August 2005

MARITIME REPORTER AND ENGINEERING NEWS

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Classification Societies Q&A

Challenges Abound

Government Update

Potable Water Regs to Come

US Report

LeTourneau Celebrates 50

Finland

Comfort as a Tech Driver

Communications • Deck Machinery/Cargo Handling Equipment • Repair/Conversion Facilities

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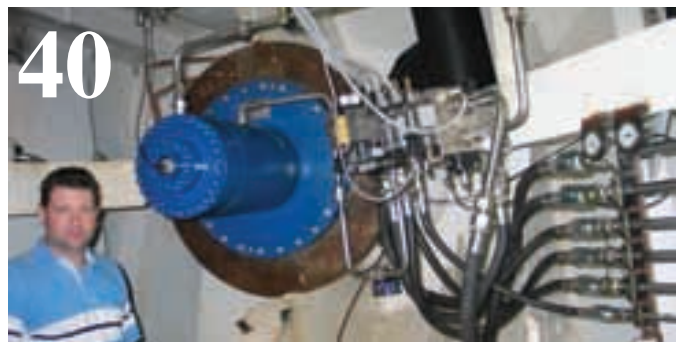
Contents



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People who know Crowley know our capabilities are timeless.

On April 18th, 1906, a devastating earthquake struck San Francisco. The city was enveloped in flames, and Tom Crowley jumped at the opportunity to help. First, he used his vessels and barges to transport people to safety in nearby Oakland and Sausalito. Then, realizing that businesses were in danger of being looted, our founder invited bankers to store their cash and securities on his vessels out on the bay. Once order was restored, the goods were safely returned to the mainland.

It was just this kind of innovation and creative thinking that made Tom Crowley a success in marine transportation back then – and it's what Tom Crowley Jr. continues to build our business on today. We take pride in our hard-working employees, who regularly go above and beyond their day-to-day job functions. Whether it's solving complex supply chain problems, responding to an emergency situation at sea, transporting a time-sensitive shipment on one of our container carriers or delivering equipment and supplies to Alaska's North Slope, the Crowley crew knows how to get the job done like no one else can. To find out more about Crowley's resourceful ways – past and present – call us at 1-800-564-9251 or visit **www.mycrowley.com**.

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Made in the USA

Northrop Grumman Corporation hosted a visit from Chelsea Cooley, Miss USA, who toured construction of the Virginia-class submarine North Carolina (SSN 777), named after her home state, at the company's Newport News shipyard. Cooley is the first woman from North Carolina to be named Miss USA in 54 years. During her visit to the shipyard, she also went aboard the submarine Texas (SSN 775) and met with sailors from the North Carolina's pre-commissioning unit and shipbuilders and submarine veterans from the state of North Carolina.

Shipbuilders Stanley Britt and Deborah Jordan were among the employees who met Miss USA Chelsea Cooley during her visit to Northrop Grumman Newport News. Both Britt and Jordan are from North Carolina and work in the sector's submarine program. (Photo by Chris Oxley)

Photographs taken to launch the Poseidon Challenge at the Temple of Poseidon at Sounion near Athens in Greece.

Top Right
Representativers of international shipowners and other members of the international tanker industry with INTERTANKO chairman Stephen Van Dyck (5th from right).

Middle Left
Stephen Van Dyck, Chairman, INTERTANKO, and **Mrs Janice Van Dyck**

Bottom Right
Petros Kourtis (second from left) and his group of traditional greek musicians Krotala.

Editor's Note

I love the opportunity to have a person on the cover of *Maritime Reporter*, for as often as we discuss vessel design, machinery technology and legislation within these pages, it is people, of course, that are the heart and soul of the maritime business. Don't get me wrong, I, as much as the next guy, am thrilled to step aboard some of today's true modern marvels and examine construction techniques and capabilities that would have been thought impossible only decades ago. However I'm equally intrigued by the people who envision, design, build and operate these machines.

In this edition I'm pleased to present information on one of the industry's pioneers, **R.G. LeTrouneau**, who was central to the design, construction and operation of mobile platforms for the offshore oil industry. The story on LeTourneau's first jack-up rig, built 50 years ago, starts on page 28.

People are central to this edition's main feature, the Question & Answer with some of the world's leading classification societies, including: **Todd Grove** of ABS, **Bernard Anne** of BV, **Fritz Grennemann** of GL, **Alan Gavin** of LR and **Ugo Salerno** of RINA.

Classification societies, justly or not, have become a lightning rod for criticism in recent years. When a ship breaks up and sinks — as rare of an occurance as that may be today — the mainstream media grabs tight and quickly looks for a destination to assign blame. Often lost, or simply ignored, are the tremendous strides our industry has made in regards to safe, efficient and environmentally sound navigation of the world's waterways — initiatives often eminating from class. And where there is often a maze of owners, managers and charterers to navigate, the most expedient doorstep to drop blame seemingly is that of the classification society. Each of these executives, in a forthright and often revealing manner, discuss the inherent successes, shortcomings and challenges they face every single day to ensure the shipping industry's integrity and future.

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On the Cover

On the Cover: Classification Societies today play a more critical role than ever in ensuring safe, efficient marine transportation. The business of ship classification, however, faces many hurdles. Read the opinions of the world's ship classification leaders starting on page 18.

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The Index

Potable Water

In this age when it seems like everything related to ships has been regulated to an extreme, it comes as a surprise to learn that there are no general regulations relating to potable water on U.S. vessels. That is about to end, as the Coast Guard initiates a rulemaking project to establish such standards.

Rulemaking project

The project seems to have begun with a 2002 letter from the Gulf Coast Mariners Association petitioning the Coast Guard for a rulemaking. The letter complained of the poor quality of drinking water on some of the vessels manned by members of the Association. It pointed out that the Coast Guard has general superintendence over the merchant marine and one of the agency's missions is to look after seamen's welfare.

In 2004, Congress amended the vessel inspection law to provide that, for U.S. vessels subject to inspection, the inspection process shall ensure an adequate supply of potable water for drinking and washing by passengers and crew. In determining the adequacy of the supply of potable water, the Coast Guard is to consider: (1) the size and type of vessel; (2) the number of passengers and crew on board; (3) the duration and routing of voyages; and (4) guidelines recommended by other federal agencies.

On July 11, 2005, the Coast Guard issued a notice soliciting public input on this issue. Comments should be submitted by September 9. In addition to the statutory requirements, the agency would like comments on: (a) other factors that should be considered in determining the amount of potable water that should be available on a vessel; (b) design practices and policies used for potable water systems on vessels; (c) periodic water tests conducted on vessels to determine continued potability; (d) protocols or test methods used for testing; and (e) industry standards that could be applied to the design and testing of potable water systems on vessels.

Vague Definition

The word "potable" is defined as "fit to drink" and is as accurate as it is concise. The word is derived from the Latin word "potare", meaning "to drink". Thus, potable water is water that is fit to drink. The problem is that, like pornography, you may know it when you drink it, but it is difficult to write a regulation setting enforceable standards regarding potability.

Standards and Guidelines

While there currently are no general U.S. regulations regarding potable water on U.S. vessels, that does not mean there is no available guidance. There is actually a wide variety of guidance documents available for adaptation into appropriate regulatory format.

The U.S. Centers for Disease Control and Prevention (CDC) issues guidelines on sanitary issues related to construction and operation of large passenger ships. These guidelines are applicable to the cruise ships (mostly foreign flag) that embark passengers at U.S. ports and may have limited applicability to non-passenger ships. The Food and Drug Administration (FDA) has promulgated regulations regarding the source and use of potable water on conveyances engaged in interstate traffic. Portions of those regulations apply to vessels, but they provide few specifics. Under the Safe Drinking Water Act, the Environmental Protection Agency (EPA) has issued regulations and guidance regarding standards for safe drinking water and maximum contaminant levels for drinking water. The EPA standards are focused on municipal water sources and similar land-based water

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

systems.

The U.S. Coast Guard has standards applicable to potable water and wastewater systems at its units afloat and ashore, but has not utilized them outside the agency. The USCG Marine Safety Center has developed rudimentary guidelines for review of potable water systems when those systems are included in ship construction plans submitted for agency review. Unfortunately, there is no requirement that a potable water system be included in the construction plans submitted to the Coast Guard and not all ship construction plans are submitted to the Coast Guard for review.

The U.S. Navy, Bureau of Medicine and Surgery, has a Manual of Naval Preventive Medicine. One chapter of this manual is devoted to water supply afloat. It addresses such issues as receipt and transfer of potable water, storage and distribution, and disinfection, among other things. One section is devoted to potable water on smaller vessels (yard craft, in Navy parlance) that lack their own water production capability. The manual also addresses recommended amounts of potable water for various uses on a per person per day basis: drinking (0.5 to 1 gallon); galley and scullery (1.5 to 4 gallons); personal and hygiene (5 to 20 gallons); and laundry (5 to 10 gallons).

Norway promulgated guidelines and regulations for potable water systems and potable water supply on offshore units, such as platforms and drills ships, operating under Norwegian jurisdiction. The Norwegian Institute for Public Health issued a lengthy checklist for design of potable water systems on offshore units. For vessels and offshore units with water production systems, it recommends that there be at least two production units, each capable of producing at least 100% of the water needed, or three production units, each capable of producing at least 50% of the water needed. The number and size of potable water tanks is to be based on the vessel's potable water production capability and the size of the crew. The agency provides minimum standards for the vessel's potable water manual. Finally, it includes a handy listing for a potable water quality criteria and recommended analysis program. This program addresses subjective factors such as smell, taste, and appearance, along with objective factors such as pH value, conductivity, free chlorine, color, e-coli count, copper, ammonia, benzene, lead, etc. The International Organization for Standardization (ISO), located in Geneva, Switzerland, has developed standards for potable water supply on ships and marine structures. These standards come is two parts: (1) planning and design; and (2) method of calculation. Classification societies include potable water systems in their rules and regulations for building and classing ships. The American Bureau of Shipping (ABS) has also published a guide for crew habitability that addresses potable water systems and related issues.

Summary

Potable water is a basic human necessity - more important than food. Crewmembers on ships have as much need for, and right to, potable water as persons ashore. It is assumed that the number of U.S. ships with inadequate potable water systems is very low, but the number should be zero. Guidance and basic regulations should resolve any problems. If nothing else, this rulemaking project can serve to focus the attention of the industry on this important issue and lead ship owners and operators to double-check the potable water systems on their vessels. This is a low cost effort that will pay important dividends - and one that everyone can fully support.

Comments on the rulemaking project should be sent to:
Docket Management Facility (USCG-2005-20052)
U.S. Department of Transportation
400 Seventh Street, SW
Washington, DC 20590-0001

Commerce Committee Approves Ballast Water Bill

The U.S. Senate Committee on Commerce, Science, and Transportation in July voted unanimously to approve the "Ballast Water Management Act of 2005" (S. 363), introduced by Senator Daniel Inouye (D-Hawaii) and co-sponsored by Senators Ted Stevens (R-Alaska), Maria Cantwell (D-Wash.), Frank Lautenberg (D-N.J.), Paul Sarbanes (D-Maryland), and Daniel Akaka (D-Hawaii).

The legislation would amend the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 to establish a new, national approach to addressing invasive species in ballast water.

Under the Manager's Amendment approved, the Coast Guard is authorized to direct $20 million annually, in fiscal years 2006 through 2010, toward invasive species mitigation. An additional $5 million per year is provided for the Federal Ballast Water Demonstration Project, led by the National Oceanic and Atmospheric Administration (NOAA).

The bill includes the following key provisions:

• **Ballast Water Exchange:** S. 363 requires the exchange of ballast water containing invasive species with ocean water to reduce the number of such species. Certain exemptions, such as for safety of crew, passengers and vessels, are included. Vessels are also allowed to use ballast water treatment that is at least as effective as exchange, until more rigorous treatment standards come into force.

• **Ballast Water Treatment:** S. 363 includes environmentally protective performance standards for ballast water treatment to be phased-in over time for all classes of vessels that use ballast water. Prior to the standards coming into effect, the Coast Guard is to conduct a feasibility review to evaluate whether they can be met, and can either accelerate or delay implementation based on such review. If feasibile technology exists that can perform better than the standards in the bill, the Coast Guard will adjust the standards accordingly.

• **Technology:** For vessels participating in a pilot program approved by the Coast Guard, S. 363 allows them to conduct ship-board testing of ballast water treatment technologies likely to achieve or exceed the performance standards, and to use such technology for 10 years.

• **Preemption, Relation to other Federal Laws:** S. 363 would preempt state and local laws with respect to ballast water exchange and ballast water treatment requirements, to the extent that such laws were inconsistent with those requirements. Under this provision, state or local measures, such as greater penalties or fees for violations, would be permitted.

New Panama Tugs Ordered

A series of seven new Z-Tech tugs will soon be plying the waters of the Panama Canal, as the Panama Canal Authority (ACP) recently placed an order for the Robert Allan Ltd.-designed vessels, to be built at Hin Lee (Zhu Hai) Shipyard Co. Ltd. at Doumen, Zhuhai, in Guangdong province, China, which is owned by Cheoy Lee Shipyards. They are scheduled for delivery during the second half of 2006 and in 2007.

Wärtsilä won the contract for the supply of propulsion plants for the seven 60-ton bollard pull tugs. The Z-Tech Concept was developed initially for PSA Marine (Pte) Ltd. of Singapore by naval architects Robert Allan Ltd. Among the unique features of the Z-Tech tugs are equal bollard pull and speed forward and aft, a safe, flat working deck and a sea-going stern for towing in tractor mode.

The Z-Tech tugs are a modified azimuthing stern drive type, measuring 89.8 ft. (27.4 m) in overall length by 37.7 ft. (11.5 m) in breadth, with a nominal bollard pull of 60 tons and a free-running speed of 12.8 knots.

They will be employed escorting and assisting ships in the Panama Canal. Each tug will feature a Wärtsilä 3,600 kW propulsion plant comprising twin resiliently-mounted 9-cylinder in-line Wärtsilä 20 engines each driving a Lips can-mounted steerable thruster having a fixed-pitch propeller in a high efficiency HR-nozzle.

Circle 1 on Reader Service Card

LPD 17 Completes Acceptance Trials

Acceptance Trials of the future USS San Antonio, lead ship of the LPD 17 class, were conducted Jun 27-30, and witnessed by the Board of Inspection and Survey. "The completion of Acceptance Trials is a major step towards bringing LPD 17 into the fleet, and we look forward to ship delivery later this month," said Rear Adm. Charles Hamilton, the program executive officer for Ships. "LPD 17 and her sister ships will add tremendous capabilities to the fleet for our Sailors and Marines. This class will be a vital component of our Nation's ability to provide sea-based power anywhere on the globe in support of the Global War on Terror."

RoRo Passenger Ferry Named

Dokter Wagemaker Main Particulars

Length, o.a.	427.8 ft. (130.4 m)
Length, b.p.	417.4 ft. (127.24 m)
Beam, molded	74.5 ft. (22.7 m)
Depth	23.6 ft. (7.18 m)
No. Decks	6
Draft, design	13.3 ft. (4.05 m)
Draft, max.	14.4 ft. (4.4 m)
DWT	1,840
Speed at design draft	15.2 knots
Speed at max. draft	14.8 knots
Bollard pull transverse	80 ton
Bollard pull longitudinally	100 ton
Passengers	1,750

A new RoRo Passenger ferry built for TESO (Texels Eigen Stoomboot Onderneming N.V. = Texel's Own Steamboat Company) by Damen Shipyards was recently named and delivered. TESO, founded in 1907, runs

the ferry service between Den Helder and Texel. One of the initiators of the service was Dokter Wagemaker, a local physician. TESO expanded rapidly in order to meet the passenger demand, and after his death, one of the vessels was named after Dokter Wagemaker in May 1934.

The new Dokter Wagemaker is a highly sophisticated vessel being a hybrid between a ferry and a luxury cruise liner.

Dokter Wagemaker will replace Molengat, which will be sold. Dokter Wagemaker is the result of the fleet renewal and capacity increase program which was initiated by TESO.

Damen Shipyards Gorinchem was awarded the contract in April 2003. Schelde Naval Shipbuilding, a member of the Damen Shipyards Group, executed the contract and carried out the basic and detailed engineering, subcontracting hull construction, outfitting, testing and delivery of the vessel. Hull construction and pre outfitting took place at Damen Shipyards Galati in Romania.

The new RoRo Passenger Ferry is classed by Lloyd's Register as + 100 A1 Ferry extended protected water service "ice conditions Riza code R", + LMC, UMS, IFP, PSMR, PCAC 2.2

The vessel is fitted with a highly automated Diesel Electric propulsion system comprised out of four generating sets divided over the forward and aft engine rooms. The sets develop 2,856 kW @ 1,000 rpm each. The generating sets are resiliently mounted on base frames. Power is generated at 6 kV and transformed to 400 and 230V at 50Hz. Thruster units are installed in the propulsion rooms with prime movers and associated equipment.

Circle 2 on Reader Service Card

Chinese Built OSV

Rigdon Marine took delivery of the first batch of new generation 210-ft. (64-m) diesel-electric off shore supply vessels. In Norway, the building of a series of 92-m boats followed the success of the U.S. vessels with similar Cummins diesel-electric propulsion packages. Currently, in a cooperative effort involving American, European and Chinese firms, a series of ten 240-foot (73.2-m) vessels are being built in China for the France-based SURF, a member of the maritime branch of Groupe Bourbon. The first of the series was undergoing sea trials at Zhejiang Shipbuilding at Ningbo Southeast of Shanghai in mid-June. Vessels number 2, 3 and 4 were alongside being fitted out while vessel number 5 was taking shape nearby. While significantly longer than the American-owned diesel-electric boats, the Chinese boats have retained the same 50-ft. (16.5-m) beam. To allow for the larger vessel size and increased cargo capacities the total horsepower has also been increased. While the U.S. vessels have two Cummins-D(M) Marine Generators and one Cummins KTA38-D (M) powered 900 kW generator, the Chinese-built vessels employ three of the QSK-60 powered generators. (The Norwegian vessel has four of the units). The 16-cylinder four-stroke engines each develop 2,548 bhp (1,901 kW) at 1,800 rpm which in turn produces 1,825 kWe at 60 Hz . The genera-

tors power electric motors, which will turn a pair of 360-degree azimuthing drives. The DPII equipped ships also have two bow thrusters. Two of the three main engines are fitted with front-end power-take-offs and pumps to supply FiFi monitors mounted on the cabin tops. Guido Perla and Associates of Seattle provided the design and regulatory package for the Bureau Veritas classed vessels, and also provided engineering support to the shipyard throughout the construction. The propulsion packages are a further example of international cooperation and teamwork in building boats with this level of sophistication. Calvin Klotz, vice-president of the marine division of Cummins Mid-South in Kenner Louisiana, worked with Cummins China and Cummins Marine to broker the program with the shipyard and Group Bourbon. The engines and generators are being upfitted at the Cummins Mid-South facility in Louisiana and then shipped to China. Project Manager for Cummins Mid-South, Jack Bingert and Jim Wakenell of Cummins Marine have traveled to the shipyard several times to work in cooperation with Gu Daming and Lin Song of Cummins China on the installation and commissioning of the power packages.

Circle 3 on Reader Service Card

MAN B&W Power for Fratelli Neri

MAN B&W Diesel A/S, Denmark, won a contract to supply a twin L21/31 propulsion engine package for a 98 ft. (30 m) Italian tractor tug. The order is significant in that it is this unit's debut in a tractor tug application, after a total sale of 280 units, with the majority dedicated to GenSet applications and propulsion of coastal tankers and general cargo vessels. The tug construction has started at the Italian shipyard Rosetti Marino SpA, Ravenna, for the Livorno-based Neri Group. Fratelli Neri SpA, owns and operates a large fleet of various tugs, supply vessels, floating cranes and barges, from various locations along the Italian east coast. The propulsion engines will be delivered from Denmark for installation at the yard during the month of August. The finalized tractor tug is scheduled to be delivered to the owner around the end of the year.

Each nine-cylinder L21/31 engine is specified to an MCR rating of 2025 kW, and will drive a Schottel controllable pitch (SRP) rudder propeller unit. Additionally, the engines will each power an Advance/Asug gearbox, driving hydraulics and firefighting pumps, via a front-end PTO.

Circle 4 on Reader Service Card

Contract for PSV Pair

Bourbon Offshore Norway, a subsidiary of the French company Bourbon, signed a contract with Ulstein Verft for the construction of two Ulstein PX105s. These will be the first two platform supply vessels (PSVs) in the world with the Ulstein X-Bow. "When we signed the contract for an Ulstein AX104 anchor handling vessel in April, it was because we had great faith in the new hull shape. The extremely good results from the model tests for the anchor handling vessel convinced us that the Ulstein X-Bow is the way ahead for offshore vessels. We think there is even more to be gained from a PSV with this new bow, as these types of vessels are continuously in traffic. They work in a shuttle system between land and the platforms and have to be reliable also in bad weather. The seaworthiness with the Ulstein X-Bow is so good that a vessel could be in operation even when the weather means other vessels have to stay in port. Fuel consumption is also reduced," says Bourbon Offshore Norway's managing director, Trond Myklebust, who recently succeeded Jostein Sætrenes. Ulstein Verft's sales manager, Harald Møller, confirms what Myklebust says about the Ulstein PX105's operational reliability, "Low angles of entry, no bulb, a converted bow and a hull that is drawn right up to the wheel house mean that there is no slamming or spray on deck. The good seaworthiness will make the vessel a fantastic place to work," he says.

Ulstein PX105 Main Particulars

DWT	4750
Cargo deck area	1035 sq. m.
Speed	15.5 knots
Generator power	6300 ekW
Length, o.a.	88.8 m
Breadth, molded	(19 m)
Depth to main deck	(8 m)
Draft, max	(6.6 m)
Fuel oil	1,000 cu. m.
Fresh water	900 cu. m.
Ballast water	1,500 cu. m.
Brine	600 cu. m.
Mud	1,200 cu. m.
Chemicals	290 cu. m.
Base oil	180 cu. m.
Dry bulk	260 cu. m.
Deck load	2,600 ton

Circle 5 on Reader Service Card

Tug Malta Orders ASD Tug

On the June 14, 2005, a contract was signed between Tug Malta and Damen Shipyards Gorinchem for a second Damen ASD tug, a Damen ASD Tug 2411. The first contract for the construction and delivery of a Damen ASD Tug 3111 was signed in April 2005. Tug Malta's fleet is currently composed of six powerful tugboats, including twin-screw azimuthing tractor and stern-drive tugs, having a bollard-pull of between 32 and 55 tons. Due to its size, high bollard pull and good maneuverability the Damen ASD Tug 2411 is considered by the operators as an ideal vessel for port/terminal operations and operations at sea. In February 2006 the ASD Tug 3111 will be delivered followed by the ASD Tug 2411 in December.

Circle 6 on Reader Service Card

	Damen ASD Tug 3111	Damen ASD Tug 2411
Length o.a.	100.4 ft. (30.6 m)	80.3 ft. (24.5 m)
Beam o.a.	36.7 ft. (11.2 m)	35.1 ft. (10.7 m)
Depth at side	16.4 ft. (5 m)	15 ft. (4.6 m)
Bollard pull	68 tons	68 tons
Speed	13 knots	12.5 knots
Main and auxiliary engines	Caterpillar	Caterpillar
Thrusters	RR US 255	RR US 255

Grupa Named Stearns VP

Michael Grupa, a 21-year employee at Stearns Inc., was recently promoted to Vice President of Industrial Product Sales.

OSG Appoints Berglund

Overseas Shipholding Group, Inc. appointed Mats Berglund as Senior Vice President to lead OSG's Crude Transportation Strategic Business Unit, responsible for OSG's VLCC, Aframax and Panamax tanker operations.

Ward Leonard Acquires Mawdsley's Motors

Ward Leonard Electric Company has completed its acquisition of Mawdsley's Motors of Waterwells, England. Mawdsley's is a design engineering and manufacturing firm with expertise

in specialty motors for military and heavy industrial applications. Ward Leonard is a leading provider of electric motors and control systems for the U.S. Navy and specialized industrial applications.

Art Anderson Continues Seabasing Research

Art Anderson Associates entered a new phase in one of its Small Business Innovative Research (SBIR) contracts with the U.S. Navy, working to optimize the speed and throughput of the company-developed High-Speed Lighterage vessel required by amphibious military operational scenarios. The company has been under contract to the Naval Facilities Command, Sealift Support Office for research and design of the Improved Navy Lighterage System (INLS). INLS will replace the Navy's aging legacy lighterage system with a more capable system for transporting military equipment from ship to shore. Art Anderson Associates hired Titan Corporation to assist with the study.

Whitley Joins Rigdon

Jim Whitley has joined Rigdon Marine as Director of Technical Services, responsible for vessel engineering, new construction, maintenance and repair, vessel documentation, and regulatory compliance.

EXMAR Orders LNGRV

Exmar confirmed a long-term charter party with Excelerate Energy LP, the liquefied natural gas shipper and marketers based in Woodlands, Texas, of another liquefied natural gas regasification vessel (LNGRV). The vessel will be built by Daewoo Shipbuilding & Marine Engineering Co. Ltd (DSME) as DSME Hull No. 2254 and will be named the Explorer, to be owned 80 percent by Exmar and 20 percent by Excelerate Energy. It will be built using the membrane containment system together with Excelerate's Energy Bridge technology and will have a capacity of approximately 150,900 cu. m. with delivery in the first quarter of 2008. Excelerate anticipates using the ship to deliver regasified LNG to the Gulf Gateway — the Gulf of Mexico Deepwater Port.

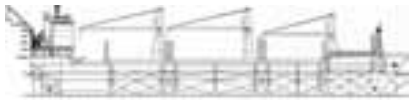
New Navy Contract

The U.S. Navy awarded a contract valued at $109.6 million to Northrop Grumman Corporation for advanced planning, long-lead material and systems engineering on the LHA(R) amphibious assault ship program. The total contract value, if all options are exercised, will be $264 million.

LR Asia Completes LNG Safety Case

Lloyd's Register Asia has completed the first full safety case of a gas turbine propulsion system for LNG carriers of 250,000 cu. m. and above for Rolls-Royce's MT30 system. Carried out in conjunction with Daewoo Shipbuilding & Marine Engineering and Rolls-Royce, this was designed to fulfill the requirement of the oil majors involved in the Qatargas and RasGas projects that shipowners, yards and class ensure that proposed ship design concepts are as sound as practicable.

Rickmers-Linie Orders Four Ships



Rickmers-Linie, the Hamburg based global breakbulk, heavy lift and project specialist, has ordered four 24,000-ton, 175 x 26.5 m multipurpose heavy lift vessels from the SADRA Shipyard in Busheher. They are scheduled for delivery between July 2007 and July 2008. The newbuildings have been purpose-designed to carry breakbulk, heavy lift and project cargo.

Once delivered, the new vessels will be deployed in Rickmers-Linie's project and heavy lift liner service between the US/Europe and the Middle East/India.

Tidewater to Sell Six KMAR 404 Vessels

Tidewater intends to sell six of its KMAR 404 class of Anchor Handling Towing Supply vessels to Deep Sea Supply ASA for a total cash price of $188 million. The transaction will result in an approximate $112 million taxable gain, but no cash taxes will be due because of the availability of net operating loss carryforwards.

Multraship buys Bulgarian Towage Company

Multraship Towage & Salvage purchased Bulgarian towage and salvage operator Bourgas Tug Services. BTS provides harbor towage, local salvage and line handling services in and around the Bulgarian port of Bourgas. It has a fleet of four tugboats ranging from 1,500 - 4,300 bhp and 50 employees.

Multraship is a leading independent Dutch towage and salvage company. It operates and manages a fleet of 26 tugs, salvage vessels, floating sheerlegs and other craft.

DD(X) Ready for Detail Design and Production

The DD(X) National Team, led by Northrop Grumman Corporation and Raytheon Company, in partnership with General Dynamics, BAE Systems and Lockheed Martin, has completed the initial design review for the overall system design for the DD(X) multi-mission destroyer. The event demonstrated that the program is ready for the Flag level review in September and that the DD(X) Flight 1 system design is ready to enter detail design.

Conducted June 28 and 29, the initial critical design review was a DD(X) Phase III program event that addressed the total system's design maturity and overall progress made to date on DD(X) engineering-development models. Representing the full spectrum of advanced technologies to be integrated into the ship, the engineering development models are elements of the Navy's risk-reduction strategy for the Flight 1 ship design.

"The critical design review addressed an unprecedented level of total-system physical and function design, including ship, shore and mission systems," said Navy Cmdr. Jim Syring, PMS 500 DD(X) technical director.

The DD(X) engineering-development models comprise hardware and software components, which have already been built, tested and reviewed by the National Team and the Navy. Examples include the integrated deckhouse and apertures, total ship computing environment, dual-band radar system, integrated under-sea warfare system, MK 57 advanced, vertical launching system, automated gun system and wave-piercing tumblehome hull.

From the Head of Class

Maritime Reporter recently was afforded the opportunity to tap the minds of leading executives at five top Classification Societies to discuss emerging trends in the maritime industry.

What do you consider to be the most significant changes in the marine industry over the past 20 years?

ABS: As a classification society, our focus is on the overall safety performance of the maritime industry and of the role that technology can play in improving that performance. From this perspective, there is no doubt that the single most important difference between the international shipping industry of today and that of 20 years ago is the astonishing improvement in the overall safety record. By every available statistical measure - whether it is the loss ratio of vessels by number or by tonnage or whether it is an analysis of the amount of ship sourced oil that enters the marine environment - the safety performance of the industry has improved and continues to improve year on year. For example, in 1984 there were around 225 vessels over 500 gross tons were reported as total losses by underwriters. These aggregated some 1.5 m gt. Twenty years later, in 2004, the number had dropped to just over 80 vessels barely aggregating 500,000 gt. In the period 1970-79 the marine industry averaged 25.2 oil spills of more than 700 tonnes each year. In the 1980's the average dropped to 9.3 spills per year. In the period 2000-03 this had been further reduced to just 3.5 spills. This provides clear evidence that the international maritime safety regime, of which classification is a part, is doing an outstanding job in raising standards and driving the sub-standard operator off the world's oceans.

BV: The significant changes which have affected shipping are:

- The speed of globalization of shipping, which is the world's most open and global market at every level.
- The technical advances in scale we have made. Twenty years ago ships were small and specialized, at every level we have improved efficiency enormously.
- The focus on the environment which has led to major technical and operational changes
- Finally, and topically, the move to common rules.

GL: The introduction of containerships is a success story unparalleled in the history of shipping. Containerization has been, and continues to be, one of the most dynamic maritime developments in recent times, as evidenced by the fact that the number of containers worldwide has increased from 100 million to 300 million over the past 12 years.
Shipping has changed due to a number of international conventions which regulate more and more issues that used to be covered by classification rules only. During the past 10 years European legislation has been dealing with maritime issues, especially technical safety requirements. These safety demands are often reaching further than those of the IMO.

LR: I believe that the dramatic improvement to the safety of life at sea, the introduction of the ISM Code, the increasing legislation of tankers and the intensified political pressure that this represents and the emergence of Korea and now China as a major shipbuilding nation are the most significant developments.

Briefly discuss these changes, the impetus for them, and their impact on the marine industry.

BV: When most people in developed countries knew someone who worked in shipping or who had been to sea, and when most people could see ships if they went to a port town, shipping seemed real and relevant. Today it is out of sight, and so out of mind unless there is an accident. Couple that with the effect of globalization, which has made shipping much more efficient but which has broken the links between owners, flags, and communities, and an increased awareness of the environment, and the recipe is there for massive reactions to accidents. So ships have got bigger, and more efficient, and run by cheaper crews, while the public has gotten more suspicious of shipping. This leads to greater regulation, and sometimes overreaction by politicians.

GL: Hardly any other ship type is so directly connected with the world economy and with world trade than the containership. The international division of labor will lead to doubling of containers within the next 10 years. The demand for more transport capacity will stimulate the demand for larger and faster ships as well as an increase in feeder ships.

LR: *Safety of life at sea:* The marine industry has seen a steady decline in the total losses of ships over the last 20 years from four per 1,000 ships at risk to about one per 1,000 at risk, while the average age of the world fleet has increased from 13 years to just over 21 years and ship numbers from 73,500 to 90,120 ships. In this period, classification societies have introduced enhancements to the survey inspection regimes for the higher risk ships - tankers, bulk carriers and general cargo ships - by increasing the scope and intensity of the surveys as the ships age. Singly and within IACS, classification societies have worked with IMO, the EU and flag states to define and improve legislation.
ISM Code: The impetus for the ISM Code was the Herald of Free Enterprise disaster, in which nearly 200 people died. The enquiry into the disaster found that the lapse which led to the ship taking on water and capsizing was due to a series of management failures running through the organization from top to bottom. In response to the disaster, IMO adopted Resolution A.647(16),

THE CLASSIFICATION Q&A PARTICIPANTS

Todd Grove
ABS Americas (ABS)

Bernard Anne
Bureau Veritas (BV)

Fritz Grannemann
Germanischer Lloyd (GL)

Alan Gavin
Lloyd's Register (LR)

Ugo Salerno
RINA (RINA)

Todd Grove was named President of the ABS Americas Division in May of 2004. Prior to this he served as Vice President Western Region, ABS Europe. **Bernard Anne**, managing director, marine division, Bureau Veritas, has a background as a marine engineer and naval architect. He worked for many years for major French shipping companies, moving into senior management. **Fritz Grannemann**, shipbuilding engineer and welding expert, since 1980 employed by Germanischer Lloyd. Since 1982, Grannemann is principal surveyor for Mexico and Central America. He has built up the Division Americas and today is head of 120 employees in stations in Canada, the United States, Mexico, Panama, Venezuela, Columbia, Peru, Chile, Argentina, Brazil, and Cuba. **Alan Gavin**, is Marine Director, Lloyd's Register. **Ugo Salerno** took over the role of chairman of IACS at a time when the essential element of classification, trust, was hard to find. He brought to the job a training in naval architecture, a background in managing shipping companies, a ready smile, enormous energy and a deep desire to rebuild trust between class and the industry and regulators it serves.

Guidelines on Management for the Safe Operation of Ships and for Pollution Prevention. This guidance formed the basis of the ISM Code, which came into force on July 1, 1998. Since then, the industry as a whole has become better at managing its business from a safety management point of view, and there is now a general culture of safety which did not exist before the introduction of the ISM Code.

Increasing legislation: Over the past 20 years, political pressure on the shipping industry has continued to mount, generally sparked by major maritime incidents causing loss of life or pollution. The Exxon Valdez incident and the introduction of OPA90 by the U.S. set a precedent for unilateral regulation which continues now in the wake of Erika and Prestige in the EU. Whereas in the past the industry was in the main reactive, it is now beginning to take a more proactive stance by regulating itself more effectively and working to ensure that those regulations already in place are properly enforced.

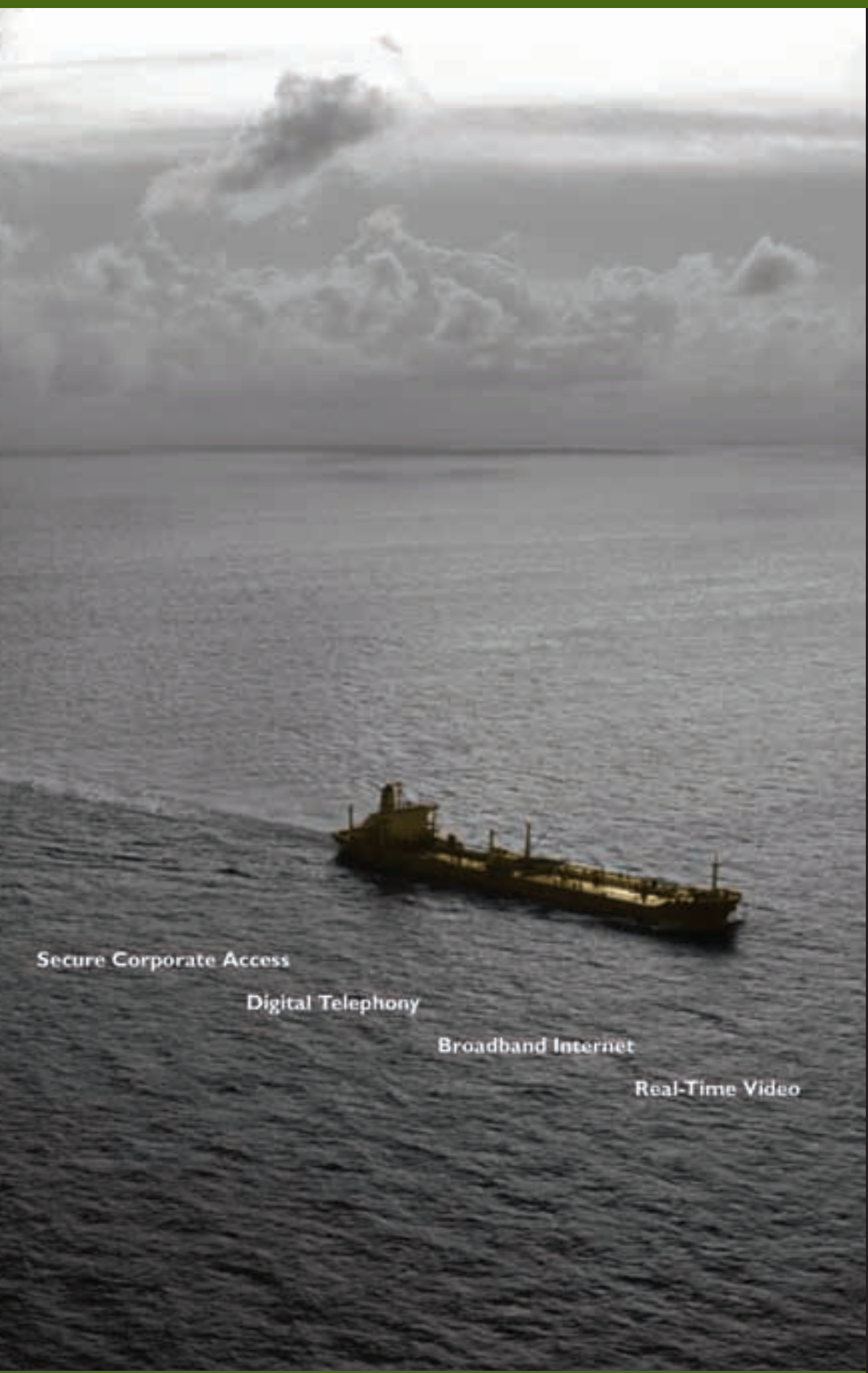
Far Eastern shipbuilding: The emergence of first Korea and now China as major shipbuilding nations has seen a dramatic shift in the global maritime industry. Although Europe retains some shipbuilding activity, large-scale, high-output new construction has inevitably migrated to the Far East due to lower labor costs and sophisticated technology. As Korean yards begin to concentrate on higher-value ships such as LNG tankers and large container ships, Chinese yards are enhancing their ability to build ships such as general cargo ships, bulk carriers, container feeder ships and tankers in series. With the expansion of existing yard facilities and the proposed construction of new shipyards on greenfield sites, some believe that China may become the world's leading shipbuilding nation by 2015.

How has the role of the classification society evolved to help implement these changes?

ABS: Classification standards are constantly evolving as a result of in-service experience, expanded research and more sophisticated analytical tools, particularly the rapid increase in computing power available to the classification society researcher and engineer. An example of this continuing evolution is the current trend towards incorporating sophisticated risk assessment methodologies into the classification rule making process, drawing on techniques that were originally pioneered with the nuclear industry. Just as importantly has been the expansion of classification society responsibilities into the realm of human factors. This began with the introduction of the ISM Code, which saw class assuming auditing responsibilities for safety management systems. More recently, it has been further expanded with the introduction of the ISPS (Ship and Port Security) Code. And at ABS we have taken these responsibilities a step further by establishing guidelines for the application of ergonomics and human factors engineering to marine facilities and systems. These standards address issues as diverse as the optimal layout of the navigation bridge to the influence that lighting and vibration can have on crew performance.

BV: Class is more vital than ever to safe and efficient shipping, simply because class is the only place where there is

World Class Communications Anywhere in the World



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both the expertise to devise technical solutions to shipping problems, and the ability to deliver that expertise globally. There is no nation state anywhere in the world, however powerful, which has the expertise or outreach to regulate global shipping. Every state has had to outsource more and more of its oversight of shipping to class, and every state relies on class to deliver expertise across a global network. So class has had to get better at building and maintaining quality networks across the whole globe.

GL: Classification societies are the driving force behind innovation in shipbuilding. Their mission is and has been to increase the technical safety of marine-related facilities in order to protect life, property and the environment. They establish and apply technical standards for the design, construction and periodic surveys of ships during their lifespan. These requirements are published as classification rules and cover structural strength and integrity of essential parts of the ship's hull, and the functioning and reliability of propulsion and steering systems, as well as power generation. By maintaining significant research departments classification societies are continuously promoting the ongoing development of technical safety standards. This role will continue since no other institution could substitute the vast technical knowledge and experience of the naval architects, ship building and machinery engineers.

LR: *Common Rules:* The development and introduction of common Rules for tankers and bulk carriers has been a massive undertaking and their significance, both to the industry and the role of classification, cannot be overstated. The current challenge for class is to introduce these common Rules and to help ensure uniform implementation. This will be followed by an effort focusing on harmonizing the tanker and bulk carrier Rules. As they currently stand, the two rule sets have different approaches to a number of key technical areas, including loads, finite element analysis and fatigue. Nevertheless, we are confident that the initial release of both sets of new Rules will take place as scheduled on April 1, 2006.
Goal-based standards: Through IACS, we continue to work with IMO on developing goal-based standards for new construction. Tiers I and II* have been discussed at length and corresponding texts have now been developed. Discussion is now centering around the need for a Tier 0 to provide an overarching statement of principle. There is an ongoing discussion about which format the goal-based standards should adopt,

balancing a risk-based approach with prescriptive requirements. Whilst both have merits, our view is that a fully non-prescriptive regime would not prove to be capable of uniform application, at least at this stage of development.
Emerging European legislation: The legislation recently passed by the EU could potentially expose classification societies to criminal sanctions if they are found guilty of deliberate or "seriously negligent" acts causing maritime pollution. The Third Maritime Package, or 'Erika III', also has implications for class, particularly in the realm of statutory matters. It is therefore more important than ever that we continue to work closely with the EU, both individually and through IACS to address the issues raised by the European Commission in its approach to improving the quality of shipping in Europe and worldwide.

RINA: A couple of years ago we found ourselves facing up to three major challenges. First, we had to help flag states find a better relationship between what they regulate for at IMO and how it is delivered. We had to find a way to make the idea of goal-based standards work in practice. At the same time, we had to regain the confidence of the industry we serve, because trust in class had been eroded over the last decade. And while we were tackling those two issues, we also had to find mechanisms to enable 10 competing class societies with different technical experience and rules to sit down together and produce the common shipbuilding rules which industry quite rightly wants. It was a pretty full agenda.

Hindsight being 20/20, what do you consider to be the biggest mistake you have seen in the industry during your career?

BV: I think the biggest mistake was a collective failure by traditional maritime nations to foresee the effects of globalization. Now we are fighting hard to retain our core shipowners and core expertise, but we should

have done more sooner to maintain the maritime expertise we held.

GL: Shipping is after all a global business and the IMO has been the playing field for international regulations. The trend to regional and national single-handed initiatives to impose stricter regulations should be examined carefully. Unilateral action of states might lead to some complex technical as well as legal issues of implementing national as well as international conventions.

LR: The criminalization of seafarers is a great source of concern for all in the maritime industry. Not only does it greatly diminish the attractiveness of the seafaring profession, but it also hurts the future effectiveness of the maritime industry's shore-side operation.

RINA: Underestimating the importance of the co-operation and competing by reducing standards.

What are the current or near term challenges facing the industry today?

ABS: For all IACS members the most immediate challenge is finalizing and implementing the new common structural rules for tankers and bulk carriers. This is the most fundamental change in the classification profession since its inception. The development of these new common rules has taken an enormous amount of effort on the part of all the societies. That input has been willingly given as the ultimate result will be stronger, more robust and ultimately safer ships, provided they are properly maintained by the owner.

BV: Simple. We have to deliver on the common rules, and maintain a united IACS which demonstrates to industry and politicians that class collectively puts industry interests first and can compete on service without damaging the delivery of quality. We are some way down that route, but we have some way to go, and I call on all my colleagues to work tirelessly for delivery of what we have promised.

GL: Although shipping is the most environmentally friendly mode of transport, a number of environmental challenges remain: Since 19 May, Annex VI of the MARPOL Convention has been in force. The latest annex to this body of internationally binding regulations generates numerous changes for shipping companies, engine builders and yards. This can be regarded once again as an important albeit necessary step into the right direction. In addition, the introduction of "SOx emission control area" where ships may only use fuel with a maximum sulphur content of 1.5 per cent contributes to the ecological image of sea transportation. Further on the agenda of IMO regulations is the recycling of ships as well as ballast water management and treatment. These developments underline that the international legislation for protection of the environment is constantly in flux.

RINA: Shipping's Image: Francis Fukuyama (Professor of International Political Economy at the Johns Hopkins University) said, "the degree of trust and social cohesion in a particular society greatly influence that nation's economic well-being and global competitiveness." This applies to the maritime sector as well: we need trust and transparency

within our industry as the basis for increasing our competitiveness and for achieving the reputation of a responsible industry we deserve. In this respect I strongly support Admiral Mitropolous, Secretary General of the IMO, in his efforts for improving the shipping image.

Briefly describe your outlook for the marine business in 2005 and beyond?

LR: The shipping industry is still enjoying an unusually prosperous period of growth, and with owners eager to order new tonnage, we have similarly benefited. This year we reached a new milestone, with 120 million gt in Lloyd's Register class, the highest in our history. We are strong in tankers and bulk carriers, and we are market leaders for LNG ships, passenger ships and large container ships. Recent significant classification contracts include four 10,000 teu container ships for COSCO at Hyundai Heavy Industries - the largest declared-capacity container ships ever ordered - and four +200,000 cubic metre membrane-type LNG ships for Pronav Ship Management at Daewoo Shipbuilding and Marine Engineering.

RINA: I think legislative pressure will, over the next 10-15 years, drive considerable renewal of the fleets of some types of ships, such as tankers and bulk carriers. Couple that with increasing investment in the construction of high standard ships, such as cruise ships and cruise ferries, shipowners will have considerable recourse to banks to finance new initiatives. The financial world is expected to face the impact of the Basel II agreement, and the new rating criteria for risk management in the financing of the industry will have a profound effect on ship finance. The money shipping needs will be there, but under a more informed control. I have a tremendous vision for the future of class. I feel very positive about our industry. Shipping has been the first truly global business, and our members offer services all over the world, to clients from anywhere, employing staff from all over the world, but working to a common standard. We can build on that network and experience. We can be the leaders in developing our communities, not just in setting standards in shipping, but in all sorts of areas outside the marine business. Social and financial responsibility, environmental management, quality control and risk management are all areas where class has the network and the knowledge to help industries and communities.

BV: Well, shipping has a habit of making forecasters look silly. I foresee a continuing strong demand for shipping, as India industrializes and China becomes a consumer economy. There will be more demand for gas transportation and certainly more demand for recreation at sea, both in cruise shipping and at the yacht end of the scale. Frankly, I don't see much shrinking, as the world will need workhorse ships. So growth in high tech gas carriers, continued growth in ship sizes, more innovative cruise ships, and continued strong business with workhorse vessels. We shall grow our market share because owners and yards want to be associated with quality which is delivered in a user friendly way, and because we shall con-

tinue to be at the cutting edge of technology. We classed the first ever LNG vessel, recently we classed the first ever LNG ROV offshore loading and discharge vessel, and we shall continue to lead the way.

What do you consider the top priorities - project wise - for your company in the coming 12 months?

ABS: The challenges are continuous. In addition to implementing the new Common Structural Rules, ABS maintains a very active research and development department and program. At any one time as many as 100 different research programs may be in process covering a very broad range of subjects. Current initiatives include topics as diverse as experimental work for dynamic material properties, hydroelasticity analysis and structure responses of LNG containments systems, the development of sophisticated software for the optimization of propulsion shaft alignment, the development of a reliability-based structural assessment tool for analyzing the hull girder of existing ships, and the establishment of appropriate standards for a ship vibration notation based on a defined vibration analysis and measurement procedure.

The research projects cover all ship types and sizes in addition to facilities used for the exploration and production of offshore energy resources. Examples of projects related to the offshore sector include the establishment of standards for the application of composites to production piping systems, and the application of spectral-based fatigue analysis for floating offshore structures including low frequency effects on FPSOs.

Significant development work is also being applied to the extension of the ABS SafeShip life-cycle support program including the addition of a risk-based inspection module and a reliability centered maintenance module. These new tools complement and supplement the existing hull maintenance and survey tracking SafeShip tools.

BV: We are working hard, very hard, with a big team, to revise our rules to meet the common rules now adopted by IACS. To incorporate them for tankers and bulkers, and to disseminate them across our network and ensure our people are fully trained to implement them, is a major task.

LR: A major priority for all IACS societies will be harmonizing and delivering the common Rules for tankers and bulk carriers to the industry.

RINA: Strict management focus on the quality of the fleet and services to shipowners, and innovation in specialist fields are the top priorities in our society in the marine sector. We take providing the best quality classification as a starting point only. We are using our experience and research activity to innovate the most advanced sectors of shipping.

How is the increasing litigious nature of the world effecting the way in which classification societies conduct their business.

ABS: In many respects classification societies provide a scope of services in the public interest which could only otherwise be provided by governments; but which, in fact, relatively few govern-

(Continued on page 50)

LeTourneau Celebrates

50th Anniversary of the First Jack-Up Rig

During the early 1950's, offshore drilling was, for the most part, limited to non-mobile (fixed) platforms that were embedded in the sea floor by permanent foundations and/or pilings. The use of these non-mobile platforms was an expensive proposition since recovering the cost of the foundation had to be achieved from a single drilling location. The very few mobile platforms operating during that era were supported by sunken refloatable vessels, and were considered unsuitable for use in the turbulent waters of open seas and, therefore, confined to inland waters.

R.G. LeTourneau, an inventor, innovator, and pioneer (with literally hundreds of U.S. patents) had an idea for a vessel that could safely drill for oil and gas offshore. During a career that had spanned nearly 40 years, LeTourneau had become renowned for designing and building machines that elevated the earthmoving industry to new levels of efficiency and productivity. He was the first to develop all-wheel electric drives for these heavy-duty machines, a key technological component in the successful development of a mobile offshore drilling platform.

LeTourneau envisioned a stable and secure mobile platform that could safely operate in often-treacherous open waters. He knew that such a vessel would greatly reduce the costs of offshore drilling by being able to move from site-to-site rather than being permanently fixed to one location. His company, R.G. LeTourneau, Inc., after conducting extensive engineering studies in oceanography, hurricane winds, and tidal waves, began design work on a mobile, self-elevating offshore drilling platform. The objective was to build an all-weather offshore drilling platform that could be floated to the drill site then quickly converted to a stabilized structure by lowering open lattice tripod-type support legs to the sea floor.

Although the concept of a deep-sea, mobile, offshore platform aroused considerable interest among the oil companies, none were prepared to help finance the construction of such an expensive (nearly $3 million) and unproven project. That is until LeTourneau proposed the idea to Zapata Off-Shore Company of Houston, Texas, headed by future United States President, George Bush.

Bush later described LeTourneau in his autobiography, *Looking Forward*.

Scorpion on location in the Gulf of Mexico.

R.G. LeTourneau, George Bush and Dick LeTourneau.

"A kind of George Patton of engineering. … He'd come to us with a proposition: he'd build the Scorpion at his own expense. We'd advance him $400,000 - refundable if the completed rig didn't work; if it did, he'd get an added $550,000 and 38,000 shares of Zapata Off-Shore common stock. Our feeling was that anybody who had that much confidence in himself was worth the gamble."

The contract to deliver the first mobile offshore platform was signed on November 11, 1954 and construction began in late 1954 near the company's Vicksburg plant on the shores of the Mississippi River. With the need to overcome the design constraints of conventional platforms, its construction was considered by many in the offshore oil industry to be quite a daring attempt.

The LeTourneau Mobile Offshore Platform was basically a large, shallow-draft barge, equipped with three electro-mechanically-operated lattice type legs. Dimensions of the platform were 186 feet long, 150 feet wide, and 24 feet in section with a 24-foot by 28-foot derrick slot.

The hull structure comprised two 20-foot diameter barge-like hulls, which were reinforced by corrugated steel plate and utilized for fuel storage, mud tanks, and water supply storage. The three 140-foot lattice type steel legs (also known as spuds) were located on two sides and one end of the hull. Living quarters for the crew and helicopter landing pads were fitted to the deck.

In December 1955, the 4,000-ton platform "walked" into the Mississippi River under its own power. Construction of the platform was completed with the installation of a drilling derrick, pumps, and associated equipment.

The platform was handed over to Zapata Off-Shore and officially christened "Scorpion" on March 20, 1956 in a ceremony where R.G LeTourneau presented a three-foot "Key to the Gulf" to Zapata's president, George Bush. Scorpion went into service off the coast of Port Aransas, Texas and drilled its

first well for the Standard Oil Company of Texas. The rig then moved to another location off the coast of Galveston, Texas, then to the Gulf of Mexico.

In June 1956, the Scorpion set a drilling rig world relocation record by traveling approximately one mile under tow from one well site to another and commenced drilling a new well within 8.5 hours.

Scorpion's unprecedented repositioning speed was due to its ability to stabilize with only five to seven feet of sea floor penetration and then quickly elevate.

Other platforms of the day typically required as much as a hundred feet of spud penetration and days to jack before operations could begin.

Construction soon began on a second LeTourneau platform, which was delivered to Zapata Off-Shore in early 1957. The LeTourneau platforms soon had an opportunity to prove themselves, as they were the only rigs on the Gulf Coast to withstand the forces of Hurricane Audrey in 1957 without sustaining damage.

The Zapata Scorpion revolutionized offshore oil and gas exploration a half century ago by greatly reducing the costs of setting an offshore oil well into operation.

Well regarded as a robust and efficient drilling platform, LeTourneau had built and placed 10 offshore platforms around the world by 1959.

Today, after having designed, engineered and built 179 jack-ups (more than anyone else) and with more than 135 operating throughout the world, LeTourneau, Inc.'s Marine Group stands as a leader in offshore jack-up drilling rigs, with a track record of dependability.

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SNAME Introduces Innovation Sessions

In response to feedback from exhibitors, SNAME will introduce Innovation Sessions during the SMTC&E and SPS, scheduled to be held in Houston on October 20-21, 2005. Exhibitors who have new products or technologies can use these sessions to make presentations to SMTC&E and SPS conference attendees in a special lecture-style area of the Expo Hall with seating for up to 30.

Details:

- 20-minute segments, with 10 minutes for Q&A, for a total of 30 minutes maximum per session.
- Time slots available are:

Thursday, October 20 - 12:30 pm - 2:00 pm and 4:00 pm - 4:30 pm
Friday, October 21 - 8:30 am - 9:30 am and 12:30 pm - 3:30 pm

- Although these presentations will not be formally reviewed, SNAME must reserve the right to refuse any that do not seem appropriate, and will rely on the exhibitor's and presenter's own standards of professional behavior to make close supervision unnecessary.
- Brief abstracts must be submitted to SNAME HQ to enowak@sname.org.
- As there are only twelve slots available, they will be on a first come, first served basis. You will receive a confirmation after your abstract has been received. Two additional presentations will be selected as standbys.

Hands Across the Ocean

From the great liners to the pocket cruise ship

This is Part II of a two-part story. Part I ran in the June 2005 edition of Maritime Reporter, page26-32.

By Mark Hilferty, SPACE

These days the 'big three' of the industry slug it out for dominance: RCI head to head with Carnival, and new kid on the block Star/NCL doing the previously unimaginable and creating a new fleet in a remarkably short period of time, and one which is Oriental in both culture and location. Each of these players has their own jewel in their crown. Carnival is the biggest with 13 brands and 61 ships (as well as the jewels P&O Cruises, Princess Cruises and Cunard) but RCI has, according to Condé Nast Traveller Magazine, seven of the top ten large cruise vessels in the world with Constellation weighing in at number one.

Constellation is a big ship with 1950 passengers, a length of 965 ft. draft of 26 ft. and 105 ft. in beam and 91K tons. But her awards were not for size but for five key criteria: itineraries, crew/service, cabins/design, food/dining and activities/excursions. Some of her key features include acupuncture at sea, mind, body and soul center and the total fitness zone. Most interesting amongst her many innovations is 'Connect@sea', exclusive to Celebrity Cruises, which allows onboard access to the internet, though this is just the first of many cruise lines to follow the IT for all route.

Constellation may be big but wait until the first RCI Freedom class vessel appears next year: 158,000 tonnes, 3600 passengers, extensive WiFi capabilities, an ice-skating rink, rock-climbing wall flat-screen TV's in every room - the list goes on. The great ocean cruise ships have come a long way in delivering far more than ocean transport - they have become a must-do experience for all.

But let's not get bogged down with the large cruise ship operations as there's more to a life at sea as a passenger than that. Look at some of the smaller niche vessels: from the ultimate luxury of Silversea where sophistication and class are at their finest, to the romance of Windstar Cruises "the best of sailing with the amenities of the cruise ship." In addition, the birth of the super and mega yacht has taken passenger shipping to a new and previously unrivaled level. Projects such as the Maltese Falcon, currently the world's largest privately owned sailing ship at 286 ft, will be a beautiful and elegant addition to a sometimes gaudy superyacht market. This modern clipper yacht is filled with innovation from her interior to her rotating carbon fiber masts. And then we have the mysterious, code-named Project Platinum, a reputed 525 ft world record superyacht being built in the Middle East. As these privately owned yachts become ever larger and more sophisticated, they enter the realm and the regulations associated with cruise ships, and the cross-over between these two marine market segments becomes increasingly obvious, particularly with respect to build techniques and on-board technology.

Cruise ship construction remains a European shipyard staple, with proficient yards in Finland (pictured is Aker Finnyard's Turku facility), Germany, France and Italy. (Photo Credit: Aker Finnyards) (SEE "FINLAND" on page 43, this edition)

Technology is an ever present and generally invisible supplier of magic on cruise ships, from interactive digital systems being employed for the remote control of curtains, internet access, television, DVD, lighting and more, to active thermostatic controls programmed to suit your own personal tastes, to lasers and virtual reality systems. Our thirst for connectivity and hunger for new experiences will be catered for in the avalanche of new technologies arriving on a daily, if not hourly, basis. This not only benefits the passenger, but at the same time provides the operator with valuable information on customers, their likes and dislikes, and helps develop the future cruise product and expand its global market. Tomorrow will indeed be a fantasy world - but one tailored to our desires.

However, cruise ship development relies on more than fantasy design, size, facilities and destinations. In recent years product differentiation has become a looming challenge. Differences between mass market cruise products were difficult to perceive in the past, indeed were almost microscopic between so many high quality products. As in the global motor industry, where the new "competitive battlefield" became warranty, service, image and finance package rather than the engine,

because all cars were deemed high quality products, so the route to success became clear - do something different. The new mantra had arrived.

Of course, doing something different is a bit like predicting the future: there is no such thing. In fact, there are lots of things, lots of possible futures and lots of ways to be different. One response to this issue has been Michael Krafft's Star Clippers. The website reads, "In 1902, the largest, fastest sailing ship the world had ever seen was launched. The legendary Preussen dominated the seas, only to be gone in a few short years. Neither before nor since had the world seen such a magnificent sailing ship, until today…" He was referring, of course, to the Royal Clipper, a five-masted beauty flaunting a massive 54,360 sq.ft of sail area. At 197 ft in length she is an impressive ship and delivers to an ever more experience-hungry passenger a taste of authentic sailing even if "in the event of unsatisfactory weather or wind conditions, Star Clippers reserves the right to proceed under motor power in order to meet itinerary requirements," — the best of both worlds?

Even we at SPACE have moved in on the act with Destination Brisbane. The concept is not just an architectural statement, more a demonstration of the power of an icon. In this case, an icon for the city of Brisbane and a beacon for inward investment in the state of Queensland. Our belief in the brand route to cruise product development rather than the ship route has been vindicated by the awesome global response to the publication of the concept visuals. More than 50 magazines featured the story and spread it round the world from the UK to Northern Europe, then on to North America. There it was picked up by CNN and the Discovery Channel, which featured the animation we had created on its 'Cities at Sea' series. The designers of future ships take note: to achieve success you have to be different, as the general public seeks to buy into brands delivering powerful leisure experiences and enduring memories.

Reflecting back from this future time, it is interesting to note just how slow the development of technology in shipping has been. Rudolf Diesel invented his famous engine in the 1890s, but even by the 1960's, it had not reached a point in its development at which it could usurp the steam turbine in terms of sufficient power output to reliably drive an ocean going vessel. As with all modes of transport, the last 65 years have seen many technological improvements. I say improvements, because nearly all of today's technology was originally invented in the 19th century, significantly: welded hulls replacing the old hot-riveted structures; steam technology overtaken by gas turbine, diesel and diesel electric power plants; air-conditioning; Azipod propulsion; stabilizers and so on.

Our chosen time frame for this article began in 1939, the year which marked the end of somewhat frivolous and decorative Art Deco period and the beginning of war-time deprivation and utility design. It is no surprise, therefore, to discover how much of so-called 'contemporary' cruise ship design is influenced by or derived from the Art Deco style of the 1930s, the period considered to be the 'Golden Age' of ocean liner travel. This decorative style, when it first appeared, was applied to the interiors of the Queen Mary, Queen Elizabeth and Normandie. Art Deco, another European export to America, is not to be confused with the modern movement of the same period that is still with us as a living force. The modern movement was considered too uncompromising an approach as a provider of a viable aesthetic for luxury ships, although a somewhat watered down version found its way into the QEII and Canberra.

One significant development in recent years has been the diversification of cruise products. The number of distinctly different products that have appeared beneath the catch-all term, 'cruising',

include elegant sophisticated cruising, cultural pursuits cruising, river cruising, scenic cruising or just plain having a good time cruising, but there are only marginal differences between the vessels within which these products are delivered whether mass market or niche market. Interior decor varies from the glitzy 'Las Vegas' look to calmer more contemporary environments. But the opportunity to push the bounds of conventional cruise ship design in architectural terms seems to have been ignored ,which is sad as the global thirst for fabulous iconic structures and never to be forgotten experiences has become almost insatiable. Recent trends indicate a reluctance to break the mold despite the introduction of atria, columnless show lounges, all balcony cabins, etc, in the larger scheme of things these are only cosmetic touches that in no way change the fundamental structure of the cruise ship as a floating hotel.

A relatively recent innovation is idea of the cruise ship being a holiday destination in itself. This is a fine aspiration, but there is little evidence that it is being translated into new ship concepts. Europeans tend to baulk at some of the excesses of North American products aimed at the younger market but it cannot be denied that here is an attempt to drop the traditional rituals associated with cruising and provide a zany, fun experience en-route to your destination - Carnival Cruises having championed this approach. Not everybody's cup of tea to be sure, but nonetheless a successful attempt at defining one particular cruising product.

Perhaps now could be the time to disengage the design of future cruise ships from the liners of the past and reinvent them to provide a genuine response to the requirements of cruise passengers. For example, with the importance of tenders for land-based tours being such an important part of some cruise lines itineraries, it is surprising how little consideration is given to a suitably sized and designed holding area for passengers disembarking and embarking. At present passengers are scattered around the public rooms causing logistical problems getting them to the tenders, and interrupting the experience of those who choose to remain on board. Land based destinations of the 21st century are employing global named architects to create 'empires in the sun' and younger more robust holiday entrepreneurs are commissioning new iconic structures to attract an ever more savvy holiday maker to sample the delights of exotic locations, Dubai being a classic example of this.

The atrium is from Celebrity's Century and shows one of the earlier examples of atria used on ships.

It would be impossible and negligent to write an article about passenger ships in the year 2005 without mentioning the QM2. We started back in 1939 and sixty-five years later we come full circle - almost. QM2 is an extraordinary vessel for a variety of reasons, not least of which is the creation of such a gargantuan themed product so long after the demise of the era upon which her namesake Queen Mary herself had flourished. As with many other marketable products from 'Theme Park UK' there is more myth than substance in her bones, but there is no denying her presence as a man-made structure more complex than anything which preceded her. The tandem crossing of the Atlantic in March 2004 with her 'little' sister the QE2 was a master stroke in marketing terms and her arrival in New York, New York a special moment in maritime history.

Trends for the future would suggest that we are going in two opposite directions. On the one hand ships are getting bigger and bigger with QM2 a good example: on the other becoming smaller and more intimate with products such as Silversea. It is a trend mirrored by the airline industry with America's Boeing Dreamliner shaping up to do battle with the European behemoth Airbus A380. Both of these concepts were driven by extensive market research, but this delivered completely different 'possible' futures. As I said earlier, the future is not a singularity more a composite of lots of possible futures.

Interestingly, outside of the mass market where economies of scale are maximized, a new trend is appearing and developing in a similar way to how it happened in the hotel market when the 'boutique' hotels were introduced. A smaller, more intimate product, more focused on its market and not necessarily totally exclusive or based on price. For me this new leisure psychology is the most interesting because it is the most challenging. The global village is here. The world has changed and there is no going back. Increasingly, motivation is based on values rather than cash, and cost driven differentiators may well be replaced by added value or benefits driven enhancers where cruise guests are satisfied with higher value intellectually and experientially instead of greater value financially.

Our own thinking at SPACE has moved towards a redefinition of the cruise experience and how people will use cruise ships in the future - and indeed how operators will use them to generate revenue. For us the biggest challenge facing tomorrow's cruise operators and the designers who create them will be distinctiveness. To paraphrase Tom Peters, if they do not achieve distinction they may face extinction as mass market economics carries its own sell by date.

If there is a future for the cruise industry then it has to be experience led. Two-dimensional products will be left on the shelf as traditional cruiseaholics switch allegiance to more memorable solutions to vacation time. Cruise products will also focus more on what women want - and that story will probably cause more change than any other factor in the history of the holiday.

About the Author

Mark Hilferty is owner and managing director of SPACE the design practice, a consultancy renowned for innovation in marine and other leisure, transport and workplace projects. Trained as a designer, Mark is a frequent contributor to marine and other business sector events and publications, and a keen advocate of new thinking and technology in the design of work and leisure experiences and spaces.s

Maritrans Choses New Fleet Management Solution

SeaWave LLC completed an agreement with Maritrans to outfit its fleet of 15 vessels with the SeaWave Integrator F55T solution featuring the Remote Management Suite. The Integrator F55T is designed to be a flexible, easy-to-operate, and inexpensive solution that provides the benefit of high speed data, MPDS, voice and fax at least cost, as well as alternative satellite and cellular GSM mediums.

"IT issues are now resolved from shore, rarely involving anyone on board my ship. The SeaWave system benefits us because we no longer have to wait for someone to fix our problems. As a result, downtime has been in effect eliminated and my crew can focus on the jobs they were trained to perform." — Captain Rick Ialucci, Maritrans

Maritrans, with a diverse fleet of four tankers and 11 tug/barge units, has unique communications needs. The company needed a reliable and flexible voice and data communications system which allows them to perform tasks and remotely monitor each vessel from the home office, removing the responsibility from onboard personnel. Maritrans also expressed the need for a complete crew solution that utilized multiple communication mediums, including Inmarsat and GSM.

"SeaWave provides more than a communications solution," says Mike Donato, Director of IT Services, Maritrans, Inc. "The system has virtually eliminated onboard administration by providing a Remote Management Suite (RMS) that allows IT operations to be controlled from shore."

SeaWave's Remote Management Suite is a value-added package that places vessel IT control back onshore. By doing so the crew onboard the vessels can concentrate on the jobs they are trained and paid to perform. Using SeaWave RMS, Maritrans now can track each vessel from the home office, remotely maintain and repair vessel systems, launch applications and transfer files both to and from the vessels.

"The goal for Maritrans was to save time and money while permitting the people onboard the vessel to concentrate on their daily responsibilities," said Tim Green, Manager of Sales for SeaWave. "Additionally, they no longer have to wait for system repairs or dispatch key personnel for on site repairs."

SeaWave Billing nearly eliminated onboard administration for Maritrans. The invoices and the onboard communications usage report clarify communications charges for each user. By removing the burden from Maritrans to track and charge individual and operational usage they have virtually eliminated communications administration both at sea and on shore.

Circle 12 on Reader Service Card

Telenor, Thuraya Ink Agreement

Telenor Satellite Services and Thuraya Satellite Telecommunications Company announced that Telenor will begin offering Thuraya products and services throughout Telenor's global distribution network. Established in 1997, Thuraya is a regional mobile satellite system that provides satellite telephone services to a region covering 110 countries in Europe, North, Central Africa and large parts Southern Africa, the Middle East, Central and South Asia.

Under the terms of the distribution agreement, Telenor now offers ThurayaDSL Services, in addition to Thuraya's standard handheld satellite communications services.

Circle 13 on Reader Service Card

ACR Offers RapidTrack S-VDR

ACR Electronics, Inc. introduced the RapidTrack S-VDR — a simplified float-free voyage data recorder. It is designed as a smaller, lighter and less expensive option for commercial mariners.

The RapidTrack S-VDR is built in a sturdy float-free EPIRB (Emergency Position Indicating Radio Beacon) polycarbonate case, and when deployed, it is capable of automatically broadcasting satellite-detectable GPS coordinates for up to seven days to aid location and retrieval. A two-piece design, the float-free RapidTrack S-VDR includes a highly durable mounting base sub-assembly, which is fastened directly to the ship.

Circle 26 on Reader Service Card

Stratos, SMS Global Introduce New Crew Communication

Stratos Global Corp. and SMS Global, Ltd. recently introduced SMSCrewMail, a prepaid short message system (SMS) and text e-mail service for maritime crewmembers seeking a cost-effective way to stay in touch while at sea. SMS messaging is an option available on digital GSM networks, which allows text messages of up to 160 characters to be sent and received via the network operator's message center to mobile phones, or from the Internet, using an SMS gateway website. If the phone receiving an SMS message is powered off or out of range, messages are stored in the network and are delivered at the next opportunity. SMSCrewMail also allows maritime crews to send text e-mails up to 460 characters.

With SMSCrewMail as part of StratosOne and StratosNet, crewmembers can send and receive SMS and text e-mail messages using most Inmarsat satellite platforms, including Inmarsat-A/-B/-M/mini-M/R-BGAN/GAN and Fleet, as well as Iridium and Marinesat/Landsat. It is also easy for a GSM or other e-mail user to reply to messages, as crewmembers are assigned a GSM number and a standard e-mail address.

SMSCrewMail is included at no extra cost to vessels using StratosOne and StratosNet. Messages generated from crewmembers are simply sent to the outbox of the onboard StratosOne or StratosNet e-mail client, and then delivered when the vessel connects to its e-mail service.

Circle 24 on Reader Service Card

PetroCom Introduces Unique Wireless Phone

PetroCom announced that the first nonincendive phones are now available to workers located in potentially hazardous environments or locations. These phones are Class 1 Div 2 Group A-D compliant and meet National Electric Code (NEC) standards for nonincendive equipment, nonincendive circuits and nonincendive components. "While responding to the needs and requests of our customers in offshore-oil exploration, we found that a nonincendive phone was simply not available," notes Ken Wright, president and COO of PetroCom. "Now that we are in production, we've learned that workers in other hazardous industries have been looking for this type of phone and demand the same benefits." Service for these phones is available through PetroCom or any other GSM wireless provider operating at 850 MHz. Manufactured by Ecom Instruments for PetroCom, the phones incorporate electrical and mechanical modifications, as well as the addition of special safety protective electronics. The NEC Class 1 Div 2 Group A-D designation specifies that these phones are usable in situations where hazardous concentrations of flammable gas or vapors exist under unlikely conditions of operation.

Circle 25 on Reader Service Card

Rolls-Royce Works on New IBS

In response to new standards, Rolls-Royce is developing a new integrated bridge. DNV's new Bridge Design Offshore Service Vessels (NAUT-OSV) classification is designed to reduce errors and accidents in the offshore industry. Four main systems — communications, navigation, steering and automation — are blended in the integrated bridge solution under development by Rolls-Royce in cooperation with Furuno, which is supplying the communications and navigation systems. "The biggest challenge has been to get the various units to share information," said Ingemund Longva, director of automation and controls, Rolls-Royce. "The new UMAS alarm control and monitoring system will be fully integrated with Furuno's communications and navigation systems. The operator will then be able to use the same workstation and screen to carry out a variety of different tasks. For example, it will no longer be necessary to have separate radar screens." The long-time need for a more comprehensive and standardized operating platform still applies because it speeds up operating training. The new classification standards provide a framework for a uniform bridge configuration, with fewer opportunities for customised solutions. "We have a unique opportunity to create a uniform design and technical solutions with the highest level of integration, since we already produce much of the equipment on board," said Hans Martin Hjorungnes, group leader, electrical systems, at Ship Technology Offshore. "Integrated bridge solutions will be space saving and provide better functionality." Commissioned by Rolls-Royce, Hareide Designmill has created a unified design for consoles, panels, joysticks, monitors and the operator's chair.

Circle 27 on Reader Service Card

Cat 3618's Make Greek Dolphins Fly

Delivering a maximum of 7,250 kW, Cat 3618 is the most powerful member of the Caterpillar branded medium-speed marine engines. Its propulsion potential makes it suited for applications such as the fast ferry business. One recent installation aboard Highspeed 5, a vehicle/passenger catamaran which was built for Hellenic Seaways by an Australian shipyard and recently entered service, illustrates this. Hellenic Seaways, formerly known as Hellas Flying Dolphins, is a high-speed ferry operator in the Mediterranean. Established in 1999 and based on 42 vessels acquired from 20 different owners, the company now has 35 vessels and employs more than 3,000 employees in coastal transport. Since 1999, the existing fleet has been modernized, in close cooperation with the Perama shipyard base, with a special focus on engine and accommodation improvements. Moreover, four new high-speed vessels have been introduced to the market. With more than six million passenger and one million vehicle movements per year, Hellenic Seaways is now the largest domestic ferry operator in Greece. Highspeed 5 is a 470-ton aluminum catamaran measuring 85 x 21.2 m. It carries 809 passengers, up to 154 cars and has a crew of 26. Four Cat 3618 diesels, totaling 28,400 kW and each driving a Rolls-Royce Kamewa Waterjet, will propel the catamaran to a maximum speed of 41 knots. In addition, four Cat 3408 gensets deliver 920 kW of electric power. The custom designed vessel will operate a new fast ferry service linking Piraeus and the island of Crete, one of the most important Greek island routes. The Cat 3618 is

Four Cat 3618 diesels, totaling 28,400 kW and each driving a Rolls-Royce Kamewa Waterjet, will propel the catamaran to a maximum speed of 41 knots.

fully compliant with current IMO and EPA 2007 standards and has approval from all major international marine classification societies. It is supplied with the Marine Monitoring System (MMS II), which continuously transmits more than 250 engine and auxiliary parameters, thus creating conditions for reliable operation without unscheduled service. For Hellenic Seaways, choosing a capable shipyard was a matter of choice but choosing a powerful service provider left no choice. Eltrak S.A., the Greek Caterpillar Dealer, offers 24/7 service availability to the shipping company, allowing the vessel to be operated virtually round the clock during high seasons.

In addition to the favorable operating costs, this local support was critical to the Hellenic Seaways selection of engines for the Highspeed 5. Moreover, Hellenic Seaways could rely on history, as the predecessor of the Highspeed 5, Highspeed 4, is also equipped with four Cat 3618 diesels and four Cat 3408 gensets and has demonstrated good operational performance.

Circle 28 on Reader Service Card

Four New Tugs to Boost AMNAV Fleet

In a commitment to enhance its services and to expand its ship-assist capabilities at California's largest ports, AMNAV Maritime Services will build four new powerful tugs. The fleet expansion was announced by Milton Merritt, president of the company that provides ship-docking services on San Francisco Bay and at the ports of Los Angeles and Long Beach. "Through this investment, we will be both growing and improving our presence in the ship-assist sector," said Merritt. AMNAV, part of Seattle-based Marine Resources Group (MRG), will build the new tugs at an MRG-owned shipyard in Rainier, Oregon. The Dolphin-Class tugs will be 78 ft. long and will offer 5,080 hp, enough to handle a wide range of ships, including new-generation Post-Panamax and Ultra-Large Container Vessels. The tugs will be powered by twin Caterpillar engines linked to Rolls-Royce azimuthing stern drives.

"In addition to being among the industry's most powerful ship-assist tugs, they will also be among the greenest," Merritt said.

"The engines will be certified under the low-emission standards of the International Maritime Organization (IMO) and EPA," he noted, adding that AMNAV also has upgraded a number of its existing tugs with IMO-certified engines. "We are committed to exercising good environmental stewardship as well as exploring new and innovative ways of conservation," Merritt said. As for the timing of the new-construction program, Merritt said it will enable AMNAV to keep pace with customers bringing ever-larger ships into the fast-growing trans-Pacific trade. "The trade is booming," Merritt said, "The trend toward bigger ships is growing, and that means we need more horsepower to handle them."

The new boats are expected to be in service by early next year.

Dolphin Class

Length	78 ft.
Breadth	34 ft.
Draft	14 ft.
Design Speed	12 knots
Certified Bollard Pull	65 tons ahead
	60 tons astern
Diesel Oil Capacity	10,000 gallons
Fresh Water Capacity	500 gallons
Registry	U. S. Flag
Regulatory Tonnage	Under 200 gt
Main Engines	CAT 3512 B HD Series II
Power	2,540 hp each at 1,800 rpm
ASDs	US 205 FP Rolls Royce
Forward Hawser Winch	Markey Model DEPGF-42
Stern Hawser Winch	Markey DEPC-32

Dutch Industrial Will

By David Tinsley, technical editor

Following divestment by IHC Caland, the companies now merged into IHC Holland Merwede have scored a succession of contracts under new ownership, ensuring shipbuilding continuity at the home yards in Sliedrecht, Kinderdijk and Hardinxveld-Giessendam and playing to Dutch strengths in special-purpose tonnage. While dredge construction and technology remains central to IHC Holland Merwede's endeavors, the strategy of reinforcing the business in other areas of high value, complex vessels is clear from orders for an open-top container feedership and a sophisticated pipelay and offshore work vessel.

The 1,700-TEU boxship is to be turned out at Kinderdijk for progressive, northern Dutch shipowner Wagenborg Shipping, evidently convinced of the cargo handling benefits promised by a hatchcoverless configuration. The design is also distinguished by an envisioned service speed of 21-knots, and by the nomination of a twin-engine, single-screw propulsion layout, which provides one of the opening references for the 46F medium-speed diesel developed by Wärtsilä Corporation and employing common-rail fuel injection.

Scheduled to be commissioned into the intra-European shortsea traffic as early as mid 2006, the ice-classed container carrier will be equipped with two six-cylinder examples of the Wärtsilä 46F, each producing a maximum 7,500 kW. The drive will be through a combining reduction gearbox to a single controllable pitch propeller, incorporating a compact E-type hub for improved hydrodynamic performance. The arrangements are intended to enable the ship to be run on just one or both engines in accordance with scheduling requirements at any point in the operating profile, to the benefit of overall fuel economy.

IHC Holland Merwede's subsequent order for a 12,340-dwt reeled rigid pipelaying and offshore construction vessel is to be fulfilled by the subsidiary Merwede Shipyard. The design and build project is a testament to the latter's design and system integration capabilities, and carries a comparatively early delivery stipulation, notwithstanding the complexity of the vessel, in the second quarter of 2007. Overall project cost is in the range of $180-million to $200-million, based on fixed prices from the Merwede yard and the pipelay equipment supplier Huisman Itrec.

Contractual owner Subsea 7, part of the SIEM Group, is among the world's leading subsea engineering firms, with a presence in all the main offshore markets. It controls more than 100 ROVs (remote-operated vehicles) and four pipeline construction facilities as well as a fleet of specialized vessels.

The 515 ft. (157 m) newbuild from the Netherlands will have a full dynamic positioning capability, and will incorporate a full-width ROV hangar, one 400-ton offshore crane and two other deck cranes, pipelay reels and at least 650-sq. m. of open deck area.

The Merwede-built ship has been specified with a 6.6-kV integrated electric power generation system, and propulsion will be by way of three electric motor-driven fixed pitch propellers in azimuthing nozzles aft. Two retractable, azimuthing thrusters will be fitted in the forward part of the vessel, as will a transverse tunnel thruster.

The work intake since the creation of IHC Holland Merwede, in which the shareholders are the company's management and employees, Rabobank Group division Rabo Private Equity, and the Indofin Group, has also included two trailing suction hopper dredges, six standard cutter suction dredges of the ubiquitous Beaver series, and two custom-built cutter dredges. The two 5,400-cu. m. 'trailers' have been booked by DEME (Dredging, Environmental and Marine Engineering) and will be sisters to the Pallieter, earlier built for the Belgian contractor. The first of the new pair is to be handed over by the Sliedrecht yard next year.

A New Era for the Catamaran

Incat Australia's belief and trust in the Wave Piercing Catamaran concept has found expression in progressively larger vessels offering higher payloads at speeds over 35-knots. A decade and a half has elapsed since the first car-carrying wave piercer, 74-m in length, sailed from the company's yard in Tasmania. There has been consistent development in ship size and capacity, and the tally of deliveries into commercial or military service is now approaching the 40 mark.

The 112-m Evolution One12 cat now under construction, for delivery to Incat USA as a 'SeaFrame' base vessel, has taken the technology to a new level of refinement and capability. The Australian company is ready to contract what will be its largest and fastest car

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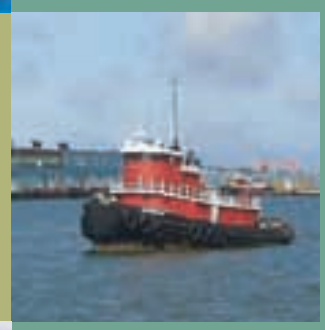

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ferries, from an offering which embraces 120-m and bigger designs as well as the 112-m type. With the move to larger, faster ships, a case has begun to emerge for the use of diesel propulsion engines able to operate on less expensive heavy fuel oil.

Hitherto, the reduction in payload that would be entailed with using the heavier class of residual fuel-burning, medium-speed diesel machinery in vessels up to 112-m has been unacceptable from an economic point of view. However, the increase in payload in concert with ship size changes the equation. For example, according to Incat, a fast ship capable of lifting a 1,500-ton payload at 40-knots would lend itself to equipping with machinery suited to lower quality fuels. Such a vessel is the proposed 120-m design, for which the freight intake corresponds to just over 700-lane m.

The tentative specification for the still-to-be finalized design of 120-m catamaran features four 20-cylinder diesels of the MAN B&W V40/50 type, rated at 15,000-kW apiece, to give an overall power base of 60,000-kW, and using IF180 intermediate fuel.

The current 112-m SeaFrame newbuild is being equipped with four 20-cylinder engines of MAN B&W's distillate-burning, potent RK280 type, to give a maximum 36,000kW plant output.

Incat selected the new RK280 to power the vessel at speeds ranging from a heavy load economy speed of 20-knots to 50-knots in light condition.

In the case of the 120-m type, a customer's nomination of distillate-burning plant in preference to the proposed residual fuel engines would have a substantially beneficial effect on payload, albeit at an extra cost in fuel.

Meanwhile, the Evolution One12 SeaFrame lends itself to a range of applications and final configurations. For the military sector, the design can be completed to suit littoral combat, mine countermeasure, theater support, helicopter operation, troop transport and other tasks. Alternatively, it provides a platform for passenger RoRo ferry duties or for dedicated RoRo freight transportation.

From the Yangtze to the North Sea

China's multi-faceted shipbuilding industry is progressively developing the breadth as well as the scale of its market reach, creating an even stronger industrial platform for the future. Operating experience with a family of RoRo freight vessels turned out since the start of the decade by Jinling Shipyard, at Nanjing, and employed in the Finnish trade, appears to have had a signal bearing on the decision to entrust further high-capacity trailerships to the yard. Jinling's orderbook bears testament to a solid standing with European owners, and Macoma Shipping Group's latest investment in two 25,650-gt RoRo cargo ferries has been endorsed by recently-announced charter commitments against the new tonnage by North Sea carrier DFDS Tor Line.

The Danish group has signed a 10-year timecharter deal, with an option on a further three years, for the two Macoma newbuilds booked at Jinling and scheduled to be delivered in late 2007 and early 2008. Both 20-knot vessels will offer a freight capacity equivalent to 3,343 lane-m on four decks, and will be well suited to the heavy loads of paper underpinning the southbound traffic on DFDS Tor Line's new route between Gothenburg and Tilbury, near London.

The 3,455 lane-m. design used for Macoma's 11,300-dwt sisters Finnpulp and Finnmill has provided the basis for the latest ships. However, a key difference in the newbuilds will be ramp access to the weatherdeck, allowing trailers to be carried at the uppermost level, which is used only for LoLo containers in the Finnlines-chartered pair. Macoma's four other modern RoRos, the 8,400-dwt, 1,900 lane-m. Finnmaster series, are also products of Jinling, and were introduced to the Finnish shortsea trade during 2000 and 2001.

New Hydraulic Pushpin Enters Service

K-Sea Transportation's 5,750 hp pusher tug Irish Sea was the first tugboat to be outfitted with Acomarin's new Model 700H ATB-Coupler Pushpin. The tug has been fully operational in tandem with the K-Sea's black oil tank barge DBL155 (165,882 barrels) since March 2005.

The product is the result of Acomarin embarking on a mission to develop and deliver a new and improved ATB system. In conjunction with the Technical Research Center of Finland VTT, Acomarin built a scale ATB-model for tank tests. More than 100 tank tests simulating various operational conditions were performed in order to provide sufficient experimental data for examining the stresses and strains associated with the pushpins for a variety of operational environments. The data taken from these tests were used to develop empirical based equations that are required to design the appropriate pin sizes for any given tug-barge combination.

Mika P. Laiho on Port Pushpin- Cylinder.

As a result of these tests, Acomarin developed its new hydraulic Pushpin Coupler system, resulting in a stronger unit, but with the same pin diameter as previously used, the company said. The operation of the Acomarin coupler design uses a digitally controlled system, which incorporates modern PLC-techniques.

A single serial bus cable connects the wheelhouse PLC to the local controller PLC located in the Pushpin room. The digital control system is provided with portable remote control sets, which allow the docking and undocking operation to be monitored and/or actuated from the wheelhouse room or from any location on the tug using the remote control units. The position of the port and starboard pins are monitored and positional readouts are provided to all control stations.

Irish Sea & DBL fully loaded on the way to Tampa FL from Houston, TX.

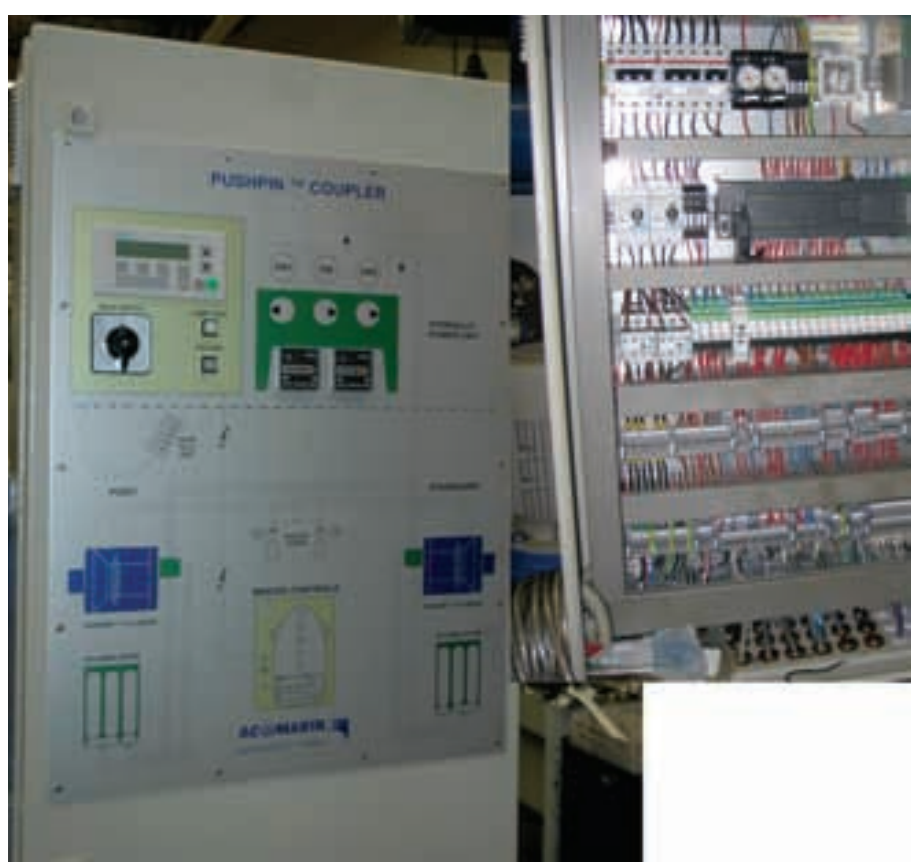
An emergency disconnect button is wired directly to the wheelhouse so that the pusher pins can be quickly (5 to 10 seconds) disengaged from the barge in the event of an emergency. This emergency function is available only at the wheelhouse control panel while operating in the Sea Mode position only. The emergency quick disconnect switch is cap-protected in order to prevent accidental activation. Also, in the event of a "Dead Ship," i.e. all power in the tugboat is lost, the pusher pins can be manually retracted in the pushpin room.

The pusher unit contains newly developed bushing-bearings designed to sustain the steady state and transient forces as the tug pushes the barge in rough weather. In additionm, increases in strength, corrosion and rotational wear has been reduced with the introduction of a new hardened cast stainless steel piston.

The prototype installation, which was tested, modified and commissioned on the Irish Sea-DBL155 Barge, is successfully operating in the high seas.

In anticipation of business expansion in the U.S., Acomarin will soon open an engineering office in Maryland.

Circle 22 on Reader Service Card



Local control panel

Picture This: The Army's Fleet

Reviewed by Edward Lundquist

Sail Army
A Pictorial Guide to Current U.S. Army Watercraft
By Stephen Harding
Pictorial Histories Publishing Company
Missoula, Montana

On a cold day in 1776, General George Washington turned to Colonel John Glover, an infantryman of the 14th Continental Regiment, to ferry himself and 2,400 men across the Delaware River. This may well be the U.S. Army's first major employment of watercraft to support operations. Soon after, the Army used watercraft for back lift, when it ferried 900 Hessian captives back across the Delaware. So began the Army's long association with boats and ships of its own, quite apart from the Navy. Altogether, the Army today has about 250 ships, boats and service craft. Not as many as the Navy, but much larger than many other fleets in military service. Much of this fleet is designed and employed to provide intra-theater lift. While ships of the Navy's Military Sealift Command are tasked with getting Army cargo to the theater of operations, it is the Army's responsibility to get that cargo offloaded and delivered where it is needed within the theater. The Army can call upon a wide variety of vessels, some quite large, to do the job. Harding shows us, in detail, the big and the small. The largest include the GEN Frank E. Besson, Jr. - class Logistics Support Vessels (LSV), which displace more than 4,000 tons and are 312 feet long with a 60-foot beam. The new Theater Support Vessel Spearhead (TSV-1X) is not only big, it is fast. Built in Australia to commercial high-speed ferry standards, Spearhead can achieve sustained speed of 40 knots and faster, even when crossing the ocean. With more than 14,000 sq. ft. of cargo space accessible by ramp, it loads and unloads rapidly. The TSV concept was validated with another converted high-speed ferry, the transformational Joint Venture (HSV-1X), shared with the Navy. Both services liked what they saw, and the Navy acquired Swift (HSV 2) to support mine-warfare operations. I've been aboard Joint Venture, and was amazed by the amount of room to embark personnel, and the internal volume for vehicles and cargo. These fast and flexible catamarans may be the precursor to a fleet of the future.

It is a challenge to get the Army's service craft to where they would be needed to support a significant offload.

The Army's smaller watercraft (smaller landing craft, floating causeways, small tugs, etc.) are moved to the operational area either aboard leased commercial vessels or aboard Navy cargo ships. "The larger Army vessels (LCUs, LSVs, the larger tugs and the TSV) are self-deployable, meaning that they are capable of sailing anywhere in the world under their own power and manned by their own crews," Harding says.

In places where the U.S. keeps cargo ships loaded for contingencies, it also keeps watercraft ready to support the logistics operation. On Diego Garcia, for example, an island outpost in the Indian Ocean, prepositioning ships are stationed at the ready, loaded with weapons, ammunition, fuel and supplies to support the Marines, Army and even Air Force. One ship carries an entire fleet hospital. Several years ago I went aboard the MV Strong Virginian, a heavy-lift multipurpose vessel that at the time was supporting the Army's prepositioned cargo operations on Diego Garcia. Strong Virginian , a lift-on/lift-off vessel, uses her 600-ton capacity cargo boom to lift extraordinarily heavy cargos, and therefore requires no shoreside assistance for cargo operations. Strong Virginian's topside spaces were stacked with Army utility boats and landing craft to support in-theater cargo movement at undeveloped ports during contingencies. "Once they've reached the operational area, the Army watercraft are manned by soldiers who have flown in from bases in the U.S.," Harding says. A sizeable portion of the Army fleet consists of tugs both large and small. Being a tug boat sailor myself, I'm rather fond of tug boats, and over the years the Army has had some real workhorses. Many of the service's tugs have featured the classical lines long associated with tugs, but some of the newer craft - like the diminutive ST-900 class, have a new look. The 60-foot ST-900 boats have a narrow one-man pilothouse. At 100 tons, they are actually quite powerful for their size. These tugs can be carried into theater aboard a larger ship. The relationship between Army mariners and Navy sailors is a good one, in that the two groups often work together during logistics-over-the-shore exercises, according to Harding. Large Navy vessels bring Army vehicles and equipment to the operational area, where sailors and soldiers work together to offload the cargo onto smaller Army watercraft for the journey from ship to shore. Harding says the Army's watercraft fleet is similar to the Navy's fleet of small craft in that both fleets are operated and maintained in the same ways. The same skills are important (seamanship, ship-handling, navigation, etc.), the ships are painted the same color (haze gray), and they operate in many of the same regions. The fleets are different, however, in that the Navy's fleet of landing craft is primarily intended to move people (Marines) from ship to shore, while Army landing craft are intended primarily to move cargo (Army vehicles and equipment) from ship to shore, and along rivers and other waterways within the operational area.

Harding tells me that he wrote his book for a couple of reasons, not the least of which is his expertise on the subject. "First, I think Army watercraft do an important job, especially in supporting operations in Iraq, and I thought other people would be interested in hearing about the vessels and the jobs they do. Second, as the author of six other books, I was looking for a new topic to write about, and this topic has never been written about in book form. Third, because I have written a dozen or so magazine articles about Army watercraft, I'm about the only writer I know who could put this together."

*Captain **Edward Lundquist**, U.S. Navy (Ret.), is a senior technical director with the Center for Security Strategies and Operations, Anteon Corporation, Washington, D.C. He supports the U.S. Navy's Surface Warfare Directorate.*

GL Revises Rules

The Construction Rules for the hull structures of seagoing ships have been revised by Germanischer Lloyd and adapted to meet changing international requirements. The new construction rules for shipyards apply with immediate effect to all newbuildings contracted after publication of the revised edition. The new Rules can be downloaded via the Internet from www.gl-group.com.

Wallem Group Expands

In Qingdao, on July 1, 2005, Cosco Wallem Shipmanagement Co. started providing shipmanangement services to international and PRC owners. The new company is a joint venture of Cosco Qingdao and Wallem Shipmamangement in HK. In Kuala Lumpur, Wallem Shipping (Malaysia) Sdn Bhd commenced operations on July 1, 2005 and in the process formerly established the Wallem name in Malaysia. In Jakarta, PT Wallem Sentosa Shipping Services opened its doors on July 21, 2005 as a shipping company that is eligible to provide complete range of shipping services at all ports in Indonesia.

Rotor Gets Chinese Order

Rotor B.V. has a contract with Chinese OEM's for the delivery of rotor nl electric motors for the construction of nine ships, with an option of another seven ships The ships will be built in Dalian, at the Dalian New Shipyard.

AVT Targets U.S. Market

Advanced Valve Technologies (AVT) appointed Sam Hopkins as North American sales manager.

He will be based in Houston and can be reached at samhopkins@advalve.com

Callenberg Buys HVAC Operation from ABB

The Callenberg Group AB signed an agreement with ABB Automation Technologies AB for the acquisition of ABB's Gothenburg-based Marine Ventilation operation.

Konecranes-Munckloader Wins Contract

KCI Konecranes will supply four Shipboard Gantry Cranes (Konecranes-Munckloaders) to Oshima Shipyard in Japan to be installed onboard vessels ordered by Singaporean shipowner Masterbulk Pte. Ltd.

The 55,000 dwt vessels will be delivered in 2007 and 2008, and will then be the largest in the world of its type.

Circle 14 on Reader Service Card

FlowCAM for Ballast Water Treatment

Fluid Imaging Technologies Inc. sold a FlowCAM particle analyzer to the U.S. Navy's Naval Research Laboratory in Key West, Fla., to assist it in its work to establish international protocols for measurement and analysis of invasive species, which are transported in the ballast water tanks of ocean going vessels. Fluid Imaging Technologies manufactures and markets the FlowCAM — a continuous digital imaging particle analyzer.

The unit was originally developed at Bigelow Laboratories for Ocean Sciences.

Circle 15 on Reader Service Card

Kongsberg Touts "One Solution" Concept

Kongsberg Maritime launched the Kongsberg System Technology concept at NorShipping in Oslo.

Kongsberg System Technology is seen as key to the company's entire range of integrated sub-systems based on Kongsberg Maritime solutions for: Navigation (K-Bridge); Prop and thruster control (K-Thrust);

Dynamic Positioning & Joystick (K-Pos); Automation (K-Chief); Tank Gauging (K-Gauge); and, Safety (K-Safe)

Circle 16 on Reader Service Card

Pacific Coast Marine Moves

Pacific Coast Marine, a designer and manufacturer of marine doors, windows and hatches has moved in to a brand new and larger production facility in Everett, Washington.

Comfort as a Technological Driver

By David Tinsley

Finnish-built Color Fantasy has raised the benchmark in cruise ferry design, and a competitively important as well as technically challenging component of the quality standard achieved has been the integrated approach to noise and vibration issues.

Representing one of the largest-ever single-ship investments made by a Norwegian company, the 74,600-gt Color Fantasy was contracted at Euro 302.5m from the former Kvaerner Masa-Yards, since reconstituted under the guise of Aker Finnyards, and is deployed on the service linking Oslo with Kiel, Germany. The extremely high expectations of owner Color Line, for whom the ship is pivotal to a developmental strategy covering not only the ferry operation, but also the company's expanding business in tourism, hotels and leisure facilities, set particular design criteria with regard to habitability in all conditions.

Custom-built for the short cruise philosophy in application to a scheduled transportation link, the result achieved is such that Color Line refers to its new asset as "the world's largest cruiseship with car decks" rather than as a ferry. A second such vessel was ordered this year not long after Color Fantasy had made her debut on the 360-nautical mile crossing.

The new ship was designed to meet Det Norske Veritas' Comfort Class 1 notation, governing noise and vibration, using a conventional, twin-screw propulsion system and controllable pitch propellers. In a presentation* by technical specialists from the yard and propeller manufacturer to the 'Ship Noise and Vibration Conference' in London recently, it was claimed that "The vibration levels on Color Fantasy are astonishingly low in all the passenger and crew areas, even at the service speed of 22-knots."

In achieving the highest comfort standard, the most challenging area proved to be the a la carte restaurant in the stern of the vessel, just above the garage section. The stern-first navigation that has to be made at the German end of the route, in Kiel harbor, also shaped the owner's requirements as regards onboard comfort. Furthermore, habitability expectations have to be seen in the context of a vessel in which the interior quality, passenger capacity(2,750) and the number of passenger cabins are comparable to a typical Panamax cruise ship.

One of the outstanding technical features of the new ship is a three-deck, nine-m high promenade running for 163-m of her 224-m overall length. Innovative Kvaerner Masa-Yards, as it was then, had introduced the revolutionary concept of such a huge internal space in the 58,400-gt Baltic ferries Silja Serenade and Silja Symphony, delivered in 1990 and 1991, respectively.

So as to achieve the requisite noise- and vibration-free environment for passengers, hull lines and appendages had to produce the optimal inflow to the propeller, and the propellers had to be able to absorb the power and deliver the required thrust at high efficiency, without generating excessive pressure fluctuations against the hull. Minds had to be concentrated and close cooperation had to be the order of the day between the shipyard, the propeller maker and the model test basin involved so as to reach these goals.

The Comfort Class notation set a noise level criteria of under 55-dB in public spaces and 44-49-dB in cabins, and a vibration level below 1.5-mm/s for passengers. The yard and the owner sought to achieve this standard in normal operating conditions, over both deep and shallow water areas, and in all engine modes. This included asymmetric profiles with the four-engine, twin-shaft installation, where one main engine acts on one shaft and two engines act on the other.

Optimization of the hull form for different operating conditions and the Finnish shipbuilder's development of a revolutionary wave damping afterbody(WDA) were carried out using CFD(computational fluid dynamics) tools. The WDA improves flow, obviates the typical low pressure area in the afterbody, and results in the generation of much smaller waves compared to typical, earlier vessels. For the Color Fantasy, several appendage designs were investigated to determine the lowest resistance and best wake field to the propellers.

Pressure pulse levels and propeller-excited broadband noise are, of course, vital considerations for a passenger ship, as they influence habitability. To fulfill DNV Comfort Class 1, propeller cavitation had to be kept to a minimum, in particular as regards tip vortices. The southern part of the Oslo-Kiel route was an important consideration in arriving at an overall technical solution, since ship resistance and propeller loading is increased in shallow water.

It was reported that, with the good wake field achieved and with the large propeller-to-hull clearance incorporated, equivalent to 40-percent of the screw diameter, the requirements were ful-

filled in terms of propeller-induced hull pressure and blade harmonics. Detailed investigations of tip vortex strength and behaviour was undertaken using both calculations and cavitation tank testing.

Aker Finnyards has invested significantly in air blowing system research, and this has been used to improve the noise characteristics of vessels when sailing in shallow waters and running with asymmetric shaft loads. The technique entails air injection along the hull surface above the propellers, to reduce noise excitation on the hull. The system, known as MABS, can also be employed in other circumstances prone to noise creation, as when maneuvering with large rudder angles. It is understood that the system has proved effective, reducing noise when the ship has been sailing at high speed in waters ranging from 30-m to 10-m depth.

*"Highest Comfort Class" Design for M/S Color Fantasy, by Raimo Hamalainen and Bernd Peter Lonnberg of Aker Finnyards, and Per Aren and Goran Pettersson of Rolls-Royce Hydrodynamic Centre, Sweden, presented at Lloyds' List Events' Ship Noise & Vibration Conference 2005, London.

Aker Yards to Build Second for Color Line

Aker Yards and Color Line have signed a contract to build a sister vessel to MS Color Fantasy, the world's largest cruise ship with car deck, that was delivered in December 2004. The agreement includes a buyer's option to purchase a third vessel. The new vessel will be named MS Color Magic, and will traffic the route Oslo - Kiel as from the fourth quarter 2007. The contract value is EUR 325 million.

The Color Magic will be Color Lines second cruise ship with a car deck, and will have a wide variety of entertainment and conference areas. The number of cabins will be higher than on Color Fantasy. The vessel will be 223.7 m long and 35 m wide.

MS Color Magic will be built partly at the yard in Turku, and partly at the yard in Rauma. Delivery will take place in Rauma in the fourth quarter of 2007.

EBDG Adds to Team

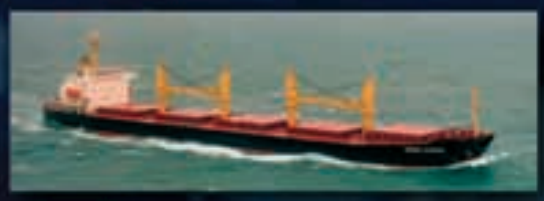
Roy Neyman has joined Elliott Bay Design Group (EBDG) as Project Manager. David Wright has joined EBDG also as Marine Designer, currently supporting the design of a series of landing craft vessels that will soon begin construction at Kvichak Marine Industries.

Hoe, Yick Appointed

Keppel Offshore & Marine Ltd (Keppel O&M) appointed Hoe Eng Hock as the Executive Director of Keppel Singmarine Pte Ltd. The company has also appointed Yick Ping Wong, 55, as the Executive Director (Caspian) to oversee the growth and development of Keppel O&M's business.

NASSCO Makes Three Appointments

NASSCO announced a number of senior management appointments. Steve Stroebel has been promoted to Vice President of Material, a new position. Bob Hillstrom has been promoted to Vice President of Production, filling a vacant position. Steven Davison has been promoted to Vice President, Operations Support, a new position.



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Timberlands Stands Maritime Tests

Timberland Equipment Limited designs and manufactures custom engineered winches, hoists, and sheaves. Since 1947, it has an impeccable reputation in supplying large, rugged equipment to the workboat marine, offshore marine, construction, mining, and utility markets around the globe.

Timberland Equipment's strength lies in its ability to engineer, design, manufacture, test, and certify all equipment under one roof at its 55,000 sq. ft. facility.

Timberland Equipment is part of the Timberland Group of Companies. Other companies in the group include Almon Johnson Ltd., TSE International, Marcotte Mining Machinery and the most recent addition to the group is Hawboldt Industries and Hawboldt Newfoundland.

The Timberland Group of Companies announced in April 2005 that it purchased the businesses of Hawboldt Industries Inc. and Hawboldt Newfoundland Limited.

Hawboldt Industries Inc, with manufacturing operations in Chester Nova Scotia has been manufacturing marine equipment since 1906. Over its many years in operation, Hawboldt Industries has built a solid reputation as a high quality supplier of fishing winches, propellers, commercial deck machinery, underwater gear, shafting, haulers, capstans, and hydraulic power units. While the company has maintained its roots in the fishing industry, it also serves and sees continued growth in other marine markets such as national defense, oceanographic & seismic research and offshore oil & gas.

Hawboldt Newfoundland Limited, with operations in Bay Roberts Newfoundland has been manufacturing and servicing equipment for the Fishing Industry and Offshore Oil & Gas for many years. Hawboldt Newfoundland has a strong foothold in a key market area and is positioned well to take advantage of future growth opportunities within the Timberland Group.

"This acquisition fits extremely well with Timberland's strategy of adding complementary product lines to expand its product offering within the marine marketplace," said Mark Gabourie, President and COO of Timberland. "We are extremely excited to purchase Hawboldt Industries and Hawboldt Newfoundland since Timberland is targeting its marine segment of the business for significant growth over the next five years. Hawboldt provides Timberland with an excellent base of marine equipment products for the fishing and oceanographic/seismic research areas that were not well represented within our product line prior to the acquisition. It also provides us with two strong bases including a well equipped service presence for the marine and offshore oil & gas marketplaces on the east coast."

Circle 11 on Reader Service Card

Rapp Hydema Supplies New NOAA Vessels

At launch ceremony for the FRV-40 Henry B Bigelow.

Rapp Hydema was selected by VT Halter Marine in May 2005 to supply the deck machinery for the third of its NOAA FRV-class vessels. Rapp provided hydrographic, oceanographic, traction, CTD, and trawl winches for the first vessel, the Oscar Dyson, and is presently working on installing the same package for the second vessel, the Henry B. Bigelow. Additionally, Rapp supplied its PTS Pentagon computerized winch control system, which provides sophisticated auto-tension and another features. Rapp has acted as single-system vendor (SSV) for most electronics integration from deck to wheelhouse. Deck machinery underwent very rigorous shock and vibration testing, among other qualification measures, to meet NOAA's high standards prior to installation. During a 2004 Annual Vendor Review, which focused on the FRV-40 Oscar Dyson, Rapp received a rating of excellent from VT Halter Marine.

Circle 7 on Reader Service Card

Coastal Marine Equipment

Coastal Marine Equipment offers a complete line of Marine Deck Machinery including, but not limited to, Anchor Windlasses, Mooring Winches, Anchor Winches, Hose Reels, Capstans, Escort Winches, Towing Winches, Tugger Winches, Ramp Winches, Spud Winches, Cable Storage Reels, as well as General Fabrication, Machining Services, Testing, Installation, Maintenance and Repair Services.

Circle 8 on Reader Service Card

Pullmaster Provides the Power

Pullmaster Winch Corporation is recognized as a leading manufacturer of hydraulic planetary winches and drives. With 40 years of manufacturing experience, it has invested in modern facilities to keep pace with engineering and manufacturing technological advances. The company offers hydraulic planetary winches with a bare drum line pull range

of 1,100 lb. to 85,000 lb. (4.9 - 378.6 kN). It also offers hydraulic planetary drives with an output torque range of 50,000 - 136,000 lb.-in. (5649 - 15,367 Nm). Both hydraulic planetary winches and drives are available with a comprehensive range of options such as rapid reverse, free fall, and external brake release.

Circle 10 on Reader Service Card

Techcrane Adds to Line

Techcrane's newest edition, model F25 - 12.5-ton hose handling crane was recently designed and built per API Sixth edition for Bollinger Gretna Hull #482. The crane was successfully installed and load tested on the 35,000 barrel barge (300 x 54 x 21-ft.) constructed for a New York based company, Gellatly and Criscione Services. The owner was impressed with the toughness and flexibility of the crane in addition to the capacity, ease of operation, maintenance and availability of spare parts. As well as being API monogrammed, all Techcrane cranes are designed per ABS and USCG standards.

Circle 9 on Reader Service Card

Deangelo Marine Exhaust

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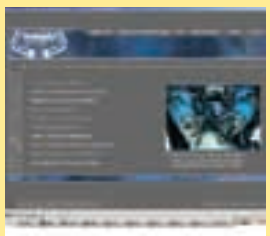

Deangelo Marine Exhaust started as a parts manufacturer for marine products, specializing in custom work. Founded by **Vincent "Jim" Deangelo** in 1977, it began in a small garage. In 1986, Deangelo Marine Exhaust was officially established, opening a small fabrication shop in Ft. Lauderdale. By 1993, demand had increased to a point where Deangelo Marine Exhaust required a larger workspace area that could house manufacturing, administration and sales. The company was sold in 2000, and today it occupies two buildings, supplying parts for most every major yacht builder in the world, as well as for many military vessels, including Coast Guard.

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The Great Lakes Towing Company
www.thegreatlakesgroup.com
tel: 216-621-4854, ext. 126

Toledo Shiprepair Co. / Manitowoc Industrial Group
www.toledoseaport.org
tel: 1-419-698-8081

United Marine Shipyard
unitedmarineshipyard.com
tel: 409-833-7070

Cruise Ships and the Americans with Disabilities Act

by William N. France

On June 6, 2005 the United States Supreme Court issued its decision in Spector v. Norwegian Cruise Lines resolving a conflict between Circuit Courts of Appeal by holding that the Americans with Disabilities Act of 1990 (the ADA) applies to foreign-flag cruise ships in United States waters except insofar as it regulates a vessel's internal affairs. The decision, concerning the two Norwegian Cruise Line vessels, reversed the Fifth Circuit Court of Appeals (governing federal courts in Louisiana, Mississippi, Texas and the Panama Canal Zone) which had held in January 2004 that the ADA did not apply to cruise ships. In 2000, the Eleventh Circuit (governing federal courts in Alabama, Florida and Georgia) had ruled that it did apply. Interestingly, Congress only created the Eleventh Circuit in 1981 and then by dividing the territory of the old Fifth Circuit. It may be that the conflicting decisions reflected some personal disagreements of the several judges involved. In any event, these jurisdictions host a large number of cruise ship operations.

The ADA, codified in the United States Code at Title 42, Sections 12101 through 12213, is a broad, remedial statute intended to provide a "comprehensive national mandate" and "clear, strong, consistent enforceable standards" for the elimination of discrimination against individuals with disabilities. Its purpose is also to ensure that the Federal Government plays a central role in establishing and enforcing those standards. Congress' authority for enacting the ADA is the Commerce clause of and the Fourteenth Amendment to the Constitution, the latter, among other matters, prohibiting states from making or enforcing laws that abridge the privileges and immunities of United States citizens. Indeed, the ADA specifically makes its remedies - civil penalties, monetary damages, injunctive relief and the provision of substitute services or the requirement of physical alterations of structures and accessibility-applicable to the states.

The language of the statute is relatively complex, as will appear. It is in four subchapters, the first three governing matters of employment; the provision of public services by certain public agencies; and the provision of public accommodations and services by private entities. The final subchapter contains a number of miscellaneous provisions, including authorization for the Architectural and Transportation Barriers Compliance Board (ATBCB) to issue minimum guidelines and requirements for "accessible design" for purposes of public services and accommodations. The Supreme Court specifically considered application of sections of the third subchapter to cruise ships. That subchapter also directs the Departments of Justice (DOJ) and Transportation (DOT) to issue regulations regarding matters of new construction and alterations and barrier removal for public accommodations and transportation services.

A brief review of the relevant sections of the third sub-chapter will provide a better understanding of the scope of the statute and of the Supreme Court's decision. Section 12182 prohibits discrimination on the basis of disability in the "full and equal enjoyment of the goods, services, facilities, privileges, advantages or accommodations of any place of public accommodation." Briefly, the term "public accommodation" includes, generically, a place of lodging; an establishment serving food or drink; a place of exhibition or entertainment; sales, or rental or service establishments; a terminal, deport or other station for access to public transportation a place of public display or collection; and places of recreation, exercise and education.

Section 12184 prohibits discrimination on the basis of disability in the "full and equal enjoyment of specified public transportation services provided by a private entity that is primarily engaged in the business of transporting people."

Discrimination is defined in four basic modes: (1) "the imposition … of eligibility criteria that tend to screen out" the disabled from "fully and equally enjoying any goods, services, facilities, privileges, advantages or accommodations" unless "such criteria can be shown to be necessary for the provision" of those goods and services; (2) a "failure to make reasonable modifications in policies, practices or procedures, when such modifications are necessary to afford" the goods or services to the disabled, unless such modifications would "fundamentally alter the nature" of the goods and services; (3) a "failure to take such steps as may be necessary to ensure that no individual with a disability is excluded, denied services, segregated or otherwise treated differently" because of the "absence of auxiliary aids and services" unless taking such steps "would fundamentally alter the nature" of the goods and services or "would result in an undue burden"; and, (4) a "failure to remove architectural barriers, and communication barriers that are structural in nature, in existing facilities, and transportation barriers in existing vehicles …where such removal is readily achievable" and, if removal of a barrier is not readily achievable, then a failure to make such goods and services "available through alternative methods if such methods are readily achievable."

Section 12183 specially applies to new construction or alterations of public accommodations and commercial facilities and states a key difference when compared to existing facilities. New construction must be designed and built to be readily accessible unless "structurally impracticable" and alterations must be designed and constructed to be readily accessible to the "maximum extent feasible" while, as noted, the removal of architectural barriers in existing facilities need only be made if "readily achievable."

The meaning of that term-sure to give rise to endless litigation-is "easily accomplishable and able to be carried out without much difficulty or expense." Factors to be considered in making the "readily achievable" determination include: the nature and cost of the necessary action; the overall financial resources of the facility or entity involved; the number of persons employed; the effect on expenses and resources; the number, type and location of individual facilities affected; and the type of operation of the entity and the geographic separateness and administrative or fiscal relationship of the facilities in question to the entity.

A caveat to application of the subchapter complicates matters further. Section 12182(b)(3) provides that "nothing in this subchapter shall require an entity to permit an individual to participate in or benefit from the goods, services, facilities, privileges, advantages and accommodations of such entity where such individual poses a direct threat to the health or safety of others." Direct threat is defined as "a significant risk to the health or safety of others that cannot be eliminated by a modification of policies, practices or procedures or by the provision of auxiliary aids or services." Although the holding of the Supreme Court's decision can be stated simply-the ADA applies to foreign-flag cruise ships in United States waters except insofar as it regulates a vessel's internal affairs-the decision can best be described as fractured. There was no clear majority, only several pluralities on specific applications of parts of the ADA. A dissent by the chief justice and two justices, joined in part by a fourth, was to the effect that because the ADA plainly affects the internal order of foreign-flag cruise ships and since the ADA lacks a clear statement of intent to apply to such vessels, the Court should not interpret it to apply. A key element of the three dissenting justices' pointed criticism was that the several plurality determinations result in a piecemeal application of ADA. According to the dissent: "… it is a matter of determining whether Congress in fact intended that its enactment cover foreign-flag ships. To believe that there was any such intent section-by-section and paragraph-by-paragraph is delusional. Either Congress enacted [the ADA] only with domestic entities (and not foreign-flag ships) in mind, or it intended [it] to apply across-the-board. It could not possibly be the real congressional intent that foreign-flag cruise ships be considered 'places of public accommodation' or 'specified public transportation' for purposes of certain provisions but not for others. That Congress had separate foreign-flag intent with respect to each requirement-and would presumably adopt a clear statement provision-by-provision-is utterly implausible."

What the several plurality interpretations actually mean insofar as application of the ADA two the two mentioned cruise ships and in the context of the complaint filed by the plaintiffs will be the subject of the next installment.

(This is Part I of a two-part story. Look for Part II in the September 2005 edition)

William N. France is a senior partner of Healy & Baillie, LLP, a New York law firm with a focus in maritime law, as well as a licensed professional engineer with a degree in naval architecture and marine engineering.

Hatteland Debuts New Display Panel

Jakob Hatteland Display introduced a new product range for maritime applications during the NorShipping 2005.

MMDII for Displays and MMCII for Panel-Computers is a new concept based on extensive maritime experience joined with the obvious need for sophisticated design.

Product Features include:

- Products will be IEC60945 tested and approved by major classification societies;
- Slim design with a straight and sober surface;
- Backpack functioning as the detachable "intelligence" of the product, therefore it is easily upgradable and serviceable.
- Screen sizes from 12 in. to 19 in., with additional sizes soon to come.
- Optical bonding technology to reduce reflection while enhancing the optical performance.

This product range will be available in addition to the existing MMD-Displays, MMC-Panel-Computers and stand-alone computers and 19-in. rack computers.

Circle 20 on Reader Service Card

Patent for Marine Waste Treatment System

The Commissioner of Patents in Canada has issued Canadian patent number 2,111,274 to Severn Trent De Nora for its Omnipure electrochlorination system for the onsite treatment of wastewater containing suspended solids in the marine environment. This electrolytic treatment process has been proven to provide a superior long-term solution to offshore wastewater treatment.

The Omnipure on-site generation technology uses seawater and electricity to produce an effective sodium hypochlorite (NaOCI) disinfection solution for marine sewage treatment. The compact, lightweight Omnipure units can treat varying volumes of sewage (gray and black water) without long retention periods or chemical additives while meeting the environmental regulations governing the discharge of wastewater in territorial water.

Circle 21 on Reader Service Card

Class Society Q&A — Continued from page 26

ments are able to provide globally. The current system is mutually beneficial provided each party recognizes the contribution of the other and each enjoys the confidence, trust and respect of the other. The ultimate beneficiary of an effective maritime safety regime is the general public. Close, transparent and constructive interaction between class and governments is necessary for this relationship to remain strong. However, among all the stakeholders in the maritime safety system, classification societies alone are faced with potential unlimited liability in the event of an error or accident; which not only has the potential to put even the largest classification societies out of business but also to seriously undermine the effective functioning of the global maritime safety system.

Owners and builders can effectively limit their liability. Governments can claim sovereign immunity. Underwriters are expert at spreading their risks. Classification societies are currently the only stakeholders that are not afforded a reasonable limitation on their liability and are therefore, unfortunately, a magnet for claims which bear no relationship to the role and responsibilities which class actually plays in relation to the other parties involved in the whole system. We believe that the need to rationalize and balance the system of legal liability among all the parties involved in the design, construction, operation, chartering and certification of ships is long overdue.

BV: Class has to be responsible for what it does, and in proportion to what it charges. However, I do fear that moves, especially in the EU, to create unlimited liability for class would make it impossible for good operators to stay in business.

GL: Classification societies are service companies and can, as all other parties in the maritime sector, be held liable for breach of contractual obligations or for damage they have caused. Their exposure to liability is limited as laid down in the agreements with their clients. Their liability should be further limited by International Conventions, as it is the case with all other maritime parties. Shipowners` liability is limited through an International Convention as is that of e.g. cargo owners and pilots. The flag state can even claim sovereign immunity. Class is - so far - the only member of the chain of responsibilites not to be protected to a reasonable amount. Exposure to unlimited liability, as demanded currently by some flag states, could force classification societies into bankruptcy.

LR: In an increasingly litigious and unforgiving world, it is more incumbent than ever upon us, and other classification societies, to continue to apply the appropriate professional standards. To that end we continue to improve and implement the technical rules, procedures, processes and safeguards required to help shipbuilders, shipowners and national maritime authorities to preserve the safety of life and property at sea.

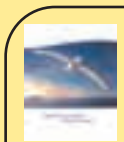
RINA: It is quite wrong to ask a class society to spend one day inspecting something, charge for one day of time, then expect it to be responsible for any accident over the next year. We as class have to bear our responsibility in proportion to our earnings and our input.

If you could unilaterally impose your will to change one thing about the marine business, what would it be?

BV: I would ask all my competitors to move their head offices to Paris so I could co-operate more effectively with them, without clocking up so many air miles.

LR: I would like to see every shipowner, flag state and classification society adhering to the spirit of all existing standards and regulations. To continue to improve maritime safety, all the links in the safety chain must not only enforce the relevant standards - they must live them.

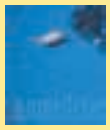
RINA: To have a more industrial shipping sector with sustainable freight rates and less volatility, this would help create a more stable climate for investment and operation of shipping.



Aker Finnyards

During the last 10 years, over 25 percent of the world's cruise ships have come from Aker Finnyards. Aker Finnyards is the principal yard for the Finnish navy and an expert in multipurpose icebreakers and other technically complex icebreaking vessels.

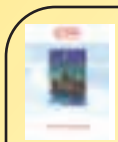
Circle 101



Aquadrive

The Aquadrive anti-vibration system eliminates the need for stiff, hard mounts and for careful engine alignment to the propeller shaft. Instead, the propeller shaft is aligned to an Aquadrive thrust bearing which absorbs all the propeller thrust and stabilizes the alignment.

Circle 102



C-Mar

The C-MAR Group and its associates have extensive capabilities and experience in providing engineering services to the offshore hydrocarbon and marine industries. Among the services offered are naval architecture, failure modes and effect analysis, dynamic positioning, powering definition and capability plots

Circle 103

Cole Hersee

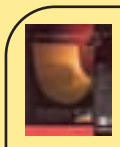
Cole Hersee Company announces its universal Reversing Polarity Toggle Switches. These new forward-reverse switches change the direction of permanent magnet motors, and, when used in conjunction with a relay, can also control up-down, in-out, and rotate-counterrotate motions on boats.

Circle 104

Doorgate

DoorGate Industries is a design, engineering and manufacturing organization that has provided quality specialty and production manufactured solutions for over twenty five years. Doorgate specializes in creating custom designed solutions that meet customer's design and performance requirements.

Circle 105



Flexco

Flexco's rubber flooring features a color matching system, durable construction resists scuffs, compliance with ADA recommendations for slip resistance, most products are IMO certified for marine vessels and increased comfort due to reduced leg fatigue and noise.

Circle 106

DuPont

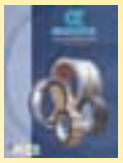
DuPont Zodiaq quartz surfaces is composed mostly of quartz, giving it toughness and a hardness of 7 on a scale of 10. Zodiaq offers consistency in color; can be cut and fit to meet exacting requirements with precision, uniformity and consistency; It is dense and nonporous, with no sealing required, and is heat-, scratch- and stain-resistant.

Circle 107

GE

Designed to halt terrorist attacks as well as enforce drug laws, GE Ion Track products complement X-ray scanners and weapons detectors. Renowned for sensitivity and ease of use GE Ion Track detection and identification systems are deployed in more than 120 countries.

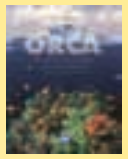
Circle 108



Gummi

The earliest of all the Gummi products were couplings. Gummi manufactures a wide variety of couplings designed specifically to protect the more critical elements in a series of power transmission components.

Circle 109



Envirovac

The ORC IIA sewage treatment systems are U.S. Coast Guard/IMO and EC Certified. The ORCA IIA is a Type II physical/chemical marine sanitation device (MSC) utilizing 5 percent chlorine solution for disinfection and is design specifically for marine applications.

Circle 110

Kaeser

Kaeser Compressors, Inc. announces the new As-T series rotary screw compressor package 20 and 25 hp models. The complete packaged system features the new AS-T series compressor with integral refrigerated dryer, condensate drains and filters.

Circle 111

Imtra

Imtra Corporation's lighting division has introduced the low-wattage/high-brightness LED spotlight. The Newport PowerLED harnesses three Luxeon 1W PowerLEDs to produce illumination equivalent to that of typical 20-watt halogen bulb but with consumption of just 6 watts.

Circle 112

R&R Marine

R&R Marine is equipped to offer wide-ranging repair and conversion services. From routine drydocking and inspection of cruise ships, bulkers and tankers to the construction and fitting of the most complex offshore conversions and upgrades.

Circle 113

AG Marine

AGMarine, Inc. is a Commercial Marine and an Authorized Distributor for Yokogawa Denshikiki Co. Ltd., line of Gyrocompass, Autopilots, Charting Tables, and EM Logs in the Americas.They have over eighty trained dealer locations in North, Central, South America, and the Caribbean.

Circle 114

Martek

MariNOx - A direct onboard engine emissions monitoring system for compliance with MARPOL Annex VI Reg.13 and The NOx Technical Code. Can also monitor SOx, CO, HC and other pollutants. The system can also deliver major fuel savings for complying vessels.

Circle 115

MMC

MMC CL Couplings provide a pick and safe flanged connection on a wide variety of applications. The helical cams are rotated into place with the average connection taking less than one minute. Each cam is individually locked into place resulting in a vibration proof, leak proof, twist proof connection.

Circle 116

Parker

Parker Hannifin is a component an systems supplier for marine applications such as steering systems, engine controls, fuel/water systems, refrigeration and air conditioning, bow thrusters, stabilizers, trim control, door/hatch operation and more.

Circle 117

Seaward

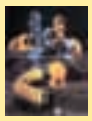
Large or small, floating or fixed, Seaward Sea Guard fenders are in use from the tropics to the Artic, providing tough heavy-duty fendering systems for harbor, offshore and ship-to-ship applications. The foam-filled construction provides an unsinkable fender body that permits high energy absorption with a relatively low reaction force.

Circle 118

BAE Systems

For more than 75 years, CNIR has been a leader in building technical systems for the U.S. Department of Defense and our allies. In avionics, navigation, and military communications, we have a long history of innovating technically superior solutions, including:

Circle 119



Americ

Americ's ventilators are designed for confined space applications. and can provide the proper ventilator for the job. Manufactured of high density-polyethylene plastic, Americ's VAF-Series is portable. Features like centrally located handles that allow for maneuverability, Americ covers practical details.

Circle 120

Tyco

Tyco Safety Products is part of the Tyco Fire and Security division of Tyco International Ltd. Tyco Safety Products' businesses design, manufacture, and distribute electronic security systems, fire protection, detection and suppression systems, sprinklers and fire extinguishers including more than 60 brands distributed in markets across the globe.

Circle 121

Peck & Hale

Peck & Hale is a manufacturer of cargo securing systems for the Defense and Transportation industries. Peck & Hale focus on continued product development that services the needs of customers by offering a comprehensive service for the design, supply, refurbishment and replacement of equipment for all types of cargo securing systems.

Circle 122

Marine IT

Marine IT Solutions, Inc., has emerged into the high technology marine electronics field. The accomplished team specializes in systems of engineering, the integration of advanced shipboard support systems, communication and navigation systems, information technology (IT) ILS application and training support.

Circle 123

Caterpillar

Caterpillar's 3500C HD marine engine offers high power density for continuous applications with ratings at 1800 rpm. The 12 and 16 cylinder engines offer up to 20 percent more power. Its electronic control system provides improved engine monitoring, communication, and display capabilities.

Circle 124

SolaSolv

Solar Solve Marine designs develops and manufactures retractable anti-glare roller screens for ships navigation bridge windows. There are more than 45,000 Solasolv screens in use on over 4,500 commercial and military vessels worldwide. All roller blinds and screens are manufactured to withstand the demands of a marine environment.

Circle 125

BUYER'S DIRECTORY

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

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Cospolich Refrigeration, 14695 Highway 61, Norco, LA 70079
Stork Bronswerk Inc., 3755 C Boul. Matte, Brossard, Quebec J4Y 2P4, Canada

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Kahlenberg Brothers Co., P.O. Box 358, Two Rivers, WI 54241

ALARMS, FACTORY-MUTUAL APPROVED
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Island Boats, 6806 Highway 90 East, New Iberia, LA 70560
Metal Craft Marine Inc., 347 Wellington St., Kingston, Ontario K7K 6N7, Canada
Sea Ark Marine, P.O. Box 210, Monticello, AR 71655-0210
William E. Munson Co., 18130 Sunset Way, Edmonds, WA 98026

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ComNav Marine Ltd., 13511 Crestwood Pl., Ste 15 15, Richmond, BC V6V 2G1, Canada
Mackay Communications, 2721 Discovery Dr., Raleigh, NC 27616-1851

BALLAST
Ballast Technologies, 4620 S. Coach Dr., Tuscan , AZ 85714
Redland Genstar Inc., Executive Plaza IV, Hunt Valley, MD 10912-1031

BEARING- RUBBER, METALLIC, NON-METALLIC
Cooper Bearing, 5795 Thurston Ave., Virginia Beach, VA 23455
Craft Bearing, 5000 Chestnut Ave., Newport News, VA 23605
Duramax Marine LLC, 17990 Great Lakes Parkway, Hiram, OH 44234, 440-834-5400, 440-834-4950, Contact: Richard Spangler
Thordon Bearings, 3225 Mainway, Burlington Ontario L7M 1A6, Canada

BILGE SYSTEMS
Coffin World Water Systems, 326 S. Dean Street, Englewood, NJ 07631

BOATBUILDER
AMERICAN MARINE HOLDINGS GOVERNMENT SERVICES, 1838 Turnbull Lakes Drive, New Smyrna Beach, FL 32168
Blount Marine, 461 Water St., Warren, RI 02885
Gladding Hearn, 1 Riverside Ave., Somerset , MA 02725
Sea Ark Marine, P.O. Box 210, Monticello, AR 71655-0210
Washburn Doughty, P.O. Box 296, E. Boothbay, ME 04544
Willard Marine Inc., 1250 N. Grove St., Anaheim, CA 92806

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Maritime International, Inc., 204 Ida Rd., Broussard, LA 70518

BRIDGE SUNSCREENS
Martek Marine Blinds, Unit 46, Century Business Centre, Maversway, Rotherham, South Yorkshire S63 5DA, UK

BROKERS
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BULKHEAD SEALS/PANELS
CSD North America, 880 Candia Rd., Unit 10, Manchester, NH 03109
Thermax, 3115 Range Rd, Temple, TX 76501

CAD/CAM SYSTEMS
Autoship Systems Corp.,, 611 Alexander Street, Suite 312, Vancouver, BC V6A 1E1, Canada, 604-254-4171, 604-254-5171, sales@autoship.com, Contact: Ross Muirhead, www.autoship.com
Cadmatic , Ostra Strandgatan 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
Superior Lidgerwood Mundy, 1101 John Ave., Superior , WI 54880

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

CARGO MONITORING & CONTROL SYSTEM
Hermatic Inc., 4522 Center St., Deerpark, TX 77536

CAST IRON REPAIR
In-Place Machining, 3811 N. Holton St., Milwaukee, WI 53212

CHAINS
G.J. Wortelboer, Postbus 5003, 3008 AA Rotterdam, Netherlands

CLASSIFICATION SOCIETY
American Bureau of Shipping, 16855 N. Chase Drive, Houston, TX 77060

CLOSED CIRCUIT TELEVISION
Hernis Scan Systems A/S, Postboks 619, NO_4809 Arendal, Norway

CNC PLATE CUTTING
Advanced Fabricating Inc, PO Box 3721, Galveston, TX 77552

COATINGS/ CORROSION CONTROL/PAINT
Chugoku Marine Paints, P.O. Box 73, , 4793 , Netherlands
Ferro Corp., 1301 North Flora St., Plymouth, IN 46563
Flow International Corp., 23500 64th Ave., South Kent, WA 98059
Mascoat Products, 4310 Campbell Rd, Houston, TX 77041
Mr.Longarm, Inc., P.O.BOX 377, Greenwood, MO 64034-0377
NAPASCO, INC., 213 Main Project Road, Shriever, LA 70395, 985-449-0730, 985-449-0740, napasco@napasco.com, Contact: Pam Bartell, www.napasco.com
Sherwin Williams, 101 Prospect Ave., Cleveland, OH 44115
Sigma USA, P.O. Box 816, Harvey, LA 70059
Soken Trade Corp./ Noxudol, 15934 S. Figueroa Street, Gardena, CA 90248

COMMUNICATIONS
Inmarsat Ltd, 99 City Rd., London EUY 1AX, UK
L-3 Communications, 6000 Fruitville Road, Sarasota, FL 34232
Mackay Communications, 2721 Discovery Dr., Raleigh, NC 27616-1851
World-Link Communications, 74 Main St., Framingham, MA 01701
Xantic, PO Box 30012 , 2500 GA The Hague, Netherlands

COMPOSITE SHAFTS
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

COMPUTER/ COMPUTER SOFTWARE
Creative Systems Inc., P.O. Box 1910, Port Townsend, WA 98368
ShipConstructor, 304-3960 Quadra Street, Victoria, BC V8X 4A3, Canada
Spec Tec , Professor Koth's Vey, 1366 Lysaker, Norway

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

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- TUG & 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
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, 604684-0458, 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
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, Telglholmsgade 41, Copenhagen SV DK-2450, Denmark
Man B&W Diesel AG, Stadtbachstrasse 1, Augsberg 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 33932

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

DRIVESHAFTS
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, jstiglich@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, Nishiyodogoaw KY Osaka555, Japan

EXHAUST
American Vulkan, 2525 Dundee Rd, Winter Haven, FL 33884
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, P.O.BOX 428, Baton Rouge, LA 70821-0428
Silex Inc., 6659 Ordan Dr., Mississauga, ON L5T 1K6, Canada

EXTRUDED RUBBER PRODUCTS
Clean Seal Inc., PO Box 2919, South Bend, IN 46880

FASTNERS
Superbolt, PO Box 683, Carnegie, PA 15106

FENDERING SYSTEMS/ BUOYS - DOCK & VESSEL
Duramax Marine LLC, 17990 Great Lakes Parkway, Hiram, OH 44234, 440-834-5400, 440-834-4950, Contact: Richard Spangler
Marine Fenders International, Inc., 909 Mahar Avenue, Wilmington, CA 90744, 310-834-7037, 310-834-7825, jerry.thermos@mpowercom.net, Contact: Jerry Thermos
Maritime International, Inc., 204 Ida Rd., Broussard, LA 70518
Schuyler Rubber Co., 16901 Woodred Rd., Woodinville, WA 98072
Trelleborg Engineered Products, P.O. Box 98, Clearbrook, VA 22624
Urethane Products, 9076 Rosecrans Ave, Bellflower, CA 90706
Viking Fender Co., 1160 State St., Perth Amboy, NJ 08861

FIBERGLASS GRATING AND HANDRAIL
Strongwell, 400 Commonwealth Avenue, Bristol, VA 24201

FILTERS/FILTER SYSTEMS
Algae X International, P.O. Box 4011, Fort Myers Beach, FL 33932
Boll Filter, 9822 General Drive. Ste. 180, Plymouth, MI 48170
Hellan Strainer, 3249 East 80th St., Cleveland, OH 44104
US Filter , 2 Milltown Ct., Union , NJ 07083
Vigilant Marine, 170 N. Maple Street Suite #104, Corona, CA 92280

FIRE & SAFETY PRODUCTS
Brookdale International, 1--8755 Ash St., Vancouver, BC V6P 6T3, Canada
DBC Marine Safety Systems, 101-3760 Jacombs Rd., Richmond, BC V6V 6T3, Canada
IFSTA/Fire Services Program, 9030 N. Willis, Stillwater , OK 74078-8045
IMSSCO Corporation, 2040 Harbor Island Drive, Ste. 201 A, San Diego, CA 92101

FLANGES
Jesse Engineering, 5225 7th St., E. Tacoma, WA 98424

FLOW CONTROLS
EIM Controls, 13840 Pike Road, Missouri City, TX 77489

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

GALLEY EQUIPMENT
AR Larsen Co., 15040 NE 95th St., Redmond, WA 98052
Cospolich Refrigeration, 14695 Highway 61, Norco, LA 70079
Jamestown Metal Marine Sales, Inc., 4710 Northwest 2nd Ave. , Boca Raton, FL 33431

GAGING & SAMPLING
Hermatic Inc., 4522 Center St., Deerpark, TX 77536

GAS GENERATION SYSTEMS
Air Products AS, Box 8100, Vagsbygd, NO-4675 Kristiansand S, Norway

GEARS & GEAR REPAIR
Karl Senner Inc., 25 W Third, Kenner, LA 70062

GENERATOR CONTROLS
Detroit Diesel Corporation, 13400 Outer Drive West, Detroit, MI 48329-4001
Governor Control Systems, 3101 SW 3rd Avenue, Ft. Lauderdale, FL 33315

GLASS
Garibaldi Glass, 7344 Winston Street, Burnaby, British Columbia V5A 2G9, Canada
ProCurve Glass Technology, LLC, 3535 Davisville Rd., Hatboro, PA 19040

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

GPS
MX Marine, 23868 Hawthorne Blvd., Torrance, CA 90505

GROUNDING & EARTHING BRUSHES
Sohre Turbomachinery, 132 Gilbertville Rd., P.O. Box 889, Ware, MA 01082-0889

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

HEAT EXCHANGERS
Alfa -Laval Separation, Inc., 955 Meams Rd., Warminster, PA 18974
Duramax Marine LLC, 17990 Great Lakes Parkway, Hiram, OH 44234, 440-834-5400, 440-834-4950, Contact: Richard Spangler

Tranter PHE, Inc, PO Box 2289, Wichita Falls, TX 76307

HEAT TREATING SERVICES & SUPPLIES
Mannings USA, 200 Richards Ave, P.O. Box 896, Dover, NJ 07802-0896, 973-537-1576, 973-537-1581, sales@manningsusa.com, Contact: Daniel Ciarlariello, www.manningsusa.com

HEAVY FUEL TREATMENT
Algae X International, P.O. Box 4011, Fort Myers Beach, FL 33932

HIGH SPEED FERRY BUILDERS
Incat Australia Pty. Ltd, 18 Bender Marine, Hobart 7009, Australia

HMI CONTROLS DISPLAY
Azonix-Dynalco, 3690 NW 53rd St., Ft. Lauderdale, FL 33309

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
Jamestown 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

INFRARED IMAGING EQUIPMENT
Flir 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
Jamestown 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, Lbobbit@qcimarine.com, Contact: Larry Bobbit, www.qcimarine.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

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 Gatan 15, 421 32 Vastra Frolunda, Sweden
Steams 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 Clare, 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 IND, 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-328OT Jodalyng 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

MONITORING
Martek Marine Ltd., Century Business Park Manvers Way, Rotherham, South Yorkshire 560 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
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
American Vulkan, 2525 Dundee Rd, Winter Haven, FL 33884
Governor Control Systems, 3101 SW 3rd Avenue, Ft. Lauderdale, FL 33315
Mackay Communications, 2721 Discovery Dr., Raleigh, NC 27616-1851
Michael J. Erland, 7001 Flewllyn 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 Electonics, 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 Esex 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, 253 N. First Ave., Sturgeon Bay, WI 54235
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
Jamestown 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

OIL SPILL RESPONSE
Donjon Marine, 1250 Liberty Avenue, Hillside, NJ 07205

OIL/WATER SEPARATORS
Alfa -Laval Separation, Inc., 955 Meams 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

PLANNED MAINTENANCE SYSTEMS
Design Maintenance Systems, Inc, 340 Brooksbank Ave, Ste.100, North Vancouver,BC VTJ 2C1, Canada

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

PORT DEVELOPMENT
Sasakura Engineering , 7-32 Takeshima, 4-Chome, Nishiyodogoaw 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 Electonics, 261 Milway Ave. #12, Concord, Ontario L4K 4K9, Canada

PROPELLERS
Rice Propulsion, Av. Rios Espinoza 88, Mazatlan, Sin. 82180, Mexico, 8778396304, 011526699842533, rice@ricepropulsion.com

PROPULSION 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
Hagglunds Drives Inc., 2275 International Street, Columbus, OH 43228
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
LA.ME 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, Telglholmsgade 41, Copenhagen SV DK-2450, Denmark
Man B&W Diesel AG, Stadtbachstrasse 1, Augsberg 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 , Ehlerst. 50, 88046 Friedrichshafen, Germany

PROPULSION MONITORING
Azonix-Dynalco, 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

REMOTELY OPERATED VEHICLES
VideoRay LLC, 415 Engleview Blvd., Exton, PA 19341

RIGID INFLATABLE BOATS
Willard Marine Inc., 1250 N. Grove St., Anaheim, CA 92806

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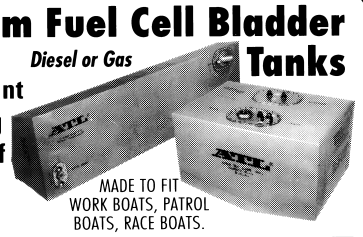

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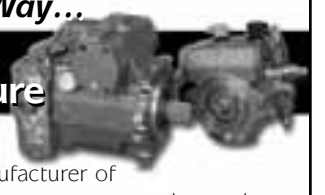

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Page	Advertiser	Product	R/S#
6	**Abb Turbocharger Systems AG**	turbochargers	200
10	**Allied Shipbuilders Ltd.**	deck machinery	201
8	**American Bureau of Shipping**	classification society	202
29	**American Marine Holdings Gov. Services**	boatbuilder	203
24	**Anchor Lamina**	hydraulic drills	204
34	**Anchor Marine**	anchors and chains	205
14	**Bollinger Shipyards, Inc.**	shipyard	206
26	**Blount Boats**	boatbuilder	260
46	**Burrard Iron Works**	winch manufacturer	259
5	**Canberra Industries**	portal monitors & inspector 1000	207
21	**Caprock Communications**	satellite communications	208
35	**Capsante/Technofibre**	lifeboat and davit maintenance	209
7	**Climax Portable Machine Tools, Inc.**	portable machine tools	210
10	**Coastal Marine Equipment, Inc.**	deck machinery	211
37	**Cospolich**	modular refrigerators	262
3	**Crowley Maritime Corporation**	marine logistics/transportation	212
24	**Cutting Edge Technologies**	ship repair	213
25	**Damen Shipyard**	shipyard	214
29	**David Clark**	marine intercom systems	228
16	**DMW Marine, LLC**	Deck machinery/cargo handling equip.	215
50	**Don Sutherland Photography**	photography	216
12	**ESAB Welding & Cutting Products**	welding & cutting products	217
36	**Europort Maritime 2005**	exhibition & conference	218
20	**Evac Environmental Solutions**	sanitation and vaccum systems	219
9	**Geniro System**	electrical automation equipment	220
47	**Global Incorporated**	refueling equipment/deck machinery	262
41	**Hillhouse Industrial and Marine**	shaft horsepower measuring device	221
26	**Imes, Inc.**	lifeboat and crane testing	222
16	**Industrial Power Systems**	switchboards and control systems	223
39	**In-Place Machining**	crankshaft repair	224
31	**Jotron Electronics a.s.**	safety products and systems	225
19	**King Engineering**	Tank gauging systems	226
27	**Kongsberg Maritime**	ship systems & simulators	227
11	**Lockheed Martin Systems/Sensors**	fast ferries	229
10	**Mack Boring & Parts Company**	pumps & generators	230
35	**Maritime Professional Training**	maritime training	231
44	**Maritime Security Expo**	exhibition & conference	232
22	**Military Sealift Command**	employment	NRSC
4	**Motor Services Hugo Stamp Inc.**	diesel engine spare parts	233
34	**Nabrico**	winches and windlasses	261
37	**New York City of Transportation**	employment	263
23	**Novaces LLC**	business process management	234
42	**Oceans 2005**	exhibition & conference	235
40	**Offshore Communications 2005**	exhibition & conference	236
C4	**Petrocom**	communications	237
17	**QCI Marine Offshore**	interiors	238
19	**Rapp Hydema**	deck machinery	239
31	**Robert Allan Ltd.**	naval architects/marine engineers	240
27	**Saab Rosemount Tank Radar AB**	marine electronics	241
C3	**Seawave**	internet service/satellite comm.	242
2	**ShipConstructor**	CAD/CAM	243
31	**Simplex Americas, LLC**	stern tube and shaft seals	244
15	**Smith-Hamm, Inc.**	ship repair/dockside services	245
26	**SNAME**	design/engineering publications	246
38	**SNAME 2005**	design/engineering publications	247
48	**SNAME 2006**	design/engineering publications	248
15	**Sohre Turbomachinery**	grounding and earthing brushes	249
26	**Superior Energies, Inc.**	insulation manufacturers	250
20	**T & T Bisso**	Marine Salvage	251
23	**Technical Marine Systems**	tank level indicating systems	252
13	**Telenor Satellite Services**	satellite communications	253
1	**USMMA**	maritime/transportation school	254
C2	**W&O Supply**	valves	255
9	**Walz & Krenzer, Inc.**	watertight doors	256
45	**Wartsila**	propulsion systems	257
33	**Xantic**	satcoms & IT solutions	258

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Please Contact Michael Glasfeld
617.748.1410
or email mglasfeld@baystatecruises.com

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WATER TRANSIT AUTHORITY

WTA

SAN FRANCISCO BAY AREA WATER TRANSIT AUTHORITY

NOTICE OF REQUEST FOR PROPOSALS TO DESIGN BUILD AND DELIVER TWO NEW 46 CFR SUBCHAPTER T PASSENGER-ONLY VESSELS

CONTRACT NO. 05-006

Proposals will be received until 1000, Prevailing Time, on Wednesday, 12 October 2005, at which time all proposals will be opened in accordance with the provisions of the Spare Vessels RFP. The San Francisco Bay Area Water Transit Authority (the "WTA") will accept sealed proposals from responsible and eligible proponents to enter into a Contract with the WTA to design build and deliver two (2) new 46 CFR Subchapter T passenger-only ferry vessels. The desired characteristics include: a length of approximately 24 meters, a service speed of twenty-five (25) knots at eighty-five percent (85%) of the Marine Continuous Rating (MCR), an aluminum hull, a combination of interior and exterior seating arrangements, weather protected storage for a minimum of 25 bicycles, a design compatible with the existing as well as proposed terminal facilities including the ability to bow and side load passengers and bicycles. The Contractor shall also provide drawings, manuals, training, engineering support, special tools and required spare parts.

An Offerors (Pre-Proposal) conference will be conducted on Tuesday, 09 August 2005, from 1300 - 1600 Prevailing Time at the Bayside Conference Room, Port of San Francisco, Pier One, San Francisco. Attendance at the Offerors (Pre-Proposal) conference is mandatory. The Request for Proposals package (the "Spare Vessels RFP") will be posted on the WTA website, **www.watertransit.org** on 12 July 2005. After 12 July 2005 interested parties may request a free CD of the Spare Vessels RFP from the WTA; or, upon payment of a non-refundable fee of $100.00, interested parties may obtain a hard copy of the Spare Vessels RFP from the WTA office during regular business hours. The WTA is located at 120 Broadway, San Francisco, CA 94111. Informational copies of the Spare Vessels RFP will also be on file at the WTA's office for viewing during regular business hours. Proposals are due in accordance with the RFP requirements.

The WTA reserves the right to accept any proposal or proposals, to waive any informality, to modify or amend any proposal prior to acceptance, and to reject any or all proposals, all as the WTA in its sole judgment and discretion may deem to be in its best interest. The WTA also assumes no obligation of any kind for any expense incurred by any person who responds to this advertisement or submits a proposal in accordance with the provisions of the Spare Vessels RFP.

All inquires with respect to this advertisement should be directed to Mary Frances Culnane, Manager, Marine Engineering, at 415.291.3377.

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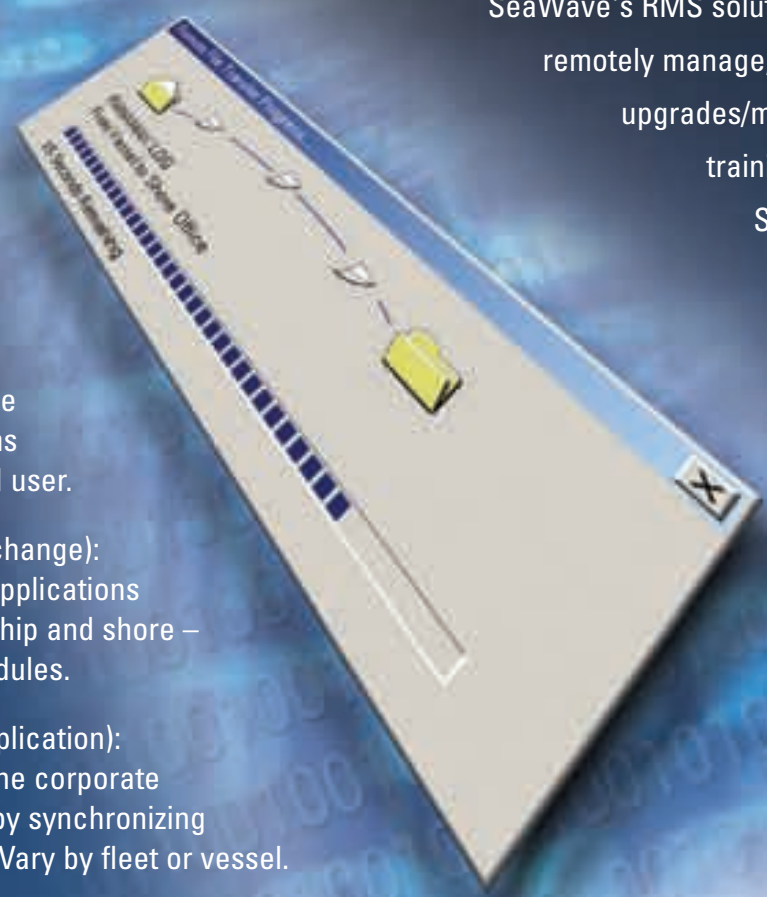

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