scientifically reasonable and likely.

**WSA objectives**

It is critical that in developing a scope to meet NVIC-05-05, the focus stays on the delivery of an acceptable outcome. An acceptable outcome is a report that meets three objectives: to satisfy USCG that the facility is safe, hence allowing the application to proceed smoothly; to suitably address the fears of the general public, ensuring that the applicant meets its social responsibility obligations; and most importantly, to minimize the risk

(Continued on page 71)

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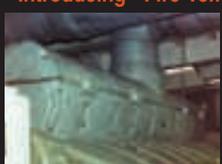
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# Flensburg Takes Control of the RoRo Niche



A value-added approach to ship design, coupled with a continuous striving to raise productivity and quality through investments in technological tools and a commitment to research, is a mark of the industrial will that has seen Germany maintain competitiveness in fields of shipbuilding increasingly targeted by eastern Asian yards.

Flensburger Schiffbau-Gesellschaft encapsulates such endeavor, having emerged as one of the world's most prolific producers of large RoRo vessels. At a time when Europe's shipbuilding industry faces the most intense pressure from the orient in almost every sphere of commercial tonnage, as yet largely bar cruiseships, the Flensburg yard has demonstrated price as well as design competitiveness, along with the requisite build quality and delivery performance, through a succession of export RoRo freight ship projects. Its current workload includes two RoRo/container carriers for Cobelfret of Antwerp and a

trio of double-enders for British Columbia (BC) Ferries of Canada, besides a trailership series for the enterprising Turkish carrier UN RoRo and a sixth North Sea freight RoRo of the 3,831 lane-meter Tor Magnolia breed for DFDS.

The latest trailership deliveries to UN RoRo express the strong link forged between FSG and the Turkish operator. Assigned to the service connecting northern Italy with the Istanbul area, the 29,000-gt Saffet Ulusoy and Marmara are the first pair in a new class of four freight carriers of 3,735 lane-meters, representing the third series of RoRos ordered from Flensburg for UN's eastern Mediterranean mainline traffic. UN RoRo has made its name in the trailership sector, having created a direct channel for Turkish trade with western Europe, by offering Turkish hauliers an alternative to the overland route through Bulgaria and Serbia.

The company's initial contract with

FSG saw the handover during 2000 of two 2,640 lane-meter, three-deck multipurpose RoRos, Und Akdeniz and Und Karadeniz. These were followed in 2001 and 2002 by a quartet of four-deck trailerships of 3,256 lane-meter capacity, the Und Ege type. Although built to the same main dimensions as the Und Ege series, the Saffet Ulusoy class signifies a further increase in payload to 3,735 lane-meters, mainly through provision for additional trailers on the weatherdeck. The design also denotes an anticipative approach towards developments in trailer weights.

Two newbuilds entrusted to FSG by Belgian shipping company Cobelfret will each offer a RoRo stowage of about 3,900 lane-meters, corresponding to about 258 trailers, and a container intake of 848-TEU on four of the cargo decks. The ships are categorized as ConRo (container/RoRo) carriers by virtue of their dual capability, and are dubbed Humbermax vessels due to optimization

for trade into the Killingholme terminal on the UK's North Sea fringe.

The five-deck design is intended to allow Cobelfret to meet forecast traffic growth. The RoRo volume is akin to that of the new generation of DFDS Tor Line trailerships of the Tor Magnolia class, six of which have been ordered to date from the Flensburg yard.

The double-ender contract, awarded after BC Ferries had considered bid submissions from nine yards in Canada, Finland, Germany, Japan, Norway and South Korea, again demonstrates the high competence level of the Flensburg yard in building complex RoRo ships.

Criteria for yard selection included the design and construction plan, recent experience in building large ferries, references from other customers of the yard, financial stability and the ability to provide guarantees. A particular technical requirement was that the double-enders should incorporate the highest standards with regard to noise and



Flensburger Schiffbau-Gesellschaft has emerged as one of the world's most prolific producers of large RoRo vessels.

vibration levels, since BC Ferries ranks passenger comfort as a vital element in service quality. In addition, the contract carries the most stringent stipulations as to speed. Furthermore, it is understood that the stage payment arrangements during the build process are especially attractive from a shipowner's standpoint.

The 16,000-kW diesel-electric power and propulsion plant in each of the vessels will be based on four diesel prime movers in genset aggregates, two constant-speed propulsion motors and twin controllable pitch propellers. The system was selected after deliberations over a range of options, including podded electric drives, and also variable-speed propulsion motors and fixed-pitch propellers. Each of the 525 ft. (160 m) vessels will carry 1,650 passengers and up to 370 automobiles, and is to be installed with four main gensets using MaK 8M32C diesel engines from Caterpillar Marine in Germany. The bank of gensets will supply electrical energy for the two propulsion motors, all the auxiliary systems and other onboard facilities, and will ensure that a total of 16,000-kW is available at the main switchboard at an engine speed of 600-rpm. Contractual service speed is 21-knots. With just two gensets running, it is anticipated that each vessel will still be able to maintain a cruising speed of 18-knots.



## FSG Gets a New CEO



Sierk



Garbe

Effective October 1, 2005 **Fred Garbe** will hand over the position as CEO at Flensburger Schiffbau-Gesellschaft (FSG) to **Peter Sierk** (39). Garbe will continue his involvement with the FSG yard as Chairman of the Board. Sierk joined the company in 1996 as Head of Finance. Garbe joined the yard in 1979 and acted as CEO since 1984. It was during the extremely difficult phase when FSG filed for bankruptcy caused by the holding Harmstorf Group, that Garbe was able to set the grounds for a new start and the future success of FSG. In March 1990 the yard was bought by the shipping company Egon Oldendorff. He helped established the Flensburger yard as a market leader for RoRo ferries. The yard has filled its orderbook until end of 2008 and additionally was able to give its employees a job guarantee until 2009. Before joining FSG, Sierk worked in the field of controlling for various medium sized companies. As a Master of Business and Engineering, he has the technical and economical competence for the new task.

## Schottel Reports Strong Year

Schottel ended 2004 with a sales record, as the corporate goal of 100 million euro in group sales for the newbuilding and service sectors was achieved, versus 90 million Euro in 2003. Of particular significance are the latest worldwide sales in tug propulsion systems, offshore supply vessels and tankers, research vessels, ferries and military vessels.

In 2005 the number of tugs with Schottel onboard will exceed 600. It was in 1967 that the first vessel equipped with Rudderpropellers was put into operation in Hamburg Harbor, and in 2004 the company landed orders for about 75 tugs, totalling about 150 Rudderpropellers in the power range from 500 to 3850 kW with fixed or controllable-pitch propellers. On top of this come propulsion systems for about another 15 vessels being built for the offshore industry.

Circle 13 on Reader Service Card

# German Marine Companies Invest in the Future

"We're consistently using our full order books to sharpen our international competitive edge," said **Dr. Alexander Nürnberg**, chairman of German Engineering Federation (VDMA) - Marine and Offshore Equipment Industries, in describing the current situation of the sector.

Global shipbuilding production will probably continue at a very high level in the next two to three years. "But conditions as in the Bible prevail in the cyclical shipbuilding sector: fat years are also regularly followed by lean ones. We want to focus on preparing ourselves for these now and invest a high proportion of our profits in the future," said Nürnberg, referring to the extensive innovation activities of the mainly small or medium-sized equipment suppliers. According to Nürnberg, 80 percent of companies expect to see further growth in incoming orders from abroad in 2005, with about 60 percent also expecting more business from domestic customers - for both containerships and special-purpose vessels.

Nürnberg said that this is overshadowed by adverse parameters confronting suppliers: "The increasingly fierce competition, particularly from Asia and other non-EU countries, the general dollar/euro exchange rate problem, delivery and cost problems for high-quality materials, price reductions particularly

for increased series shipbuilding, short delivery deadlines and many other factors don't make it easy for us to maintain our currently high capacity utilization in the long term and improve our profitability for future investment."

With their about 70,000 employees, German marine equipment suppliers registered sales of approx. \$10.6 billion in 2004, achieving average growth of 5.2 percent compared with the previous year and an export rate of 64 percent.

The dominance of the Asian shipbuilding market continued to be evident in 2004: of the 2,410 ship orders booked worldwide, 633 were accounted for by Japan, 514 by South Korea, 384 by China, 282 by the EU 15 and 358 by the EU 25 countries (including 76 by



Nürnberg

Germany) and 236 by the rest of Europe.

In 2004, Asia's share of German suppliers' foreign incoming orders was 41%, with China accounting for 23 percentage points, Korea 10 and the rest of

Asia 8. Last year, 30 percent of suppliers' foreign orders came from other EU countries. Incoming orders exceeded sales by 9 percent - and by as much as 19 percent in export business.

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## Siemens Tests Superconducting Motor

Germany's position as a technological driver in engineering has substantial references in the marine field, and an initiative in high-temperature superconductor (HTS) generator development could offer a new ship powering solution for the future. HTS motors use superconducting windings instead of copper, generating a more powerful magnetic field, offering higher electrical efficiency and allowing the use of machines of very much reduced volume and weight for a given power. An HTS generator producing around 4,000-kVA at 3,600-rpm has been put into operation at Siemens' test facility in Nuremberg, to verify its suitability in shipboard duties and other applications. The savings potential offered by the 'low-loss' HTS technology is claimed to be considerable, especially in the context of all-electric ships. Classification society Germanischer Lloyd is following the progress of the project, which is sponsored by the Federal Ministry for Education and Research (BMBF).

The new synchronous generator incorporating HTS windings in the rotor is a joint development of Siemens Corporate Technology, Siemens Industrial Solutions & Services and the group's Automation and Drives arm. The HTS wire has been designed and manufactured by another German firm, European Advanced Superconductors of Hanau. The benefits of HTS generators in terms of power density and footprint, electrical efficiency and voltage stability, are seen to be of greatest potential value in isolated power systems, such as seagoing plant. A key target market will be the large cruiseship sector, in which the 'power station' concept is well established, whereby main generators driven by diesel engines or gas turbines provide the energy source for the considerable hotel load electrical requirement as well as the electric propulsion.

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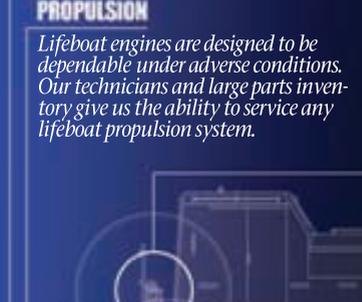
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*The CAD/CAM Suppliers Guide is the result of an e-mail survey conducted in September 2005. Please send additions, corrections or deletions to Greg Trauthwein at trauthwein@marinelink.com. Publisher not responsible for errors or omissions.*

## BASS Solutions on Farstad Fleet

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## USA Shipyards Choose Autohydro Pro

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## LR LNG Fleet Tops 100

Recent orders of classification services for six liquefied natural gas (LNG) ships have resulted in a milestone for Lloyd's Register: more than 100 LNG ships now exist or are being built to Lloyd's Register class, which is significant because the new ships feature dual-fuel engines, a recent innovation in LNG ship propulsion. Lloyd's Register currently classes 37% of the LNG fleet worldwide with a total of 104 ships; 65 in the existing fleet; 39 on order.

## Oceanwide Expands into Denmark

Oceanwide, an international employment agency in the maritime field, signed an agreement to acquire Haraship Manning Aps of Denmark. The new subsidiary will operate under the name Oceanwide Haraship Denmark Aps. Haraship Manning Aps' existing office staff of 2 people - managing director Gilli Haraldsen (former owner) and operations manager Niels Maindal - will remain responsible for the daily operation of the new subsidiary.

## MTN Connects Silverseas

Maritime Telecommunications Network (MTN) signed a contract with Silversea Cruises to provide a complete package of onboard communications capabilities. MTN's DirectNet technology will allow passengers and crew members to receive and transmit voice, data and email services via satellite worldwide; utilize wireless internet hotspots onboard, and receive television signal 24 hours a day.

## LR Asia, China Classification Sign JV

Lloyd's Register Asia signed an agreement to establish a joint venture with China Classification Society (CCS). The joint venture, to be based in Beijing, will enable the rapid roll-out of a number of key products and services to the

benefit of the maritime industry in China.

## Schat-Harding Reports Successful Tests

Lifeboat manufacturer Schat-Harding has reported the successful testing of the first of six of its FF1000S skid-launched freefall lifeboats, which have been strengthened beyond SOLAS require-

ments. The tests, conducted at Schat-Harding's Rosendal factory in western Norway, include a freefall drop from skids from a height of 36 m and a vertical drop from a height of 47 m.

## Crowley Acquires Alaska Fuel Businesses

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Circle 267 on Reader Service Card

## Wärtsilä Wins New Zealand Contract

Wärtsilä won contracts for propulsion systems for the seven-vessel Project Protector of the Royal New Zealand Navy. The main contractor for the project is the Australian defense supplier Tenix Defence Pty Ltd., on behalf of the New Zealand Ministry of Defense. The project is for the supply of seven vessels: a 429 ft. (131 m) multi-role vessel (MRV), two 279 ft. (85 m) offshore patrol vessels (OPV) and four 180 ft. (55 m) inshore patrol vessels (IPV). The first will be delivered December 2006.

The vessels are intended for military and civilian roles in New Zealand's Exclusive Economic Zone (EEZ), in the South Pacific and the Southern Ocean. They will also conduct tasks for and with NZ Customs, Department of Conservation, Ministry of Agriculture and Forestry, Ministry of Foreign Affairs and Trade, Ministry of Fisheries, NZ Maritime Safety Authority and the NZ Police.

Circle 2 on Reader Service Card



The offshore patrol vessels to be built by Tenix Defence Pty Ltd for the New Zealand Navy will be equipped with Wärtsilä propulsion systems.

signed a contract with the U.S. Navy to develop the Shipboard Protection System, intended to enable naval vessels to counter asymmetric terrorist threats.

The Shipboard Protection System program will be managed from Northrop Grumman's locations in Charlottesville, Va.; Annapolis, Md.; and Ocean Springs, Miss.

## Advanced Valve Technologies' New Website

Advanced Valve Technologies (AVT) has launched its new website at [www.advalve.com](http://www.advalve.com).

The site includes information on technical aspects of

the products, a comprehensive list of distributors, and news of latest advancements.

## Rubber Design Line Gets Approval

The existing Type Approval certificate of DNV concerning the RDanti vibration mountings has been expanded significantly to cover almost the entire product range of Rubber Designs' anti vibration mountings.

## Cincinnati Electronics Wins Navy Contract

The Cincinnati Electronics (L-3 CE) subsidiary of L-

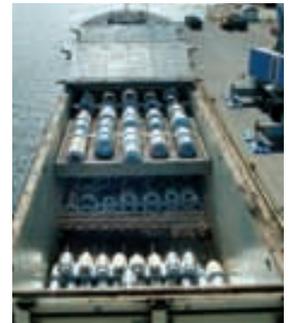
3 Communications will provide the U.S. Navy's Sea Fighter FSF-1 (Sea Fighter) with its Night Conqueror thermal imager. The Night Conqueror will be used in the Vistar 350 (a day/night surveillance system) sensor suite operating as a navigational electro-optical (EO) system on the Sea Fighter, which can operate at speeds greater than 50 knots and has a range of approximately 4,000 nm.

## Bender Wins ATB Contract

Bender Shipbuilding & Repair Co., Inc signed a contract with Maritrans Inc. to build three new articulated tug-barge units, each having a carrying capacity of 335,000 barrels. Construction will take place in Mobile, Alabama, with completion of the first unit scheduled for October 2007.

## Langh Wins Maritime Safety Prize

The safety prize is awarded to Langh for the company's approach to their work, which has enhanced safety at sea and resulted in their operating efficiently and economically. The shipping company, based in Piikkiö near Turku in south-west Finland, specializes in export deliveries of the Finnish steel industry's heavy products.



## Integrated Marine Power System



Industrial Power Systems, Inc. Marine Division now offers an integrated marine power system. Control of all power sources is combined into a single switchboard. Available features include:

- Single or Three phase
- 120/240, 120/208, or 480 Volt systems
- Integrated shore power transformers
- Remote control provisions

## JCY-1700S VDR

Japan Radio received MED Type Approval for a Simplified Voyage Data Recorder (S-VDR), JRC's JCY-1700S.

"The JCY-1700S is the "simplified" version of the JCY-1700 full VDR fitted on over 1250 cargo vessel new builds worldwide" said Mr. Toshi Amemiya, General Manager of JRC North America.

The JCY-1700S is a two-unit system using a distributed Ethernet solution allowing for efficient and cost effective installation with pre-configured VDR connections.

Like the "black boxes" carried on aircraft, VDRs & S-VDRs enable incident investigators to review vessel procedures and any voice recordings in the time prior to an incident and can assist in identifying the cause. In addition, the playback and monitoring software of the JCY-1700S, allows ship owners to further enable training of their crew both onboard and on-shore and allowing staff to monitor critical ship parameters from their cabins using an optional PC and connection.

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Circle 228 on Reader Service Card

## World's Largest Plate Heat Exchanger



The T50 gasketed plate heat exchanger from Alfa Laval is reportedly the world's largest of its kind for marine and land-based applications. The T50 is designed to meet the demands of modern engines for increasingly larger vessels and industrial plants.

Cooling large engines at reasonable costs requires sufficiently large flow rates at low velocities and with minimal pressure loss. The T50 plate heat exchanger uses available pump pressure for heat transfer while reducing the pressure losses in ports and connections, contributing to savings in terms of capital expenditures and operating costs.

The T50 has a 500 mm port to ensure that its flow rate is as large as possible. To provide the best capacity, it also has a large heat transfer surface area (approximately 3.5 sq. m. per plate). However, although the T50 is one of the world's largest plate heat exchangers, it is also the world's most compact solution for cooling large engines and therefore occupies less space than other solutions. This translates into savings in installation costs since fewer pumps are required and in operating costs since fewer exchangers are required to heat the same volume of media.

The T50 has a new plate system that is designed to improve heat exchanger performance for large cooling requirements. The system enables three basic plates (low-theta, medium-theta and high-theta) to be combined in five different channel arrangements. This allows heat exchanger design to be optimized to specific temperature programs.

Circle 14 on Reader Service Card

## NME Cranes for Coast Guard Vessels

Norwegian Maritime Equipments

(NME) will supply 10 marine cranes for work on the construction of five new coastguard vessels - the last one set to be completed by the end of 2006.

The first to roll off the production line could hit the water before the end of the year.

All the boats will eventually sail off



the coast of Norway. The order was received from Szczecin Ship Repair Yard Gryfia SA in Poland, which is building the vessels for Remoy Management AS and Remoy Shipping AS.

The cranes have lifting capacities of 1.3 tons at 32 ft. and 2.8 tons at 16 ft.

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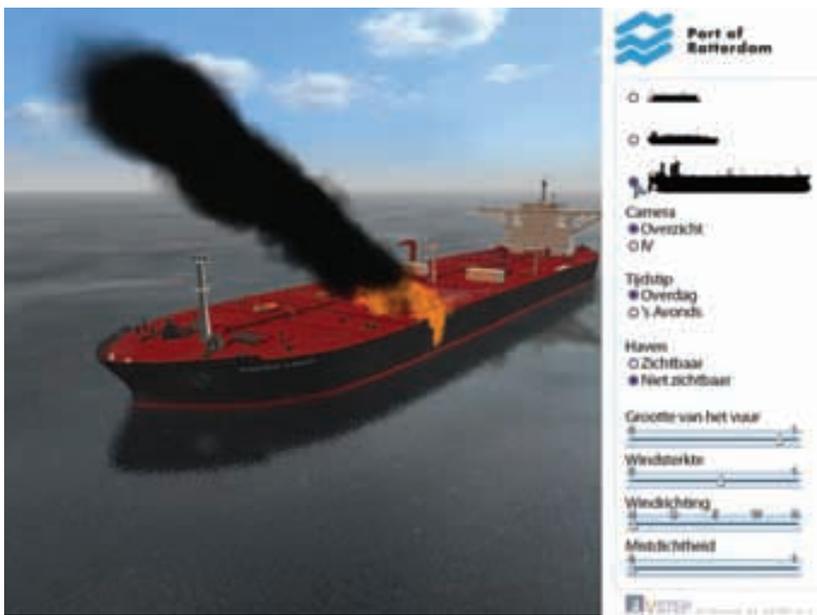
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Circle 222 on Reader Service Card

# Virtual Reality Preps Crews for High-Risk Ops



In the Incident Configurator tool that VSTEP made for the Port of Rotterdam authorities, an instructor can configure an incident to his preference. He can choose from three ship types, set the location (inside the harbour or on open sea), and set some weather conditions like wind direction and force. Students subsequently experience the incident from a viewpoint of an incident response ship. In a classroom, they discuss the best way of attacking the fire.

Crews operating in high-risk environments rely on their training to operate effectively and save lives. However, it is precisely in these environments that realistic and effective training is often difficult, dangerous or costly. Fairmount's safety training subsidiary, VSTEP, helps maritime and offshore companies prepare their crews for the unknown.

The U.S. military also faced this dilemma and found the solution in virtual reality simulations. Rapid advances in computer gaming technology, have given rise to a new generation of realistic non-entertainment applications. These "serious games" as they are

called, focus on delivering better ways of learning, allowing people to experience life-like situations.

## How Does it Work?

The software runs on a standard PC. A realistic 3-D model of the actual working environment forms the basis of a virtual experience for trainees. The 3-D environment can be an exact replica of a geographic area, needed for military training, but also a vessel, oil rig, industrial plant, tunnel, or train.

Within the virtual environment, incidents are simulated including any element of a real situation, such as fire, smoke, panic or casualties. The trainee experiences these incidents as if he was actually there, and must respond to the situation as he would in real life. Using the mouse or joystick, he is free to move around, make decisions, communicate with others and take appropriate action. The trainee is directly confronted with the consequences of his decisions.

As a result of powerful visuals, active participation and direct feedback, people learn faster and remember procedures better. Being able to repeat incident scenarios over and over, shapes behaviour and develops competencies.

## Virtual Reality Supplements Practical Training

The key benefits of virtual reality simulations are the ability to realistically experience an incident situation over and over again, the interactivity and the

low cost. Serious games are unlikely to replace real-life practical training 100 percent, but they allow trainees to train specific decision-making skills and experience situations before real-life training. This makes the real-life training more valuable and cost-effective. For example, training Helicopter Landing Officers on offshore installations to take appropriate action in emergencies is dangerous and costly. Allowing them to practice different landing scenarios in a virtual environment before going out to experience

extinguishing a real helicopter, makes the practical training more effective.

VSTEP develops custom training courses for emergency services, ship owners, offshore operators, port authorities, hospitals, military and training institutes. Recent projects include:

- Incident configurator for the Rotterdam Port Authority. Instructors configure an incident on the PC: in different parts of the harbor, vessel types, incidents, weather types, etc. Port safety crews then take over and need to demonstrate what actions they would take.

In VSTEP's recent Office Emergency Response training, people experience incidents like a fire. They need to decide what's most important: ring the alarm bell, call the company safety officer, send the staff to the assembly point, or kill the fire him- or herself.



- Fire fighting training for the Royal Dutch Navy. Fire is 'core business' for the navy, but realistic training exercises are difficult and expensive. VSTEP has developed a training environment that allows crews to simulate emergencies onboard. Crewmembers assume their fire team roles and need to take action as they would in real life.
- Company Safety Officer (BHV).

Training Company Safety Officers to evacuate colleagues, extinguish small fires and apply first aid is trained in simulated incident scenarios.

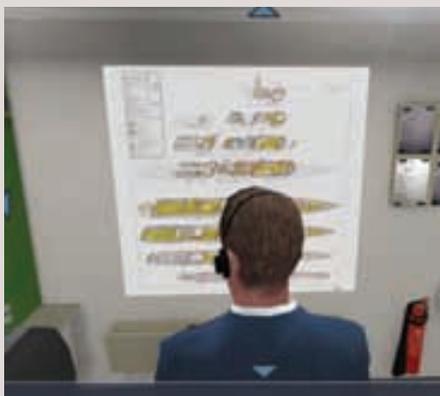
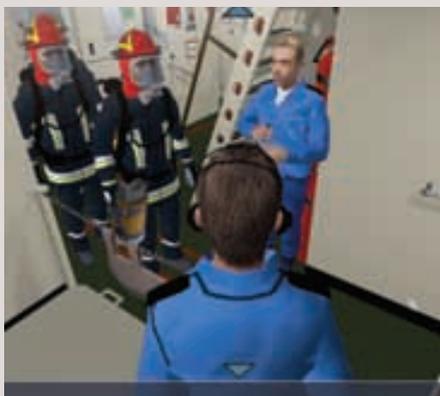
The application of virtual reality training based on gaming technology is rap-

idly gaining pace. Applications have focused on high risk environments where training is essential but difficult, dangerous or costly. The right combination of game-based virtual reality and practical training is likely to result in

courses that will prepare crews operating in high risk environments more effectively.

Circle 1 on Reader Service Card

Source: Fairmount Marine BV



In VSTEP's virtual fire-fighting training for the Royal Dutch Navy, people play the role of Officer of Duty or Scene Leader in a realistic on-board incident. The Scene Leader has to instruct the fire-fighting crew, and communicate with the Officer of Duty in the Machinery Control Room.



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## The Mongoose

Canadian boatbuilder A.F. Theriault and Son Ltd. launched a proto-type fast patrol boat dubbed Mongoose. Based on five years of R&D, the builder touts Mongoose as a viable, cost-effective, high-tech solution for coastal and inland



waterway security. The Mongoose series of FPB vessels, ranging from 25-120 ft. (7.6-36.6m) are built with Ceramic Reinforced Plastics (CRP). Mongoose MK-1 is a 27-ft. (8.2 m) high-speed mono-hull vessel, designed to provide maximum control at both

high and low speeds. Initial trials recorded a maximum speed in excess of 60 mph on two-ft. choppy seas. According to the trial, sharp turns at 45 mph were uncompromising and under full control. The MK-1 proto-type is loaded with electronic navigation equipment supplied by CMC Electronics Inc. The hull composite structure includes divinycell core foams by DIAB Group Inc. and reinforcements by companies such as Johnson Industries, 3M and Interplastic Corp.

Circle 24 on Reader Service Card

## GE Itemiser FX

GE Security's Itemiser FX, a direct-transfer, trace-detection instrument designed to simultaneously identify explosives and narcotics directly from a finger touch. In checkpoint settings where large portals are impractical, or where high throughput is required, a simple touch of the Itemiser FX finger pad samples and analyzes people for trace particles of explosives and narcotics. Itemiser FX can provide highly effective trace particle detection of difficult-to-find substances while letting people pass through the screening process quickly and easily with little or no assistance. It can be operated as a standalone system or, using its networking capability, as the detection "front-end" for integrated security systems. In a networked setting, multiple Itemiser FXs can be monitored remotely by a single operator. An onboard computer collects and logs data automatically. A complete history of saved data and alarm files can be recalled, and printed, at any time or transferred to another location for archiving.

Circle 25 on Reader Service Card

## Greatland Laser

Greatland Laser strives to address the need for visual warning boundary markings on the water surfaces of Ports, Harbors, Nuclear facilities and Restricted Areas. The patented technology is manufactured to draw eye safe, visible laser lines on any surface from a fixed or portable source.

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Maritime Reporter & Engineering News



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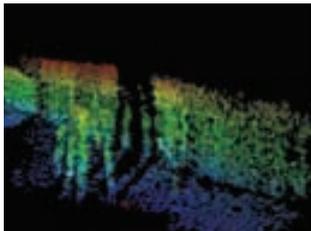


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## Echoscope by CodaOctopus

Coda Echoscope is a real-time 3-D imaging sonar for harbor security. It is capable of generating more than 16,000 3-D data-points simultaneously and is refreshed 15 times/sec-



ond, allowing in-the-field detailed visualizations for immediate threat detection and analysis. Small in size, Echoscope can be deployed from almost any vessel for covert reconnaissance, and when combined with a positioning and motion sensor, can rapidly create detailed underwater visualizations of a complete harbor scenario.

Circle 27 on Reader Service Card

## Incident Management Application

Send Word Now has released an Incident Management application designed to integrate attributes of incident and event management, geospatial imagery, mapping, emergency notification, responses, task management, and contact management into one service. The application is a web-based decision support system designed to facilitate the collection and dissemination of information between a broad spectrum of participants during routine and emergency situations.

Circle 28 on Reader Service Card

## Impasse Security Fence

Ameristar's Impasse Security Fence offers heavy-duty spear-tipped steel pales, designed to be a vertically secured framework of specially formed steel rails and I-



beam posts. The design of the Impasse is intended to provide an effective first line of defense. Special 'break-away' security nuts prevent tampering or removal by conventional tools, and the configuration of the Impasse allows for additional security features such as sensor and alarm systems.

Circle 31 on Reader Service Card

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Circle 268 on Reader Service Card

**Passive CCTV Hub**

MuxLab Inc. announces the Passive CCTV Hub. The Hub is designed to centralize the management of video, remote power and PTZ control. It allows each camera connection to support

either video only, video and remote power or video, remote power and control via one Cat5 cable for more efficient cabling, and supports up to 16 cameras. The Passive CCTV Hub is a 1U 19-in. rack-mountable unit and features two

different models.

Circle 32 on Reader Service Card

**McMurdo C1 S-VDR**

The C1 is an S-VDR Float Free Data Capsule that duplicates and stores voy-

age-related information. During a vessel sinking, the Data Capsule is automatically released from its housing. The built-in GPS EPIRB transmits location and homing signals for at least seven days to enable the recovery of the unit and stored facts.



The C1 has memory capacity of 2-9 GB, and can support Ethernet and other S-VDR interface protocols. Location beacon signals transmit on 406 MHz and 121.5 MHz and comply with COSPASS-SARSAT international satellite search and rescue system.

Circle 34 on Reader Service Card

**MTSA Courses by OverNite Software**

The new online course covers the Maritime Transportation Security Act as discussed in the International Maritime Security Regulations. OverNite has one PFSO library comprised of 32 online courses available to ports and their customers virtually all the time. Courses can be edited and renamed. Interactive courses include audio narration and a final exam with automatic scoring and recordkeeping. The Port Security Library is delivered via a web-based learning management system that gives administrators freedom to customize curricula, create new courses, add

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**BAE Systems' PMC300 Camera**

The PMC300 is a 640 x 480 environmentally qualified, un-cooled, infrared camera for day and night surveillance and general imaging applications. It is designed to provide four times the resolution of 20 x 240 based cameras, with more pixels placed on target for enhanced detection and recognition performance as well as improved third-party video surveillance interface. A variety of lenses are available, ranging from 25 mm wide to 100/300 mm dual field of view.

Circle 35 on Reader Service Card



courses, and run detailed reports.

Circle 36 on Reader Service Card

## MSI Offers Courses

MSI offers courses providing instruction to personnel designated as Company and/or Vessel Security Officers in compliance with SOLAS XI-2/3- International Ship and Port Security (ISPS) code and 33CFR Subchapter H. It may be conducted at any location, or at MSI centers (located in Newport, RI, Norfolk, VA, or San Diego CA).

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- Undertake regular ship inspections to ensure implementation/maintenance of security measures
- Ensure proper operation, testing, calibration of security equipment/systems
- Encourage security awareness/vigilance

Before enrolling, trainees should have shipboard experience and a SOME knowledge of ship design.

Circle 37 on Reader Service Card

## Security Consultants

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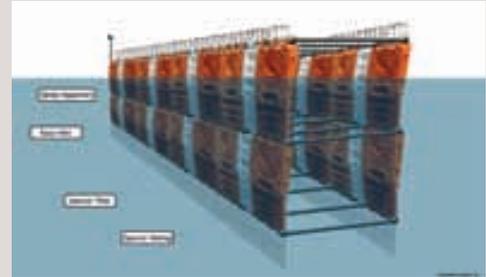
- Development of national and corporate security policies and strategy
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- Expertise in selection and operation of security systems
- Training, drills and exercises.

Circle 39 on Reader Service Card

## Elemental Innovation Security Barriers

Elemental Innovation, Inc. announces the launch of its HALO Port Security Barriers/wave attenuator for port security. HALO is intended to act as a security barrier to protect investments and welfare from vessel strikes and covert underwater incursion. HALO Port Security Barriers can be configured with a multitude of technologies both on the surface and underwater.

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# Statistically, one crankcase explosion will occur at sea each month, costing millions of Dollars in damage, weeks of refit time and, possibly, even loss of life.

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The AMOT XTS-W is a unique bearing wear sensor system for 2-stroke marine engines. It is the only product available that can detect the onset of bearing wear **before** expensive, potentially catastrophic, secondary damage occurs.



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### Training Program by MarCo

Maritime Consulting & Training Co. offers a training program for Marine Security Officers; the goal of which is to prepare them to meet the requirements to receive and operate by the ISPS (International Ship & Port Facility Security) code. Security personnel will also be trained to perform security monitoring of cargo shipment. Management personnel will be trained to perform security monitoring of company staff and outside factors.

Circle 40 on Reader Service Card

### Marlink Communication Services

Marlink aims to offer high quality solutions for optimal, fast, efficient and reliable satellite communications globally, including satellite airtime, software, equipment, traffic accounting and Point of Service Activation (PSA) services. In 2005, Marlink incorporated Neratek, a leading supplier of maritime and land mobile communications systems, into its global operations. Marlink has offices worldwide.

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### Protech Ballistic Protection

PROTECH Armored Products, Inc. designs and manufactures ballistic armor kits and panels for maritime applications. These systems offer law enforcement,

military, and security personnel a wide array of protection levels to enhance secure operations. Stand-alone and appliqué panel systems can be tailored to meet individual boat requirements, offering protection to passengers, crew and vital components, such as engine, transmission, fuel tank and weapons storage. PROTECH offers protection levels ranging from handgun protection to .50 caliber Armor-Piercing threats.

Circle 42 on Reader Service Card

### OCS Offers SeaStar

Oregon Camera Systems, LLC (OCS) designs and manufactures custom thermal imaging systems that give captains and crew multiple navigation and security capabilities when underway or at anchor. The OCS SeaStar unit provides anti-piracy protection and ship-board security, 24-hour collision avoidance, all-weather navigation, and support in man overboard scenarios. The SeaStar consists of a Thermal (IR) sensor, a low-light color camera, a Touch-Screen Controller, and a proportional, mounted joystick.

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### Boat Lifts from Sunstream

Sunstream designs and manufactures commercial boat lifts that can rapidly deploy small crafts. Foam-filled floats provide stable launching and can double as

### Biological Defense Systems

Alexeter's Guardian Reader System allows users to evaluate potential biological threats in the environment. This field-portable system contains tests for the most threatening biological warfare agents: anthrax, ricin, botulinum toxin, plague, tularemia, brucella, orthopox and SEB. Results are available in 15 minutes; worldwide technical support is available 24/7. The BIT Decontamination System provides odorless decontamination; eliminating the need to clean up harsh chemicals. The system can be used by first responders, military services, security agencies, health departments and corporate clients.



Circle 44 on Reader Service Card

maintenance platforms that provide hull and drive access. The FloatLift can be used virtually anywhere a boat is moored, including on a buoy. Designed for use in fresh or salt water applications, the FloatLift supports 13,000 pound capacity vessels, and the free-standing SunLift supports jet skis to 24,000 pound capacities.



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### Meteo Consult Presents SPOS

Meteo Consult offers the Ships Performance and Optimization System (SPOS), an onboard weather routing system. SPOS displays accurate weather forecasts on a computer screen. These forecasts can be used for optimum route planning and include voyage tracking. SPOS aims to reduce heavy weather damage to ship and cargo; save time on ocean crossings; and save fuel by reducing speed.

Circle 47 on Reader Service Card

### Scintrex E3500

Control Screening's Trace E3500 Portable Advanced Explosives Detector from Scintrex Trace is a self-contained, handheld explosives detector. The device can detect explosives in vapor or particulate form; users may choose either method. The device facilitates non-invasive searches. No radioactive sources or external carrier gases are required. The E3500 is for police and bomb squads, military defense, transportation terminals, airports, seaports, customs, and border crossings.



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## Scintrex EVD-2500

Control Screening introduces Portable Vapor Explosives Detector from Scintrex Trace, a portable trace explosives detector. No radioactive sources or external carrier gases are required. The unit readies in 60 seconds and provides a response in 15 seconds. Results are indicated on the LCD and by a volume-adjustable alarm. The EVD-2500 is for police and law enforcement, military defense, transportation terminals, airports, seaports, customs, border crossings and embassies.

Circle 49 on Reader Service Card

## X-Ray Scanner



Control Screening introduces the AUTOCLEAR Model 6040-M Security Parcel X-ray Scanner for advanced imaging of hidden weapons, explosives and narcotics.

The Model 6040-M features a 24.4 x 16.5-in. high opening and can fit through 32-in. wide doorways, in elevators and other tight spaces. The scanner's steel cart with wheels allows for easy transportation. Pentium IV processors provide clear images; the scanner's modern unibody frame and tunnel design allow for compact footprints and better checkpoint visibility.

Circle 50 on Reader Service Card

## PCCI Waterfront Security Barrier Systems

PCCI, Inc. designs and installs waterfront security barrier systems to provide waterborne perimeter security against waterborne threats



to ports, power plants, berthed ships and properties. PCCI has also been tasked to develop improvements to existing Navy waterfront barriers to improve their maintenance and reliability.

Circle 51 on Reader Service Card

## Motors from Mercury Marine

Mercury Marine has a full line of four-stroke outboard motors 275hp and smaller, including the new Verado family of supercharged outboards. The

Optimax direct injection system is available from 75 hp to 250 hp. This system provides the advantages of four-stroke outboards (like low emissions and better fuel economy) with the two-stroke power to weight ratio. This line also includes the production multi-fuel 3.0 liter outboard motor.



Circle 52 on Reader Service Card

## Services by Seebald and Associates, LLC

Seebald and Associates, LLC offers services such as training Facility Security Officers and implementation of audits, assessments and drills for maritime facilities regulated by 33 CFR 105. Seebald and Associates, LLC is also involved in the teaching of Incident Command to police officers. The company also writes Standard Operating Procedure manuals.

Circle 53 on Reader Service Card

## SM 2000 by Kongsberg

Kongsberg Maritime presents the SM 2000 Underwater Surveillance System. It detects threats (such as terrorist swimmers and divers) to piers, terminals, and government and military vessels. The system detects, tracks, and identifies

underwater targets and informs system operators of their presence. The SM 2000 can be deployed over the side of a moored vessel, from a pier or mounted permanently in a harbor.

Circle 54 on Reader Service Card

## Custom-Built Boats from SeaArk Marine



SeaArk Marine designs and builds boats in a variety of models and sizes to suit a variety of application and mission requirements. The company specializes in military, governmental and commercial areas including patrol, security, fire and search and rescue.

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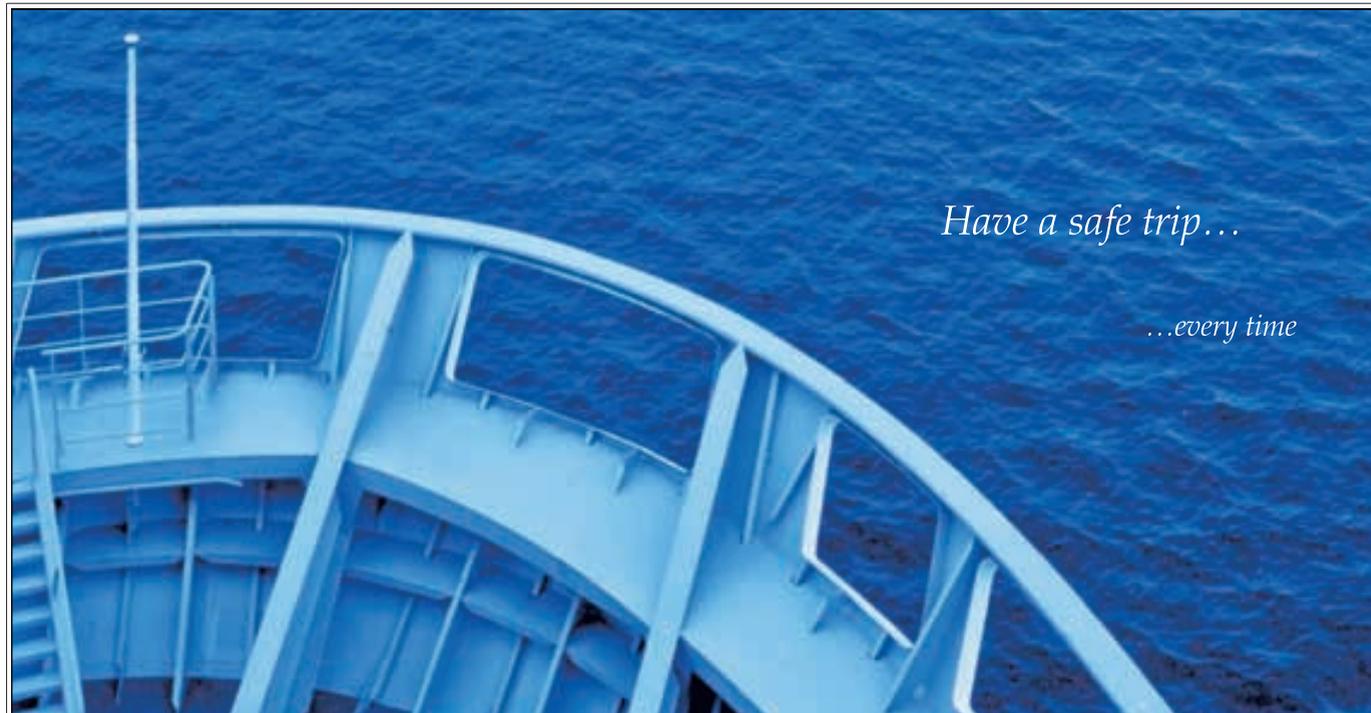
## BCS Automation Security Systems

VigilantSea is a Ship Security System consisting of two complimentary components that supply intrusion protection. The VigilantSea 4000 Surveillance System (VSS 4000) provides constant watch on deck and the ship's surrounding area while the VigilantSea 3000 Controlled Access System (VSA 3000) can grant the entry only to those who are authorized in the ship's restricted areas. Both can be expanded to include additional cameras or controlled access points. They are designed to work together, but may be installed as stand-alone systems, and both may be integrated into a ship's current automation or alarm systems, expanded and/or customized to specific ship requirements.

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## DoorGate Industries "Lock-Out" System

DoorGate Industries introduces "Rapid Closure Lock-Out System," a bullet-resistant security system designed to lock-down and halt unauthorized access into ship gangways and loading entrances. The



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system is activated by pulling on one of the unit's two release handles, closing entryways in 1.3 seconds. The unit is situated on wheels and portable for easy set-up or take-down. The system is suitable for cruise ships, airports, in-home safe rooms, banks and perimeter security.

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### VaporTracer2

GE Security's VaporTracer2 is a handheld detection device designed to quickly detect and identify microscopic traces of explosives and narcotics. Teflon-coated fiberglass sample traps are swiped across a surface and inserted into the VaporTracer2 for analysis; vapors can also be drawn through the nozzle into the detec-



tor. The optional vacuum wand draws vapors into a sponge-like sampler trap, which is then inserted into the unit. The device's on-board computer handles all data logging automatically.

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### I-Vision Thermal Imager

The I-Vision from Exigence is a hands-free thermal imager embedded within a protective rescue helmet with a viewing monocle. It is a multi-functional system adaptable to rifles, fixed mounting or hand-held. The I-Vision has a 2 x 5-in. dimension and includes a wireless transmission capability, allowing it to transmit images in real time.

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### Panoscan MARK III

The MARKIII (MK-III) from Panoscan is a digital panoramic camera system. The system includes: 9.3 pound camera head, processor module with 40

GIG HD, 12Vbattery with universal power supply and charger, and camera cable. Panoscan's 42 bit internal color depth (14 bit per color precision) offers up to 11 full F stops of exposure latitude. Files can be transferred with USB 2.0 connectivity. The system has ISO 3200 sensitivity and can be used for homeland security, business, or media.

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### CyberLock

Videx announces CyberLock electronic padlocks; consisting of the pick-proof CyberLock cylinder in a padlock, a CyberKey that cannot be duplicated, and



CyberAudit access control software. Access privileges and battery power are located in the key, which can be programmed to restrict each authorized user's access to specific padlocks, days, and times. Each time the lock is opened, a record of user ID, date, and time is stored in both the lock and key.

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### ISAP Surveillance System

Industrial Security Alliance Partners offers the CPOD; a Thermal Imaging Surveillance System that can be used for border security and vehicle/vessel traffic detection and management. It is designed to detect man-sized targets out to four miles and large targets in excess of four miles. The CPOD may be either



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ground-based or vehicle mounted and is based on a f/4, 3-5 micron, cooled InSb sensor with 320 x 240 pixel format. The system has a 20.5 x 5.98-in. dimension and weighs 16 pounds.

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## NightVista E1100

Intevac's NightVista E1100 series offer system integrators with a compact, lightweight day/night capable digital camera. Powered by Intevac's EBAPS sensor technology, the NightVista provides extreme low light level performance and uses dynamic image optimization to adapt changes in scene illumination. NightVista performance features include: VGA resolution (640 x 480) at 30 fps; RS170 video output; optional USB 2.0 video output; low power requirement; programmable operation; and advanced image processing.

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## FUGRO Camera Systems

Fugro GEOS and Fugro OCEANOR present the CCTV Explosion



Camera Station and the Crane Boom Camera System. The CCTV Explosion Proof Camera Station with internal wiring is a compact EExd camera housing and pan/tilt unit, accompanied by the integrated EExd junction box, all manufactured in 316L stainless steel. The CTVS-2000 Crane Boom System is designed to minimize the risk of crane operations by ensuring the best

## Saab Transpondertech's Port Watch

Saab TransponderTech is specialized in development and maintenance of marine information-, sensor-, and communication systems for both Vessel Traffic Management Systems and port- and coast security. Our long experiences in the field have placed us as one of the major players in the market.

The Saab Vessel Traffic Management System (VTMS) is an open system that can utilize virtually any sensor information. The system can easily be adapted to the specific requirements of each user.

The system is component based and facilitates a number of already existing software components in order to provide the user with a real-time maritime picture that is easy to comprehend.

The system may be adapted to customer specific requirements. Among the functions offered are Electronic chart of the area with customizable overlays, fused system level tracks fused from Radar and AIS as well as a track history database.

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possible views of areas under loads. It incorporates a high-resolution color camera with integrated 12x zoom and auto focus; both joystick operated from within the crane cab.

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## Biometric Technology

Ultra-Scan's biometric technology is designed to provide identification solutions by incorporating ultrasonic technology using high frequency acoustic signals for digital imaging. Ultra-Scan's Biometric suite of products include: the UltraTouch Fingerprint Reader; the ID Express Enterprise for processing fingerprint records; the ID Express Developer, a configurable SDK for multiple applications with customized screens and interfaces; and the Independent, Verification and Validation (IV&V) software, an automatic performance measurement/analysis tool for proof of real-time operation and accuracy.

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## SAIC's Integrated Harbor Security System

The purpose of SAIC's Integrated Harbor Security System is to provide broad-based surface and underwater surveillance using a variety of integrated sensors and sub-systems to allow in-depth coverage and notice-of-intrusion from any quarter. The system includes radar, diver detection sonar, infrared cameras and sensitive low-light closed-circuit television systems. The system also employs the Command, Control, and Communications (C3) Display developed for military systems.

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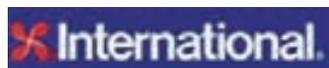
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## DD(X) Completes Flag-Level Critical Design Review

The U.S. Navy achieved a milestone for the multi-mission DD(X) destroyer with the completion of a system-wide Critical Design Review (CDR) on Sept. 14. DD(X) is designed to be the Navy's next-generation destroyer, tailored for land attack and inland support of joint and coalition forces. It is designed to meet Marine Corps, Army and Special Operations requirements for precision strike ashore, but be able to outmatch current and projected threats in the air, on the surface and under water.

The completion of CDR marks the end of the Phase III development, which resulted in the design, construction and test of 10 engineering development models (EDMs) that will make DD(X) the Navy's most capable multi-mission surface combatant ever constructed.

"DD(X) System CDR brings this incredible warship class one step closer from next generation to current generation," according to Rear Adm. Charles Hamilton, the Navy's program executive officer for ships. "DD(X) CDR reflects a disciplined, rigorous process of risk mitigation in 10 EDMs. CDRs for each of the 10 EDMs have achieved both technical maturity as well as significant cost insight," he said. Under the Navy's proposed dual-yard acquisition strategy, Northrop Grumman Ship Systems and General Dynamics Bath Iron Works will simultaneously build lead ships beginning in FY '07. Pending final approval of the plan, the Defense Department has authorized the Navy to award advance contracts to assist both shipyards to prepare to transition into detail design after the Milestone B decision. Development of major ship systems will continue under separate contracts.

## Big Repair Order for Nobiskrug in Rendsburg

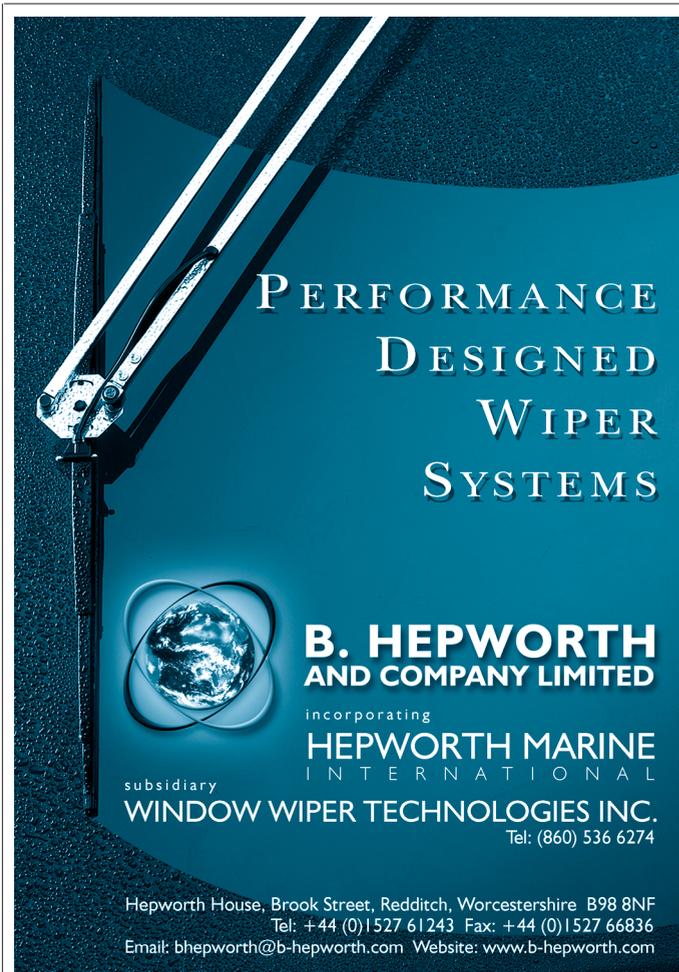
The Rendsburg based Repair Division of Nobiskrug GmbH - a company of ThyssenKrupp Marine Systems - has been commissioned to repair extensive fire damage to the 385.5 ft. (117.5 m) Josef Möbius, a 5,939 GT suction dredger with drag nozzle. On the July 28, the superstructure and the bridge of the dredger were severely damaged in Spain by a fire that broke out in the engineroom. Repair work is expected to take almost three months. The work package has been commissioned by Josef Möbius Bau AG in agreement with the local insurance company and will be supervised by the classification company Germanischer Lloyd (GL): These essentially include: Deconcentration

and cleaning of the damaged area; Renewal of around 35 tons of steel in the damaged area; Renewal of the insulation and interior decor in the superstructure and bridge area; Renewal of the E-cabling, E-components and security systems in the damaged area;

Renewal of the navigation and communication systems on the bridge; Repair and renewal of the air-conditioning and ventilating systems in the damaged area; Overhaul work to machine constructions; and docking and work on the underwater hull.

## Construction Starts on Wärtsilä's China Project

A ground breaking ceremony that officially started construction work took place in China on the generating set factory jointly owned by Wärtsilä and Shanghai Marine Diesel Engine



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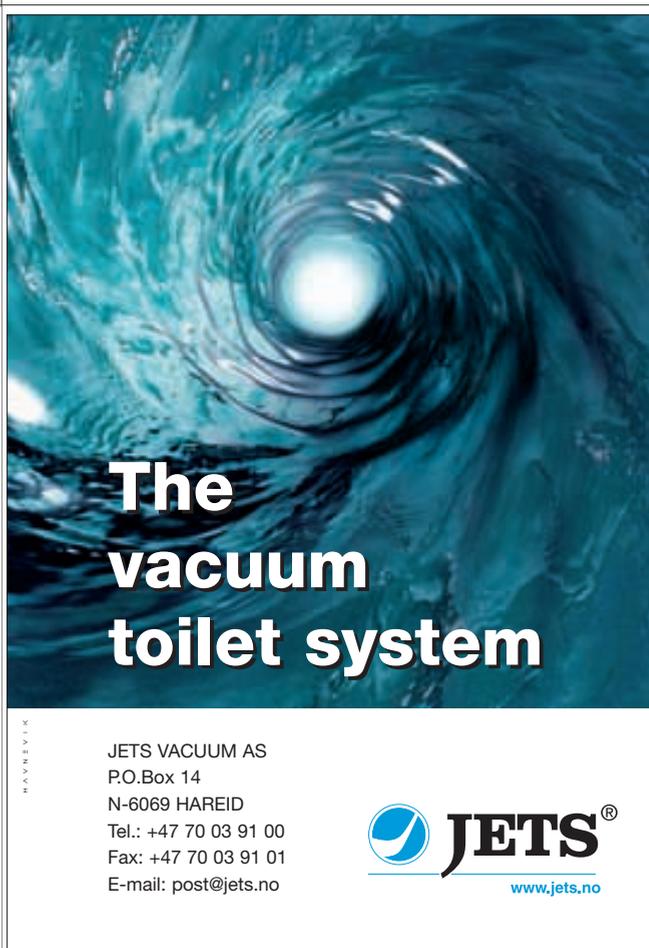
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Research Institute, an underlying company of China Shipbuilding Industry Corporation (CSIC). The factory, which got the name Wärtsilä Qiyao Diesel Company Ltd. (Shanghai) will be located in the Shanghai area and will initially manufacture Wärtsilä Auxpac W20 diesel generating sets, which will be sold through Wärtsilä's global sales net-

work. Production will start up in early summer 2006. "Our goal is to boost Wärtsilä's share of the ship genset market.

The focus for shipbuilding is firmly in Asia and shipbuilding in China is expanding at an extremely fast rate. Local presence close to our customers will strengthen our position in the

intense competition for gensets," said **Mikael Mäkinen**, Executive Vice President. The newly acquired site area covering approximately 30,000 sq. m. with possibility for expansion will be located in South-East of Shanghai in Lingang Industry Zone. The factory including offices cover some 8,000 sq. m. and will employ more than 100

## Trailer Bridge Appoints Gawrysh VP Inland Ops

Trailer Bridge, Inc. said that Adam E. Gawrysh, Jr., 38, has been promoted to Vice President, Inland Operations. His previous position at Trailer Bridge was Director, Trucking Operations. This is a newly created position and Mr. Gawrysh will take on additional responsibilities related to Trailer Bridge's inland operations. Gawrysh has been employed at Trailer Bridge since 1992, managing its trucking and inland operations since 2000

## J. Ray Wins Contract

McDermott Intl. subsidiary J. Ray McDermott, S.A. won a \$77 million contract from Woodside Energy Ltd., operator of the North West Shelf Venture's LNG Phase V Expansion project in Australia. Under the contract, J. Ray will undertake construction engineering, procurement, fabrication, assembly and erection of 75 pre-assembled module and pipe rack units totaling nearly 22,000 short tons. Completed modules and pipe racks will be shipped from J. Ray's Batam Island, Indonesian fabrication facility to Western Australia, and transported to the Venture's LNG facilities on the Barrup Peninsula where the new LNG "Train V" is being constructed.

## New Joint Venture Targets Deepwater Markets

J. Ray McDermott, S.A. and Keppel FELS Limited. are in the process of forming a new joint venture company, to be named FloaTEC, LLC, to provide deepwater and ultra deepwater oil and gas development solutions. To add to the Joint Venture's offerings, J Ray and Keppel FELS plan to draw upon the purchased patent rights previously owned by ABB for the Extended Tension Leg Platform (ETLP) and Single Column Floater (SCF) designs. Combined with J Ray's existing SPAR technology and Keppel FELS' semi-submersible expertise, FloaTEC, LLC will be in a unique position to provide a wide range of solutions for deepwater developments. **Eric H. Namtvedt** was named COO, joining offering more than 25 years of experience in the industry. Namtvedt has worked for a major oil company, the Norwegian government, a global E&C contractor, and an oilfield service and fabrication company, leading projects ranging geographically from the U.S. to West Africa, South East Asia, North Sea and Australia. Namtvedt's experience includes the establishment of joint venture companies, both in fabrication and tech development.

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# CALL FOR PAPERS

Rough Drafts Due for Final Review and Preliminary Acceptance  
December 31, 2005 for SMTC&E  
February 10, 2006 for SPS

Papers Due for Final Review and Acceptance February 28, 2006 for SMTC&E  
May 12, 2006 for SPS

Final Electronic Files Due  
May 1, 2006 for SMTC&E  
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2006

**SNAME MARITIME TECHNOLOGY  
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and *SHIP PRODUCTION SYMPOSIUM*



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# 2005 SNAME Maritime Technology Conference and Exposition • Technical Program

## 2005 SNAME Maritime Technology Conference and Exposition

Schedule of Technical Sessions as of 24 August 2005

### Thursday - October 20, 2005

6:45-8:15	Authors' Continental Breakfast and Meeting for Instructions, Moderator Introductions, and Photo Sessions (Room 309 B)							
8:15-8:30	Keynote Address							
8:30-8:45	Presentation of Cochrane and Linnard Awards and T&R Certificates of Appreciation							
8:45-9:30	Business Session, President's Address, and Election of President							
9:30-10:30	Exposition Grand Opening with Coffee and Snack Service							
	<b>Room 307 A/B</b>	<b>Room 307 E/F</b>	<b>Room 307 C/D</b>	<b>Room 310 D/E</b>	<b>Room 310 B/C</b>	<b>Room 310 A</b>	<b>Room 310 F</b>	<b>ROOM H</b>
10:30-11:30	A1 - D30: The New Staten Island Ferries; I. Hilary Rolih, Allen Chin, Sean McDermott, Chi-Cheng Yang	B1 - D15: A Systematic Study of Wave Phasing on Righting Arm Curves for Fishing Vessels; John Womack, Bruce Johnson	C1 - D07: Development of Machinery Survey Requirements Based on Reliability-Centered Maintenance; Robert M. Conachey	D1 - D10: Principal Axes for Structural Fatigue; Bruce L. Hutchison, Benjamin B. Ackers, Timothy S. Leach	E1 - D45: Ship Transportation of LNG: Managing Risk in the New LNG Environment; Jan Vilhelm Koren, Jason Clifton-Samuel	F1 - P03: SPARS: Enabling the Shipbuilding Virtual Enterprise (Presentation Only); Richard Bolton; PO: Ken Clarke	G1 - P13: A Review of the Use of CGT for Shipbuilding Performance Measurement; G. Bruce; PO: Dave Wood	
11:30-12:30	A2 - D03: U.S. Coast Guard Great Lakes Icebreaker Replacement; Rubin Sheinberg, Christopher Cleary, Peter V. Minnick, Adam R. Asllev	B2 - D43: High Pressure Water Mist - The Modern Approach in Fire Fighting; Stefan Gordin	C2 - D31: The Development of Common Structural Rules for Tankers; Gary E. Horn	D2 - D04: Ultimate Limit State Design Technology for Aluminum Multi-Hull Ship Structures; Jeom Kee Paik, Owen F. Hughes, Paul E. Hess III, Celine Renaud	E2 - D42: Design for Safe and Efficient LNG Carriers; Henrik Andreasson, Magnus Källman, Hans Liljenberg, H Olofsson, Peter Tråardh and Erland	F2 - P15: 3D Simulation and Modeling Pier Operations (Presentation Only); S. Callahan, K. Clarke, B. Peterson, B. Wilson; PO: Ken Clarke	G2 - P26: Common Parts Catalog Development Plan for U.S. Shipbuilding Enterprise (Pres. Only); B. Espeseth; PO: Dave Wood	
12:30-2:00	Exhibit Hall Luncheon I							
2:00-3:00	A3 - D05: Disabled Ship Studies for the Polar Endeavour Class Tankers; Robert A. Levine, Ward Witherspoon, Peter Trågårdh	<b>T&amp;R</b>	C3 - D27: Investigation on Hull Deflection and Its Influence on Propulsion Shaft Alignment; Davor Sverko	D3 - D21: Non-Linear Corrosion Model for Immersed Steel Plates Accounting for Environmental Factors; A. Zayed, Y. Garbatov, C. Guedes Soares, G. Wang	E3 - D35: A Novel LNG Tank Containment Design for Large LNG Carriers; Peter G. Noble, Lars Ronning, John Paulling, Rong Zhao, Hoseong Lee	F3 - P17: Re-Use of Ship Product Model Data for Life-Cycle Support; Ted L. Briggs, Tom Rando, Thomas Daggett; PO: Burt Gischner	G3 - P01: Development of Advanced Collarless Construction Techniques (Pres. Only); Robert W. Erskine; PO: Dave Wood	
3:00-4:00	A4 - D20: Human Factors in Classification and Certification; James C. Card, Clifford C. Baker, Kevin P. McSweeney, Denise B. McCafferty	<b>T&amp;R</b>	C4 - D47: Dynamic Loading Approach for Structural Evaluation of Ultra Large Container Carriers; Bill Shi, Donald Liu, Christopher Wernicki	D4 - D23: Buckling and Ultimate Strength Assessment of FPSO Structures; Haihong Sun, Xiao zhi Wang	E4 - D32: Assessment of LNG Transport Chains Using Weather-Based Voyage Simulations; Rob Grin, Jaap de Wilde, Jos van Doorn	F4 - P21: Enhancing Interoperability Throughout the Design & Manufacturing Process; Dr. Burton Gischner, Pete Lazo, Kevin Richard, Ron Wood; PO: Ron Wood	G4 - P22: US Navy Power Transformer Sizing Requirements Using Probabilistic Analysis; D. Woodward, M. Robinson, S. Wallace, G. Engstrom; PO: Dave Wood	<b>Student Job Fair</b>
4:00-4:30	Refreshment Break in Exhibit Hall							
4:30-5:30	A5 - D18: The Impact of Regulations on West Coast Towing Vessel Safety; Robert G. Allan	<b>T&amp;R</b>		D5 - D54: Cooperative Teaching of Ocean Engineering Capstone Design Course by Industry and Academia; Robert E. Randall	E5 - D44: A Study on Hydrodynamics for a High Speed LNGC with High Block Coefficient; H. G. Park, K.J. Paik	F5 - P02: Low Heat Input Welding for Thin Steel Fabrication; R. Martukanitz, S.M. Kelly, P. Michaleris, M. Bugarewicz, T.D. Huang, L. Kvidahl; PO: Lee	G5 - P11: Design Guidelines For Doubler Plate Repairs of Ship Structures; P. Sensharma, M. Willis, A. Dinovitzer, N. Nappi, Jr.; PO: Dave Wood	
5:30-6:00	Free Time							
6:00-7:15	General Reception (In Hotel)							
7:15-10:00	Banquet (In Hotel), Including Presentation of Awards, Medals and 2006 Promotion							
	Exposition Is Open							

Schedule of Technical Sessions as of 26 August 2005

### Friday - October 21, 2005

7:00-8:30	Authors' Continental Breakfast and Meeting for Instructions, Moderator Introductions, and Photo Sessions (Room 309 B)							
8:30-9:30	Coffee and Snack Service (In Exposition Hall)							
	<b>Room 307 A/B</b>	<b>Room 307 E/F</b>	<b>Room 307 C/D</b>	<b>Room 310 D/E</b>	<b>Room 310 B/C</b>	<b>Room 310 A</b>	<b>Room 310 F</b>	<b>ROOM H</b>
9:30-10:30	A6 - D17: Manufacturing Tolerance Effects on Ship Rudder Force/Cavitation Performance; John P. Hackett, Clarence O.E. Burg, Wesley H. Brewer	B6 - D16: Improved Thermal Insulation Design Practices on Ships' Structural Boundaries; Gordon Hart, Pat Fulton, Gerald Cox	C6 - D55: Tender Assisted Drilling on Deepwater Floating Production Systems; Barbara A. Stone, Hans J. Treu, Pieter G. Wybro, Chunfa Wu	D6 - D26: US Navy High Speed Craft - Comparison of ABS and DNV Structural Requirements; Raymond H. Kramer	E6 - P32: Understanding Facility Layout with Simulation (Presentation Only); Daniel A. Finke, Robert Santos, Joseph Hadfield, Mark Traband, Christopher Ligetti; PO: Jack Shea	F6 - P30: Portable Automated Plate Straightener; Garth Turner, Jerry E. Jones, Valerie L. Rhoades, Timothy E. Clem, Pierre L. Sarnow, Stephen K. Madden, Adam Cuneo, Joseph McMahon; PO: Tonya Gournay	G6 - P27: Practical Welding Techniques to Minimize Distortion in Lightweight Ship Structures; C. Conrardy, T.D. Huang, D. Harwig, P. Dong, L. Kvidahl, N. Evans, A. Treaster; PO: Lee Kvidahl	
10:30-11:30	A7 - D28: Prediction of Performance and Design via Optimization of Ducted Propellers Subject to Non-axisymmetric Inflows; Spyros A. Kinnas, Hanseong Lee, Hua Gu, Yumin Den	B7 and B8: T&R Panel O-36: Economics of Jones Act Product Distribution; Moderator: T. Colton, Panel Chairperson: J. Zeien	C7 - D53: Deeper, faster, cheaper - addressing technical and economic issues for repeated deployment and retrieval of packages in Deepwater; D.J. Rainford, R.G. Standing, G.E. Jackson, R.O. Snell, T. M. Stock	D7 - D48: Operating Guidance for Membrane Type LNG Carrier In Partial Filling Condition; Mirela Zalar	E7 - P24: New Horizons for Shipbuilding Process Improvement; Bahadır Inozu, M.J. Niccolai, Cliff Whitcomb, Brian MacClaren, Ivan Radovic, David Bourg; PO: Jack Shea	F7 - P14: Laser Scanning Supporting Graving Dock Reconstruction; Greg Morea, Raj Thiagarajan; PO: Tonya Gournay	G7 - P23: Status of LPD-17 Titanium Piping Fabrication (Presentation Only); P. Hoyt; PO: Lee Kvidahl	<b>Student Congress and Presentation of Lisnyk, ISODC, and Student Paper Awards</b>
11:30-12:30	A8 - D11: Investigating the Steady and Unsteady Maneuvering Dynamics of an Azimuthing Podded Propulsor; Jeffrey W. Stettler, Franz S. Hover, Michael S. Triantafyllou		C8 - D51: Use of Field Monitored Data for Improvement of Existing and Future Offshore Facilities; Igor Prislín, David Rainford, Stephen Perryman, Roy Shilling	D8 - D40: Wet Drop Test for LNG Cargo Containment System; D.S. Kong.	E8 - P19: Virtual Reality Welder Training; Nancy Porter, Allan Cote, Timothy Gifford, Wim Lam; PO: Lee Kvidahl	F8 - P18: Control of Buckling Distortions in Lightweight Ship Structures (Presentation Only); Pingsha Dong, T.D. Huang, C. Conrardy, L. DeCan, L. Kvidahl; PO: Tonya Gournay	G8 - P06: A Contribution to CAE System Integration in Ship Design; Robert Bronsart, Ulf Cantow, Wiegand Grafe, Thomas Koch, Bryan J. Miller; PO: Burt Gischner	<b>Student Steering Committee Meeting</b>  (Box Lunch Provided)
12:30-1:30	Exhibit Hall Luncheon II							
1:30-2:30	Technical Program, Student Paper Presentations	Technical Program, Student Paper Presentations	C9 - D49: Temporary Production at Xijiang Field with a DP FPSO; Hielke Brugs, Mireille Soeters, Max H. Krekel	D9 - D41: Experimental Approaches for Determining Sloshing Loads in LNG Tanks; Olav F. Rognebakke, Jan Roger Hoff, Joachim M. Allers, Kjetil Berget, Bjørn Ola Berg	E9 - D09: Evaluations of a Ballast Water Treatment to Stop Invasive Species and Tank Corrosion; Mario N. Tamburri, Gregory M. Ruiz	F9 - P29: Accuracy and Distortion Control Challenges in Lightweight Structural Unit Assembly at NGSS; Mark Spicknall, T.D. Huang, E. Hodges; PO: Tonya Gournay	G9 - P34: CAD-PLAN-Connector: Automating Engineering Planning; Pat Cahill; PO: Burt Gischner	
2:30-3:30	Technical Program, Student Paper Presentations	Technical Program, Student Paper Presentations	C10 - D52: Numerical Simulations of Riser Vortex-Induced Vibrations; Juan P. Pontaza, Hamn-Ching Chen, Chia-Rong Chen	D10 - D39: Dual-fuel-electric LNG carriers; Barend Thijssen	E10 - D25: Rebuilding of a Large Single Hull Tank Barge into Double Hull; Michael R. Kloesel, Robert J. Norton, Thomas R. Hagner Jr.	F10 - P10: Electrolytic System for Treatment of Ballast Water; Rudolf Matousek, David W. Hill, Russell P. Herwig, Bryan Nielsen, Jeffery Cordell, Nissa Fern, David Lawrence, Jake Perrins; PO: Wayne Holt	G10 - P31: Leading a Sea Change in Naval Ship Design: Toward Collaborative Product Development; Robert G. Keane, Jr., Howard Fireman, Dan Billingsley; PO: Jack Shea	
3:30-4:30	Technical Program, Student Paper Presentations	Technical Program, Student Paper Presentations	C11 - D33: New Promising Generation of Twin-Gondola LNG Carriers Optimized with the Aid of CFD Calculations; Henk H. Valkhof, Eduardo Minguito and Klaas Kooiker	D11 - D01: Seaway Load Prediction Algorithms for High Speed Hull Forms; Jerome P. Sikora, Nathan B. Klontz	E11 - D46: Hydrocarbon Emission Containment in Tankers During Loading and Unloading; M. Husain, D. Altshuler, E. Shtepani	F11 - P33: Evolution & Economics of Rapid Cure & Single Coat Tank Linings (Presentation Only); Mark Schultz; PO: Mark Panosky		
4:30-10:30	Alumni Events (At Hotel and Offsite) per Alumni Association Schedules							

Exposition Is Open

## Scorpion Offshore Orders Two Rigs

Scorpion Drilling Ltd. has exercised its option to order two additional LeTourneau Super 116 jackups to be built at Keppel AmFELS in Brownsville, Texas.

The contract price for the two rigs, excluding Owner Furnished Equipment, is approximately \$180 million.

The new units represent the third and fourth jackup rigs in Scorpion's fleet. The first two rigs, which were secured in July 2005, are currently being constructed by Keppel AmFELS. All four units are ultra-premium class jackups suited for both international operations as well as deep gas drilling in the Gulf of Mexico.

Scorpion also holds one option for Keppel AmFELS to build another comparable rig. This option will expire at end November 2005.

## Adax Group Acquires Norac AS

Norac AS, a leading manufacturer of marine accommodation systems, was acquired by ADAX Industrier.

"Norac's strong brand and international experience fits well with our strategic plans for development and global expansion," said ADAX's **Lars G. Otterlei**. "Together with Norac, the Adax Group will have 700 employees, 500 of which are outside Norway."

## Crowley Honored for Ops

A division of Crowley Maritime Corp. received the Department of Ecology's (Ecology) highest award today for excellence in tank-vessel marine safety and environmental stewardship.

The Exceptional Compliance Program (ECOPRO) Award recognizes Crowley's Marine Transport Corp. subsidiary for its fleet of four articulated tug barges (ATBs). A specially equipped tug locks into a notch in the double-hulled barge's stern to create a single, hinged vessel. The set-up reduces the chances of the barge breaking loose and spilling oil, and provides a higher overall level of safety, reliability and efficiency.

The voluntary spill-prevention program for tanker and tank-barge fleets requires member companies to meet 26 marine safety standards, among the world's most stringent. The standards include operating procedures, personnel policies, management programs and marine safety technology.

## ConocoPhillips Makes Discovery Off Australia

ConocoPhillips announced a discovery in the Caldita No. 1 exploration well in the NT/P 61 license located offshore Northern Territory Australia. The well spudded on July 7, 2005, and encountered a significant hydrocarbon column in a high-quality reservoir interval. A drill stem test was conducted that flowed gas at a rate of approximately 33 million standard cubic feet per day on a one-inch choke.

The well reached a total depth of 4,037 meters and will be plugged and abandoned as programmed. Technical evaluation to assess the further appraisal and development of the Caldita discovery is in progress. NT/P 61 is located in the Timor Sea approximately 265 kilometers north northwest of Darwin. The Caldita No. 1 well was drilled in 137 meters of water. The NT/P 61 license is jointly held by an affiliate of ConocoPhillips (operator, 60 percent) and Santos Offshore Pty. Ltd. (40 percent).



The Maritime Reporter and Engineering News and MarineNews are compiling a directory of marine companies able to serve in those areas of Louisiana, Mississippi and Alabama affected by hurricane Katrina. Private and government agencies are desperately seeking equipment, product, and service providers to participate in the reconstruction efforts

This directory will be distributed in the November issues of both **Maritime Reporter and Engineering News** and **MarineNews**, as a tool to connect relief agencies with maritime businesses and resources throughout the country. In addition to our usual 57,000 plus circulation, (BPA Dec.2004) special distribution is being arranged to thousands of individuals in federal, state, and local government agencies such as the Coast Guard and the Army Corps of Engineers, as well as those private organizations tasked with procurement and management of the recovery efforts. The Gulf Maritime Resource Guide will also be made available as an online directory.

This service is part of a larger concentrated relief effort that our corporation has launched to fill the overwhelming demand for information and assistance needed by our maritime partners in the Gulf States.

If your company can provide products or services to this area (for fee or for free) and would like to be in the guide, go to:

<http://www.marinelink.com/weblisting/2005/directory/add2dirSP.asp?Issueld=54>

**PLEASE REMEMBER, THIS LISTING IS FREE OF CHARGE**

**Special Note- For businesses located in the Gulf region:**

- **If your company is able to continue providing services**, please take a minute to confirm your listing, or to send us your new or temporary contact information so that we may include it in both our print and online directories.
- **If you have had to temporarily suspend operations**, please let us know the approximate date you expect to be back in business, (and any arrangements you might have made in the interim,) so that your customers will know how and when to contact you.
- **If you do not expect to return to the area**, please respond so that we can note your status in the directory and prevent redundant requests that would delay the recovery efforts.

Your help in this matter will not only benefit your company, but is invaluable to everyone involved in rebuilding the Gulf Coast maritime industry.

Thank you for your time and participation.

### To aid relief efforts

on the Gulf Coast, we have committed 10% of all net advertising proceeds on advertisements appearing in the guide in response to this offering. Please indicate code r914 on all correspondence.



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# After the Storm(s)

## Gulf of Mexico Regroups After Pounding by Hurricanes Katrina and Rita



Katrina's horrific surge lifted this drydock and carried it off, under the "twin bridges" of New Orleans (fortunately, without hitting), depositing it nearly two miles away, on the bank of Gretna - with the Rhea Bouchard still upright in it. (Photo: Don Sutherland.)

A double punch of Hurricane Katrina and Rita devastated the Gulf of Mexico marine and offshore businesses last month, with damage of varying degrees reaching from Alabama to Texas. Though the first and worst of the two storms, Hurricane Katrina, rampaged ashore in late August, one month later and damage — to individual businesses and the valuable offshore platforms and rigs — is still being assessed. The November 2005 edition of *Maritime Reporter & Engineering News*, as well as sister publications *Marine Technology Reporter* and *MarineNews*, will feature detailed coverage of the lives and businesses destroyed, as well as a plan of action regarding the recovery, which is sure to take many years. Don Sutherland, a regular contributor in the pages of

*MarineNews*, has been traversing the Gulf for nearly a month to document with photos and words the scope of the devastation, and his full report will be featured in November. A sampling of the images are found on this page. In addition, *Maritime Reporter* and *MarineNews* will publish the Gulf Maritime Resources Guide, a compilation of product and service providers that will be used by government and business to help start the long road to recovery. Listing in this directory is free, and companies can register for their listing at <http://www.marinelink.com/weblisting/2005/directory/add2dirSP.asp?IssueId=54>.

For daily bulletins and updates, log onto [www.marinelink.com](http://www.marinelink.com), or sign up for daily e-mail news bulletins at [www.maritimetoday.com](http://www.maritimetoday.com).

### Evacuation and Production Shut-in Statistics Report

as of Thursday, September 29, 2005

Platforms Evacuated	491
Rigs Evacuated	36
Oil, BOPD Shut-in	1,478,780
Gas, MMCF/D Shut-In	7,979.72

Source: Minerals Management Service ([www.mms.gov](http://www.mms.gov))



Some boats in southern Louisiana rode-out the storm just fine. Others, with the inexplicable randomness of Nature's handiwork, were tossed and tumbled and hurtled alongside. Some 80% of the boats of Plaquemines Parish were destroyed, according to Parish President **Benny Rousselle**. (Photo: Don Sutherland.)



One of the things Katrina taught the nation was our dependency on gulf petroleum. Are we any less dependant on our gulf fishermen? Unlike the oil companies, they can't just raise a few billion for repairs. (Photo: Don Sutherland.)



**Charles Bondi**, Chief of the Port Sulphur Volunteer Fire Department, speaks with friends who came to look at their boat, in front of a pile of wreckage well inland near Empire, LA. (Photo: Don Sutherland.)

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Thermax, 3115 Range Rd, Temple, TX 76501

## CAD/CAM SYSTEMS

**Autoshop Systems Corp., 611 Alexander Street, Suite 312, Vancouver, BC V6A 1E1, Canada, 604-254-4171, 604-254-5171, sales@autoshop.com, Contact: Ross Muirhead, www.autoshop.com**

Cadmatic , Ostra Strangatan 72 (Vita Huset), FI-20810 Turku, Finland

Creative Systems Inc., P.O. Box 1910, Port Townsend, WA 98368

## CAPSTANS

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

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## CONSULTANTS

Captain R.J. Underhill & Associates, P.O. Box 1030, Groves, TX 77619

Elliot Bay Design Group, 5301 Shishole Ave. NW, Ste. 200, Seattle, WA 98107

Hornblower Marine Services, P.O. Box 112476, Campbell, CA 95011-2476

## CONTROL SYSTEM-MONITORING/STEERING

Amot Controls, 8640 N. Eldridge Parkway, Houston, TX 77041  
Electronic Marine Systems, 800 Ferndale Pl., Rahway, NJ 07065  
Electrowave U.S.A., 6125 W. Sam Houston Pkwy., Ste 406, Houston, TX 77041

G.R. Bowler, 2261 Lake Rd., Ontario, NY 14519  
Kobelt Manufacturing Co., Ltd., 8238-129 Street, Surrey, BC V3W0A6, Canada

**L-3/TANO-EDI, 759 Hill Street, New Orleans, LA 70121, 504-831-9800, 504-833-4119, guy.hardwick@l-3com.com**

MMC International, 60 Inip Dr, Inwood, NY 11096  
Prime Mover Controls, 3600 Gilmore Way, Burnaby, BC V5G 4R8, Canada

Totem Plus Ltd, P.O. Box 164 , Herzliya 46100, Israel

## CORROSION CONTROL

Apex Engineering Products, 1241 Shoreline Dr., Aurora, IL 60504  
**Furuno USA Inc., 4400 NW Pacific Rim Blvd, Camas, WA 98607**

**Ultra Strip, 3515 SE Lionel Terrace , Stuart, FL 34996**

## COUPLERS- TUQ & BARGE

Intercontinental Engineering , PO Box 9055 , Kansas City, MO 64168

## COUPLINGS

American Vulkan, 2525 Dundee Rd, Winter Haven, FL 33884  
Centa Corp., 815 Black Hawk Drive, Westmont, IL 60559, 630-734-9600, 630-734-9669,

**bobl@centacorp.com**

Mapeco Products, 91 Willenbrock Rd., Unit B, Oxford, CT 06478  
MMC International, 60 Inip Dr, Inwood, NY 11096

**CRANE - HOIST - DERRICK - WHIRLEYS**  
Davit Sales, PO Box 232, Jefferson Valley, NY 10536

DMW Marine, LLC, 1123 Street Matthews Road, Chester Springs, PA 19425

E. Crane, 241 Executive Dr., #3, Marion, OH 43302

## CRANE TESTING

Imes Inc., 5139 Brook Street Suite E, Mont Claire, CA

## CRANKSHAFT REPAIR

In-Place Machining, 3811 N. Holton St., Milwaukee, WI 53212  
Walz & Krezner, 91 Willenbrock Rd., Oxford, CT 06478

## CUTTING & WELDING MACHINES

Bug-O-Systems, 3001 W. Carson St., Pittsburgh, PA 15204  
ESAB Cutting Systems, 411 South Ebenezer Road, Florence, SC 29501

**DECK MACHINERY- CARGO HANDLING EQUIPMENT**  
Allied Shipbuilders Ltd., 1870 Harbour Road, Vancouver V7H 1A1, Canada

Burrard Iron Works Ltd., 220 Alexander Street, Vancouver, BC V6A 1C1, Canada, 604-684-2491, 604-684-0458, sales@burrardironworks.com

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

Davit Sales, PO Box 232, Jefferson Valley, NY 10536

DMW Marine, LLC, 1123 Street Matthews Road, Chester Springs, PA 19425

Global Incorporated, P.O. Box 24, 160 Cannery Road, Somerset, PA, PA 15501

Intercontinental Engineering , PO Box 9055 , Kansas City, MO 64168

Markey Machinery, P.O. Box 24788, Seattle, WA 98124

Nabrico Marine Products, 1050 Trinity Road, Ashland City, TN 37016

Norwegian Maritime Equipment AS, BOX 244, NO-5480 HUSNES, Norway

**Rapp Hydema, 4433 27th Ave. West, Seattle, WA 98199, (206) 286-8162, (206) 286-3084,**

**scotta@rappus.com**

Skookum , P.O. Box 280, Hubbard, OR 97032  
Smith Berger Marine, 7915 10th Ave. S., Seattle, WA 98108

Superior Lidgerwood Mundy, 1101 John Ave., Superior , WI 54880  
W.W. Patterson, Inc, 3 Riversea Rd, Pittsburgh, PA 15223

## DESALINATION - REVERSE OSMOSIS

Reverse Osmosis of S.F., Inc., 150 SE 29th Street, Ft. Lauderdale, FL 33316

Reverse Osmosis of South Florida, Inc., 150 S.E. 29th St., Fort Lauderdale, FL 33316

**DESIGN PUBLICATIONS**  
SNAME, 601 Pavonia Ave, Jersey City, NJ 07306

## DIESEL CYLINDER INDICATORS

Kiene Diesel, 325 S. Fairbanks St., Addison, IL 60101

## DIESEL ENGINE OVERHAUL

**Detroit Diesel Corporation, 13400 Outer Drive West, Detroit, MI 48329-4001**

Motor-Services Hugo Stamp, 3101 S.W. 3rd Ave., Ft. Lauderdale, FL 33315

**DIESEL ENGINE- SPARE PARTS & REPAIR**  
Caterpillar, Inc., P.O. Box 610, Mossville, IL 61552-0610

Chris Marine AB, Box 9025, 200 39 Malmo, Sweden  
Cummins Marine, 4500 Leeds Ave., Ste 301, Charleston, SC 29405

Man B&W Diesel, 17 State St., NY, NY 10004  
Man B&W Diesel A/S, Telgholmsgade 41, Copenhagen SV DK-2450, Denmark

Man B&W Diesel AG, Stadtbachstrasse 1, Augsburg D-86153, Germany  
Marine Exhaust Systems of Alabama, P.O. Box 698, 757 Nichols Ave., Fairhope, AL 36533

Marine Turbo & Diesel Inc., 1090 7th St., Richmond, CA 94801  
Mariso USA, Inc., 100 Davidson Ave., Somerset, NJ 08873

Motor-Services AB, Box 2115 , Ronninge S- 144 04, Sweden  
Motor-Services Hugo Stamp, 3101 S.W. 3rd Ave., Ft. Lauderdale, FL 33315

Scardana Americas Bkg., 502 Empire St. , Greenfield Park J4V 1V7, Canada  
Wartsila Diesel, 201 Defense Hwy, Annapolis, MD 21401

**DIESEL FUEL DECONTAMINATION**  
Algae X International, P.O. Box 4011, Fort Myers Beach, FL 33992

**DIESEL FUEL INJECTORS**  
Interstate Diesel, 4901 Lakeside Avenue, Cleveland, OH 44114-3996, 800-321-4234, 216-881-0805

**DIGITAL TORQUE METER SYSTEMS**  
Instruments, Computers & Controls, 78 Londonderry Tpke, Hookset, NH 03106

**DISPLAY TECHNOLOGY**  
Barco Simulation, 600 Bellbrook Avenue, Xenia, OH 45385

**DOOR LOCKS**  
The Brass Works Inc., P.O. BOX 566, DeLand, FL 32721, 386-943-8857, 386-943-8810,

**info@marinedoorandcabinethardware.com**

**DOORS- MARINE & INDUSTRIAL**  
Joiner Systems, 1925 52nd Avenue, Lacine, Quebec H8T 3C3, Canada

Juniper International, 72-15 Metropolitan Ave., Middle Village, NY 11379  
Manly Marine, P.O. Box 86788, N. Vancouver, BC V7L 4L3, Canada

Mapeco Products, 91 Willenbrock Rd., Unit B, Oxford, CT 06478  
Walz & Krezner, 91 Willenbrock Rd., Oxford, CT 06478

**DRAFT INDICATORS**  
**King Engineering, PO BOX 1228, Ann Arbor, MI 48108-1625, 734-662-5691, 734-662-6652,**

**marine@king-gage.com, Contact: Mike Welch, www.king-gage.com**

**DRILLS**  
Anchor Lamina, 38565 Country Club Drive, Farmington Hills, MI 48331

**DRIVES**  
Allied Systems, 2300 Oregon St., Sherwood, OR

**DRIVESHAPTS**  
The Cline Company, 600 Buncombe St., Greenville, SC 29602

**DRUG TEST KITS**  
Sun State Specialty K-9s, 1500 Beville Road, Daytona Beach, FL 32114

**EDUCATION**  
DM Consulting, 12316 Dormouse Road, San Diego, CA 92129, 858-705-0780, 858-538-5372,

**gstiglich@aol.com**

Massachusetts Maritime Academy, 101 Academy Drive, Buzzards Bay, MA 02532

**ELECTRIC MOTORS**  
Ward Leonard, 401 Watertown Rd, Thomaston, CT 06767

**ELECTRICAL EQUIPMENT**  
MMC International, 60 Inip Dr, Inwood, NY 11096  
QCI Marine Offshore, 6754 Willowbrook Park Dr, Houston, TX 77066

**ELECTRONIC CHARTS**  
C- Map Commercial, 133 Falmouth Rd, Mashpee, MA 02649

**EMPLOYMENT**  
All American Marine, P.O. Box 191237, Tillman's Corner, AL 33619

**ENGINE ROOM LIGHTING/ MONITORING & CONTROL**  
GMT Electronics, 171 Main St., South River, NJ 08882

**ENGINEERING PUBLICATIONS**  
SNAME, 601 Pavonia Ave, Jersey City, NJ 07306

**ENGINES**  
Dynamold, Inc., 2905 Shamrock Ave., Fort Worth, TX 76107

Markisches Werk Halver GmbH, Box 1355, Halver D-58543, Germany

## EVAPORATORS

Alfa -Laval Separation, Inc., 955 Meams Rd., Warminster, PA 18974

Sasakura Engineering , 7-32 Takeshima, 4-Chome, Nishiyodogawa KY Osaka555, Japan

## EXHAUST

Applegate Industrial Materials, P.O. BOX 428, Baton Rouge, LA 70821-0428

Marine Exhaust Systems of Alabama, P.O. Box 698, 757 Nichols Ave., Fairhope, AL 36533

## EXPANSION JOINTS

Applegate Industrial Materials,

## HOISTS

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

## HORNS/WHISTLES

Airchime Manufacturing Co., 5478 267th St., Gloucester Industrial Estate., Langley, BC V4W 3S8, Canada  
Kahlenberg Brothers Co., P.O. Box 358, Two Rivers, WI 54241

## HOSES/HOSE FITTINGS

JGB Enterprises, Inc., 115 Metropolitan Dr., Liverpool, NY 13088

## HVAC

Jamesstown Metal Marine Sales, Inc. 4710 Northwest 2nd. Ave., Boca Raton, FL 33431  
QCI Marine, 6754 Willowbrook Park Drive, Houston, TX 77066

## HYDRAULIC SYSTEMS

Anchor Lamina, 38565 Country Club Drive, Farmington Hills, MI 48331

## IMAGING EQUIPMENT

EMX, Inc., 4200 Dow Road, Suite C, Melbourne, FL 32934

## INFRARED IMAGING EQUIPMENT

Fliir Systems, 16505 SW 72ND AVE, Portland, OR 97224

## INSPECTION EQUIPMENT

Staveley Instrument, 421 N. Quay St., Kennewick, WA 99336

## INSULATION

Superior Energies Inc., 3115 Main Ave., Groves, TX 77619

## INSURANCE SERVICES

WQIS, 80 Broad St., 21st Floor, New York, NY 10004

## INTERIORS

Jamesstown Metal Marine Sales, Inc., 4710 Northwest 2nd Ave., Boca Raton, FL 33431  
Lit Industries, 516 Costner School Rd., Bessemer City, NC 28016-9801

**QCI Marine Offshore, 6754 Willowbrook Park Dr, Houston, TX 77066, 281 885 1300, 281 885 1349, Lbobbitt@qcinmarine.com, Contact: Larry Bobbit, www.qcinmarine.com**

## JOINER PANELS/FURNITURE

**Thermax Marine-Panel Specialists, Inc., 3115 Range Rd., Temple, TX 76501, 254-774-9800, 254-774-7222, thermax@panelspec.com, Contact: John Hutchinson, www.thermaxmarine.com**

## JOINER- WATERTIGHT DOOR-PANELING-CEILING SYSTEM

Joiner Systems, 1925 52nd Avenue, Lacine, Quebec H8T 3C3, Canada  
Walz & Krezner, 91 Willenbrock Rd., Oxford, CT 06478

## K-9 DETECTION

Sun State Specialty K-9s, 1500 Beville Road, Daytona Beach, FL 32114

## KEEL COOLERS

**Duramax Marine LLC, 17990 Great Lakes Parkway, Hiram, OH 44234, 440-834-5400, 440-834-4950, Contact: Richard Spangler**

**RW Fernstrum, 1716 11th Avenue, Menominee, MI 49858, 9068635553, 9068635634, seanf@fernstrum.com, Contact: Sean Fernstrum, www.fernstrum.com**

## LASER ALIGNMENT

Ludeca, Inc., 1425 NW 88th Ave, Miami, FL 33172

## LEAK REPAIR

Indumar Products Inc., 2500 Tanglewilde, Suite 260, Houston, TX 77063

## LIFEBOAT TESTING

Imes Inc., 5139 Brook Street Suite E, Mont Claire, CA  
Water Weights, Inc., 5139 Brook St., Ste E, Mont Clare, CA 91763

## LIFEBOATS/RAFTS

DBC Marine Safety Systems, 101-3760 Jacombs Rd., Richmond, BC V6V 6T3, Canada  
Viking Life Saving Equipment, 1400 NW159th Street Suite 101, Miami, FL 33169  
Willard Marine Inc., 1250 N. Grove St., Anaheim, CA 92806  
Wolong International, 151 Chin Swee Road #03-14, Manhattan House, 169876, Singapore

## LIFESAVING EQUIPMENT

C.M. Hammar AB, August Barks Gatlan 15, 421 32 Vastra Frolunda, Sweden  
Stearns Manufacturing Comapny, P.O. Box 1498, St. Cloud, MN  
Viking Life Saving Equipment, 1400 NW159th Street Suite 101, Miami, FL 33169

## LIFT EQUIPMENT TESTING

Water Weights, Inc., 5139 Brook St., Ste E, Mont Claire, CA 91763

## LIGHTING SYSTEMS/ EQUIPMENT

ACR Electronics Inc., 5757 Ravenswood Rd., Ft. Lauderdale , FL 33310-5247  
L.C. Doane, P.O. Box 975, Essex, CT 06426

**Maritime Associates, P.O. BOX 1788, Crystal Bay, NV 89402, 775-832-2422, 775-832-2424, maritimeas@charter.net**

## LINE & NET CUTTERS

Spurs Marine, 201 S.W. 33rd St., Ft. Lauderdale, FL 33315

## LUBRICANTS/LUBRICATION SYSTEMS

Benjamin R. Vickers & Sons Ltd., Airedale Mills, 6 Clarence Road, Leeds, W. Yorkshire LS10 1ND, UK

## MACHINERY MAINTENANCE, REPAIR & TESTING

Mackay Communications, 2721 Discovery Dr., Raleigh, NC 27616-1851

## MANEUVERING EQUIPMENT

Schottel GMBH & Co. KG, Mainzer Str 99 , D-56322-Spay/Rhine, Germany

## MARINE DECKING & FLOORING

Lonseal Flooring, 928 East 238th Street, Carson, CA 90745

## MARINE ELECTRONICS

ACR Electronics Inc., 5757 Ravenswood Rd., Ft. Lauderdale , FL 33310-5247  
GMT Electronics, 171 Main St., South River, NJ 08882  
Hatteland Display, Bogstadveien, 19., N-0355 Oslo, Norway  
Jotron Electronics, Box 85., NO-3280T Jodalving Norge, Norway  
Marine Electronic Solutions, 1522 Crabapple Cove, Jacksonville, FL 32225

Reson Inc., 100 Lopez Road, Goleta, CA 93117  
Saab Marine Electronics, Box 13045, 402 5Goteborg, Sweden

## MARINE ENGINE EMISSIONS MONITORING

Martek Marine Ltd., Century Business Park Manvers Way, Rotherham, South Yorkshire S60 5DA, UK

## MARINE ENGINEERING

Elliot Bay Design Group, 5301 Shishole Ave. NW, Ste. 200, Seattle, WA 98107

## MARINE EQUIPMENT

Scardana Americas Bkg., 502 Empire St., Greenfield Park J4V 1V7, Canada

**Tidewater Skanska, Inc., PO Box 57, Norfolk, VA 23501, 757-547-2153, 757-547-4806, sby@tidewaterskanska.com**

Waterman Supply, P.O. Box 596, Wilmington, CA 90748

## MARINE FURNITURE

Deansteel Mfg., 111 Merchant St., San Antonio, TX 78204

## MARINE HARDWARE

HMS Marine Hardware, 333 W. Merrick Road, Valley Stream, NY 11580-5219

## MARINE MANAGEMENT

Hornblower Marine Services, P.O. Box 112476, Campbell, CA 95011-2476

## MARINE POWER PLANT SYSTEMS

Auramarine Ltd., Box 849, FI-20101 Turku, Finland

## MARITIME TRAINING & SCHOOLS

Marine Safety International, Marine Terminal , Laguardia Airport, NY 11371

## MONITORING SYSTEMS

Governor Control Systems, 3101 SW 3rd Avenue, Ft. Lauderdale, FL 33315

Mackay Communications, 2721 Discovery Dr., Raleigh, NC 27616-1851

Michael J. Erland, 7001 Flewlynn Rd, Ottawa, Ontario K2S 1B6, Canada

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

Reson Inc., 100 Lopez Road, Goleta, CA 93117

## MOORAGE FACILITY

Sea Ark Marine, P.O. Box 210, Monticello, AR 71655-0210

## MOTOR PROTECTION

Marine Safe Electronics, 261 Milway Ave. #12, Concord, Ontario L4K 4K9, Canada

## NAMEPLATES AND PLACARDS

Horizons ISG, 18531 South Miles Road, Cleveland, OH

## NAV/COMM EQUIPMENT

C- Map Commercial, 133 Falmouth Rd, Mashpee, MA 02649  
Chartco, New North Road, Hainault, Ilford Essex 166 2UR, UK  
Electronic Marine Systems, 800 Ferndale Pl., Rahway, NJ 07065

**Furuno USA Inc., 4400 NW Pacific Rim Blvd, Camas, WA 98607**  
Mackay Communications, 2721 Discovery Dr., Raleigh, NC 27616-1851

## NAVAL ARCHITECTS, MARINE ENGINEERS

A.K. Suda, Inc., 3004 19th St., Metairie, LA 70002-4989  
Aker Marine, 1818 CORNWALL AVE, VANCOUVER, BC V6J 1C7, Canada  
Band, Lavis, & Associates, Inc., 900 Ritchie Hwy, Suite 203, Severna park, MD 21146

Bay Engineering, 25C N. First Ave., Sturgeon Bay, WI 54235  
BMT Fleet Technology, 311 Legget Dr, Kanata, ON K2K 1ZB, Canada  
Bristol Harbor Group, Inc., 103 Poppasquash Rd., Bristol, RI 02809  
C. Baxter & Associates, P.O. Box 9006, Mobile, AL 36609  
CDI Marine Co., 9550 Regency Square Blvd, Ste 400, Jacksonville , FL 32222

Computer Sciences Corporation-Advance Marine Center, 1201 M St. SE., Washington, DC 20003  
Elliot Bay Design Group, 5301 Shishole Ave. NW, Ste. 200, Seattle, WA 98107  
Jamesstown Marine Services, Inc., 1084 Shennecossett Road, Groton, CT 06340

**JMS Naval Architects & Salvage Engineers, 1084 Shennecossett Rd., Groton, CT 06340, 860-448-4850, 860-448-4857, jms@jmsnet.com, Contact: Blake Powell, VP, www.jmsnet.com**  
John J. McMullen Associates, 4300 King St., Suite 400, Alexander, VA 22302  
John W. Gilbert Associates, 75 Terry Drive, Suite 200, Hingham, MA 02043

Kvaerner Masa Marine Inc., 201 Defense Highway, Ste 202, Annapolis, MD 21401  
MCA Engineers, Inc., 2960 Airway Ave., #A-103, Costa Mesa, CA 92626  
MIL Systems, 200-1150 Morrison Drive, Ottawa, Ontario K2H 8S9, Canada  
Nautical Designs, Inc., 2101 S. Andrews Ave., Ste 202, Fort Lauderdale, FL 33316

Robert Allan Ltd., 1639 W. 2nd Avenue Ste 230, Vancouver, BC, Canada  
The Glosten Associates Inc., 600 Mutual Life Bldg., 605 First Ave., Seattle, WA 98104  
Vizag marine Consultants, 8913 Riverview Park Drive, Raleigh, NC 27613

VUYK Engineering, P.O. Box 204., 9700 AE Groningen, Netherlands  
Washburn Doughty, P.O. Box 296, E. Boothbay, ME 04544

## NAVIGATION

AG Marine Inc., 5711 34th Avenue, Gig Harbor, WA 98335-8548  
ComNav Marine Ltd., 13511 Crestwood Pl., Ste 15 15, Richmond, BC V6V 2G1, Canada  
D & B Technologies, 1458 OCEAN SHORE BLVD #132, ORMOND BEACH, FL 32176-3613

Nauticast AG, Mariahilfer Strasse 50/211, A-1070 Vienna, Austria  
AG Marine Inc., 5711 34th Avenue, Gig Harbor, WA 98335-8548  
ComNav Marine Ltd., 13511 Crestwood Pl., Ste 15 15, Richmond, BC V6V 2G1, Canada  
D & B Technologies, 1458 OCEAN SHORE BLVD #132, ORMOND BEACH, FL 32176-3613  
Nauticast AG, Mariahilfer Strasse 50/211, A-1070 Vienna, Austria

## OIL SPILL RESPONSE

Donjon Marine, 1250 Liberty Avenue, Hillside, NJ 07205

## OIL/WATER SEPARATORS

Alfa -Laval Separation, Inc., 955 Mearns Rd., Warminster, PA 18974

MMC International, 60 Inip Dr, Inwood, NY 11096

## PAINT APPLICATOR

Mr.Longarm, Inc., P.O.BOX 377, Greenwood, MO 64034-0377

## PARTS LOCATOR SERVICE

**Inventory Locator Service, 8001 Centerview Parkway Suite 400, Memphis, TN 38018, 901-794-5000, 901-794-1760, ppugh@ilsmart.com**

## PIPE FITTINGS/CUTTINGS/CONNECTING/ SYSTEMS

Jesse Engineering, 5225 7th St., E. Tacoma, WA 98424, 253-922-7433, 253-922-2536, tmorgan@jesse-wallace.com

RAMCO Manufacturing Co., 365 Carnegie Ave., Kenilworth, NJ 07033

## PIPE LEAK REPAIR

**CSD North America, 880 Candia Rd., Unit 10, Manchester, NH 03109**

## PNEUMATIC LINE THROWERS

Restech Norway A/S, Box 624, NO-8001 BODO, Norway

## PORT DEVELOPMENT

Sasakura Engineering , 7-32 Takeshima, 4-Chome, Nishiyodogawa KY Osaka555, Japan

## PORTABLE FOAM APPLICATORS

IMSSCO Corporation, 2040 Harbor Island Drive, Ste. 201 A, San Diego, CA 92101

## PORTABLE VENTILATORS

Americ Corp, 785 Bonnie Lane, Elk Grove Village, IL 60007

## PREVENTATIVE MAINTENANCE

Marine Safe Electronics, 261 Milway Ave. #12, Concord, Ontario L4K 4K9, Canada

## PULSION EQUIPMENT

ABB Turbocharger, Inc., 1460 Livingston Ave., North Brunswick, NJ 08902

Alstom Power Conversion, 3 Ave. Des Trois Chenes, 90018 Belfort Cedex, France

Brunvoll A/S, P.O. Box 370, N-6401 Molde, Norway  
Caterpillar, Inc., P.O. Box 610, Mossville, IL 61552-0610  
Cummins Marine, 4500 Leeds Ave., Ste 301, Charleston, SC 29405

CWF Hamilton Co., P.O. Box 709, Christchurch, New Zealand  
Fincanteri, Diesel Engine Div., GMT, Bagnoli della, Rosandra 3334 Trieste, Italy

Harbormaster Marine, Inc., 31777 Industrial Rd., Livonia, MI 48150  
**Karl Senner Inc., 25 W Third, Kenner, LA 70062**

Kawasaki Heavy Indust., World Trade Center Bldg., 4-1 Hamamastu-cho, 2-chome, Minato-ku Tokyo 105-6116, Japan  
L.A.M.E Srl, Marine Division, Via della Fornace 4, Opera (MI), Italy

Man B&W Diesel, 17 State St., NY, NY 10004  
Man B&W Diesel A/S, Telgtholmsgade 41, Copenhagen SV DK-2450, Denmark

Man B&W Diesel AG, Stadtbachstrasse 1, Augsburg D-86153, Germany  
Mapeco Products, 91 Willenbrock Rd., Unit B, Oxford, CT 06478  
Markisches Werk Halver GmbH, Box 1355, Halver D-58543, Germany

Napier Turbochargers, P.O. Box 1, Waterside , South Lincoln LN5 7FD, UK  
Nya Berg Propulsion AB, Box 1005, 430 90 Ockero, Sweden

Philadelphia Resins, P.O. Box 309, Montgomeryville, PA 18936  
Rolls-Royce Commercial Marine, 10255 Richmond Ave., Ste 101, Houston, TX 77042

Schottel GMBH & Co. KG, Mainzer Str 99 , D-56322-Spay/Rhine, Germany  
Ultra Dynamics Marine, LLC. (UltraJet), 1110A Claycraft Road, Columbus, OH 43230

Voith Schiffstechnik GMBH & Co., P.O. Box 2011, 89510 Heidenheim, Germany  
Wartsila Corporation, Box 244, FI-65101 Vasa, Finland  
Wartsila Lips, 3617 Koppens Way, Chesapeake, VA 23323

ZF Marine Group , Eherst. 50, 88046 Friedrichshafen, Germany

## PROPULSION MONITORING

Azonix-Dynaclot, 3690 NW 53rd St., Ft. Lauderdale, FL 33309

## PUMP-REPAIR-DRIVES

Scardana Americas Bkg., 502 Empire St., Greenfield Park J4V 1V7, Canada

Wooster Hydrostatics, 4570 West Old Lincoln Way, Wooster, OH 44691

## PUMPS

Mack Boring & Parts Company, 2365 Rout 22, Union, NJ 07083

## RADARS-ARPAS

**Furuno USA Inc., 4400 NW Pacific Rim Blvd, Camas, WA 98607**

## REFUELING EQUIPMENT

Global Incorporated, P.O. Box 24, 160 Cannery Road, Somerset, PA, PA 15501

## REMANUFACTURED PUMPS & MOTORS

Wooster Hydrostatics, 4570 West Old Lincoln Way, Wooster, OH 44691

## REMOVELY OPERATED VEHICLES

VideoRay LLC, 415 Engleview Blvd., Exton, PA 19341

## RIGID INFLATABLE BOATS

**Willard Marine Inc., 1250 N. Grove St., Anaheim, CA 92806**

## ROPE-MANILA-NYLON-HAWSERS-FIBERS

Marlow Ropes, South Road, Halesham, East Sussex BN27 3JS, UK

## ROTATING EQUIPMENT

Seatworthy, 22 Main Street, Centerbrook, CT 06409

## RUDDER BEARINGS & BUSHES

Duramax Marine LLC, 17990 Great Lakes Parkway, Hiram, OH 44234

Orkot Composites, 2535 Prairie Rd, Unit D., Eugene, OR 97402  
Thordon Bearings, 3225 Mainway, Burlington Ontario L7M 1A6, Canada

## SAFETY PRODUCTS

Brookdale International, 1--8755 Ash St., Vancouver, BC V6P 6T3, Canada

## D & B Technologies, 1458 OCEAN SHORE BLVD #132, ORMOND BEACH, FL 32176-3613, 407-647-7500, 407-647-7505, HOTEYE@HOTEYENOW.COM

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

Lalizas SA, 21 Haidariou St., 545 Piraeus, Greece  
Norwegian Maritime Equipment AS, BOX 244, NO-5480 HUSNES, Norway

Stearns Manufacturing Comapny, P.O. Box 1498, St. Cloud, MN  
Stearns Mfg. Co., PO Box 1498, St. Cloud, GA 56302-1498  
Viking Life Saving Equipment, 1400 NW159th Street Suite 101, Miami, FL 33169

Walport USA , 39-5A Dover Rd South, Toms River, NJ 08757  
Western Fire & Safety, 2446 NW Market Street, Seattle, WA 98107

## SALVAGE

American Salvage Association, 801 North Quincy Street, Arlington, VA 22203

Donjon Marine, 1250 Liberty Avenue, Hillside, NJ 07205

**Titan Maritime Industries Inc., P.O. Box 350485, Ft. Lauderdale, FL 33004**

## SALVAGE ENGINEERS

Jamesstown Marine Services, Inc., 1084 Shennecossett Road, Groton, CT 06340

## SANITATION DEVICE- POLLUTION CONTROL

Envirovac Inc, 1260 Turret Dr., Rockford , IL 61111  
EVAC Environmental Solutions, 1260 Turret Dr., Rockford , IL 61111

**Headhunter Inc., 3380 SW 11th Ave., Ft. Lauderdale, FL 33315**

Hydrox Systems, 9800 McDonald Park Rd, Sidney, BC V8L 3S8, Canada

Microphor, 452 E. Hill Rd., Willits, CA 95490  
Severn Trent Da Nora, LLC, 1110 Industrial Boulevard, Sugar Land, TX 77478

## SATELLITE COMMUNICATIONS

Eurocom Industries AB, Box 7071, DK-9200 Aalborg SV, Denmark  
**Furuno USA Inc., 4400 NW Pacific Rim Blvd, Camas, WA 98607**

KVH Industries Inc., 50 Enterprise Center, Middletown, RI 02842  
Nera Satcom AS, Box 91, NO-1375 Billingstad, Norway  
Petrocom, 5300 West Sam Houston Parkway North, Houston, TX 77041

**Seawave, 76 Hammarlund Way (Tech 3), Middletown, RI 02842, 401-846-8403, 401-846-9012, Tfalvo@seawave.com**

## SHIPYARDS

Alabama Shipyard, P.O. Box 3202, Mobile, AL 36652  
Atlantic Marine, Inc., P.O. Box 3202, Mobile, AL 36652  
Derecktor Shipyard, 311 E. Boston Post Rd., Mamaroneck, NY 10543  
Detyens Shipyards Inc., 1670 Drydock Ave., Bldg 236, North Charleston, SC 29450  
Leevac Industries, LLC, P.O. Box 1190, Jennings, LA 70546  
Offshore Inland, 3521 Brookdale Dr. S., Mobile, AL 36618  
R&R Maintenance Inc., 5700 Proctor St. Extension, Port Arthur, TX 77642  
United Defense, 1525 Wilson Blvd., Ste 700, Arlington, VA 22209-2444

## SIGNS & LABELS

Horizons ISG, 18531 South Miles Road, Cleveland, OH

## SILENCERS

**EM Products & Cowl Silencer Div. Phillips and Temro Ind., 5380 Cottonwood Lane, Prior Lake, MN 55372, (952) 226-8105, (952) 440-3400, hentig@phillipsandtemro.com, Contact: Bob Hentig, Sales Mgr. Marine Products, www.phillipsandtemro.com**  
Slx Inc., 6659 Ordan Dr., Mississauga, ON L5T 1K6, Canada

## SILICON BRONZE

**Atlas Metal Sales, 1401 Umatilla St., Denver, CO 80204, 800-662-0143, 303-623-3034, jsimms@atlasmetal.com, Contact: Jerry Simms, www.atlasmetal.com**

## SIMULATION TRAINING

Barco Simulation, 600 Bellbrook Avenue, Xenia, OH 45385  
Calhoun MEBA Engineering School, 27050 St. Michaels Road, Easton, MD 21601  
Marine Safety International, Marine Terminal, Laguardia Airport, NY 11371  
Maritime Institute of Technology, 5700 Hammonds Ferry Rd., Linthicum Heights, MD 21090  
Poseidon Simulation AS, Box 89, NO-8370 Leknes, Norway  
Transas Marine Overseas Ltd., 12 Obukhovskoy, Oboron, St. Petersburg 193019, Russian Federation

## SLIDING DOORS

Walz & Krezner, 91 Willenbrock Rd., Oxford, CT 06478

## SOFTWARE

**Creative Systems Inc., P.O. Box 1910, Port Townsend, WA 98368**  
Design Maintenance Systems, Inc, 340 Brooksbank Ave., Ste.100, North Vancouver, BC V7J 2C1, Canada  
Loadmaster International, St. Varvgarten 11B SE, 211 19 Malme, Sweden  
Pipeline Communications and Technology, Inc., 2600 Woodlawn Dr. Ste. 264, Honolulu, HI 96822  
Resurgence Software Inc., 2021 Lakeshore Dr., Ste 21D, New Orleans, LA 70122

## STEERING GEARS/ STEERING SYSTEMS

Jastram Engineering, 467 Mountain Hwy, North Vancouver, BC V7J 2L3, Canada  
Kobelt Manufacturing Co., Ltd., 8238-129 Street, Surrey, BC V3W0A6, Canada  
Offshore Inland, 3521 Brookdale Dr. S., Mobile, AL 36618

## STERN TUBE BEARINGS/ BUSHES

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**Ian-Conrad Bergen, 3119 North Davis Highway, Pensacola, FL 32503, 850-434-1286, 850-434-1246, sales@icbergeb.com, Contact: Ron Monell**

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

Saab Marine Electronics, Box 13045, 402 5Goteborg, Sweden  
Technical Marine Services, 6040 North Cutter Circle, Portland, OR 97217

## TESTING SERVICES

BMT Fleet Technology, 311 Leggett Dr, Kanata, ON K2K 1ZB, Canada  
Wyle Laboratories, 7800 Govern's Dr. S.W., Huntsville, AL 35807

## THRUSTER SYSTEMS

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## TOWING EQUIPMENT

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## TRAINING

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**DM Consulting, 12316 Dormouse Road, San Diego, CA 92129, 858-705-0780, 858-538-5372, jstiglich@aol.com**

International Maritime Training, 910 SE 17th St., Ste 200, Fort Lauderdale, FL 33316

LSI Lockmaster Security, 1044 S. Main Street, Nicholasville, KY 40356

Massachusetts Maritime Academy, 101 Academy Drive, Buzzards Bay, MA 02532

SUNY Maritime College, 6 Pennyfield Ave, Bronx, NY 10465-4198

USMMA- Global Maritime and Transportation School, 300 Steamboat Rd., Kings Point, NY 11024

## TRANSMISSIONS

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## WATER PURIFIERS

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Gardner Denver Water Jetting Systems, 12300 N. Houston Rosslyn Road, Houston, TX 77086

Offshore Marine Labs, 2000 West 135th St, Gardena, CA 90249  
Reverse Osmosis of S.F., Inc., 150 SE 29th Street, Ft. Lauderdale, FL 33316

Reverse Osmosis of South Florida, Inc., 150 S.E. 29th St., Fort Lauderdale, FL 33316

## WATERTIGHT CLOSURES

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## WINCH MANUFACTURER

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## WINCHES & FAIRLEADS

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Intercontinental Engineering, PO Box 9055, Kansas City, MO 64168

Jeamar Winches, 1051 Clinton St., Buffalo, NY 14206

Markey Machinery, P.O. Box 24788, Seattle, WA 98124

MMC International, 60 Inip Dr, Inwood, NY 11096

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Smith Berger Marine, 7915 10th Ave. S., Seattle, WA 98108

Superior Lidgerwood Mundy, 1101 John Ave., Superior, WI 54880

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# Waterways Suitability Assessment: A Benchmark for All

(Continued from page 40)

of an operating-related incident or an actual attack and minimize the severity of the consequences.

It is likely that the risk-based security and safety content of a WSA will require the applicant to bring in a specialist provider who can provide more than a service that merely meets basic USCG guidance. To deliver the three objectives identified above, it is clear that all three parties - the applicant, USCG and the specialist provider - must maintain good communication and apply business acumen throughout the process.

This is particularly relevant when addressing the objective of preventing normal operational accidents. The guidance contained within NVIC 05-05 is extremely good in relation to evaluating an LNG terminal from a security perspective. However, we must remember that while security is a real and significant issue that must be addressed responsibly, accidents during normal

operations such as grounding and collision have occurred in the past, and will continue to be a likely risk in the future, due to increased seagoing traffic. The current guidance within NVIC 05-05 only indicates that safety should be evaluated using "an industry or government accepted methodology" and questions whether "the analysis identifies all the potential scenarios for accidental release". Whilst this is a basic requirement, and clearly indicates that risk assessment should be carried out on normal operations, it is in the best interest of all stakeholders if the same guidance criteria applied to the security aspects are applied as well to accidents during normal operations.

As the NVIC 05-05 develops, the content of a WSA should be expanded to pay more attention to the hazards associated with normal shipping operations, particularly those relating to understanding why incidents occur (predomi-

nantly an initial human error or procedural control) and the true nature of incident consequences. There is significant guidance from bodies such as the Society of International Gas Tanker and Terminal Operators (SIGTTO), the Oil Companies International Marine Forum (OCIMF) and the International Maritime Organization (IMO) on the suitability of a waterway for safe navigation and the provision of appropriately manned and well-operated ships. This includes the recommendation that all proposed routes for LNG shipping are simulated using an appropriate software tool. Lloyd's Register has found that the use of such tools is the best way to understand the often complex scenarios that can occur when a potential incident is developing; for example, a ship/tug critical system failure during transit, passing traffic operating error failure and ability to cope in adverse weather conditions.

These are still very early days for NVIC 05-05, but it now provides the LNG industry's best prospect for finding common ground in the treatment of waterway hazards related to both safety and security. The WSA and NVIC 05-05 represent an opportunity to put many of the objections and inflammatory statements to rest. Although there may be further debate and counter-argument, at least the LNG industry can now respond from a single starting point and can refer to an authoritative document as the final word on the issue.

If there is insufficient emphasis on the delivery of a WSA's objectives, an application may be plagued by the problems that have befallen the LNG industry in recent years. However, with suitable attention to the implementation process, an applicant can look forward to a significantly smoother application and more importantly, a safer and more secure terminal.

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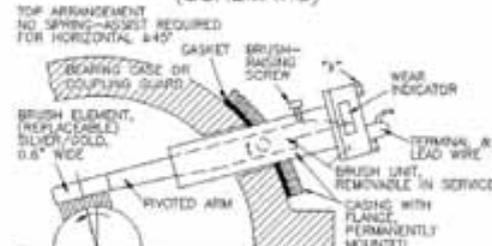
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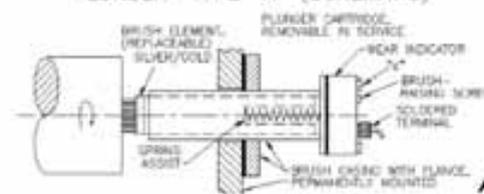
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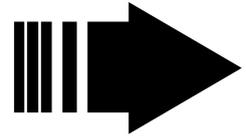
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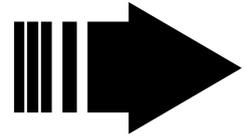
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**Circle 101**



**AlphaSTAR**

AlphaSTAR Corporation (ASC) is provider of engineering analysis services and software for the analysis of engineering material systems, including Computational Fluid Dynamics (CFD), Computational Structural Mechanics (CSM), Computational Electromagnetic (CEM)

**Circle 102**



**Boatlife**

Boatlife has developed a vinyl cleaner and protectant to make cleaning your vinyl seats, tops, upholstery, fenders, bumpers, and other rubber products an easy task. VinylLIFE removes dirt, grime and stains in one easy step. It also serves as a UV protectant.

**Circle 103**



**Drager**

The TUTOR training system comes with a lightweight stainless steel burn pan and supply cart holding a propane tank that can be wheeled to on-site training facilities. While using a variety of optional accessories including wastebaskets and storage lockers, employees learn to put out Class A, B and C incipient fires. It complies with OSHA and CERT requirements.

**Circle 104**



**Harbor Offshore**

The Port Security Barrier is developed by Navy Facilities Engineering and Service Center and employed into service. It provides a visual deterrence in addition to physical protection against boat attacks, and is composed of units ranging from 30 to 50 ft. segmented construction consisting of HDPE or steel pontoons, trusses, high capacity

**Circle 105**



**BP**

BP Shipping Americas: We need to boost our already talented team of top Shipping Professionals to support our growing fleet and our wider role of providing Marine Assurance to all parts of the BP Group. See our exciting opportunities in the Classified and Employment Section.

**Circle 106**



**BW Tech**

BW Technologies announces the GasAlertMicro 5 PID, a rugged, water-resistant instrument capable of monitoring up to five gases including combustible and toxic gases, and Volatile Organic Compounds. Choose from optional data logging, motorized pump, multi-language support, and a variety of power options.

**Circle 107**



**Micad**

MICAD Marine announced the inclusion of Vessel Corrosion Monitoring as standard equipment in all MICAD Marine Systems. MICAD Cathodic Monitoring System measures corrosion likelihood 24/7.

**Circle 108**



**Dynamold**

Dynamold manufactures pre-catalyzed epoxy chocking materials, offers the DMS-4-828 Moldable Chocking Material. The material is easy-to-apply, millable epoxy chock material. DMS-4-828 achieves close tolerances with edges for exact fit, reducing chock waste and eliminates the need for mirror surface grinding.

**Circle 109**



**Side Power**

Side Power Thruster Systems manufactures joystick, remote or touch-controlled side thrusters for personal boat use, giving the driver control and allowing for maneuvering in and out of tight spots. Standard features include overheat protection and self-locking high pressure contacts, and easily installs from the front side.



**KBR**

KBR provides maritime services that can help you sail smoothly. Whether you are constructing plant and equipment, operating it repairing it or protecting it, KBR's life cycle focus ensures that you always have access to trusted support.

**Circle 111**



**Kongsberg**

Kongsberg Mesotech Ltd. is recognized as a leader in the manufacturing of underwater surveillance sonar systems. The company's detection sonars are deployed with the US Coast Guard in their IAS (Integrated Anti-swimmer) systems.

**Circle 112**



**Kaeser**

Manufactured by Kaeser Compressors, SmartPipe is made from smooth, calibrated aluminum with a low friction coefficient, eliminating risk of rust and corrosion. Full bore fittings minimize pressure drop and leak-free connectors prevent compressed air loss. Available in multiple sizes.

**Circle 113**



**MAN B&W**

The L16/24 engine has a 450-990 kW power range and operates at 1200 rpm, but uses the same fuel as the vessel's propulsion engines, reducing overall cost. All support functions have been collected in a single front-end box. Each complete cylinder assembly can be removed as a unit for maintenance or replacement, and mounts reduce vibration.

**Circle 114**



**Federal Signal**

Federal Signal re-introduced the UniStat Status Indicator. Federal Signal's team of engineers and technicians developed an improved circuitry design and LED array for the UniStat. The UniStat can now be fitted with a sounder module for added flexibility in work areas where visual and audible signaling.

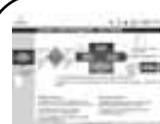
**Circle 115**



**Imtra**

Imtra Corporation's low-wattage/high-brightness LED spotlight, manufactured specifically for marine applications, harnesses three Luxeon 1W PowerLEDs to produce illumination equivalent to that of a typical 20-watt halogen bulb, but with consumption of just 6 watts and an estimated life of 50,000 hours.

**Circle 116**



**Shipserv**

Shipserv has upgraded its Catalog Management Module which is part of the eSSM solution for suppliers and ship owners/managers. The new features include a Content Manager, Mapping Manager, Contract Manager, Publication Manager and Subscription Manager.

**Circle 117**



**Voith**

For 75 years, Voith has been designing systems that are safe for man and environment. Voith offers tailor-made drive systems for a wide range of applications- for harbor assistance and escorting duties, ferries or naval applications up to special marine craft.

**Circle 118**



**Ocean1**

Ocean-1 Marine Products Ltd. is a new company located in Houston, Texas and supplies both I.E.C. and U.S. specification electrical equipment to the marine, offshore, rig, shipbuilding and oil-gas industries. The distribution service is based on over 60 years of experience in the electrical supply industry.

**Circle 119**



**Shell**

Shell Alexia LS is cylinder oil with a lower Base Number (BN), ensuring lubrication of modern low speed engines when burning Low Sulphur Fuel Oil. Its low BN means that the correct surface properties of cylinder liners are maintained and excessive piston deposits are avoided. Shell Alexia LS has good detergency and dispersancy

**Circle 120**



**Nautamatic Marine**

Manufactured by Nautamatic Marine Systems., the Gladiator Autopilot is designed for boats with hydraulic steering. The Gladiator features Shadow Drive, giving the operator helm control without having to press a button, and has no rudder feedback transducers. The autopilot holds in reverse and the system comes 24/7 customer service.

**Circle 121**



**Carlisle & Finch**

C&F uses the same precision optics as supplied to the U.S. Navy and Coast Guard, but incorporated within two Yacht Designs: Streamlined and Classic. A Precision-Optic reflector provides a deeper dish parabola, which collects more light and the ability to focus the beam to a 1-degree, rather than 2-3 degrees.

**Circle 122**



**Furuno**

Furuno's dual-frequency searchlight sonar CH-300 is designed for a wide range of vessels. It incorporates both a low and a high frequency (60/153 or 85/215 kHz) transducer in one soundome. The high frequencies give a detailed search near and all around the vessel.

**Circle 123**



**Detcon**

Detcon Model Series 700 industrial gas detection sensors are a new generation of sensor modules. The sensors are designed for extreme locations. This sensor design includes an electropolished 316 stainless steel housing, multi-layered transient spike protection circuitry and 100% epoxy encapsulated electronics.

**Circle 124**



**Fiber Sensys**

SPIDeR's cable consists of a backbone-insensitive to vibration-and up to 50 individual sensor cable strands. Each strand is attached either to a perimeter fence or buried in soft soil nearby. If an intruder disturbs one of these zones, the APU detects a change in the pattern of conducted light from the corresponding sensor cable strand, resulting in an alarm.

**Circle 125**

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### OEM Marine Diesel Service Center

South Florida large bore OEM Marine Diesel Engine Service Center has two openings to further expand its business.

#### Service Engineer

Dynamic individual with good 2 and 4 stroke experience as well as control systems and electrical knowledge to provide lead and hands-on maintenance work on propulsion, stationary plants and auxiliary equipment. Travel required.

#### Sales Engineer

Confident self-starter with either previous ocean going exposure or electrical and control systems knowledge to engage in full customer support and contract acquisitions. The right candidate might be a Kings Point graduate and/or engineer license holder. Travel required.

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### Technical Management

South Florida large bore OEM Marine Diesel Engine Service Center has opening for dynamic technical service manager to join existing team. The requirements are a minimum of 10-years industry experience and detailed OEM 2 and 4-stroke knowledge. Machining knowledge also a plus. Relocation assistance and salary with full benefits based on applicant's experience.  
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- Liaise and communicate with operations department of employer and with agents to ensure smooth cargo operations
- Assist in preparation of documentation as required by the applicable local, state, national, and international regulations, laws, and/or treaties
- Create cargo plans for inland and multimodal transportation when required
- Assist in other duties as requested

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- Licensed Deck Officer
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- Willingness to travel

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Location: Houston

**Contact information:**

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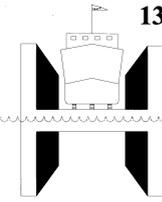
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