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34 On Patrol

The 37-foot Boston Whaler Justice patrol boat is just one of many small craft solutions being employed by maritime security and military forces here, and abroad. This hull and many others serve notice that maritime security dutites are no longer the exclusive domain of the 600-ft. warship.

(Photo BCGP)

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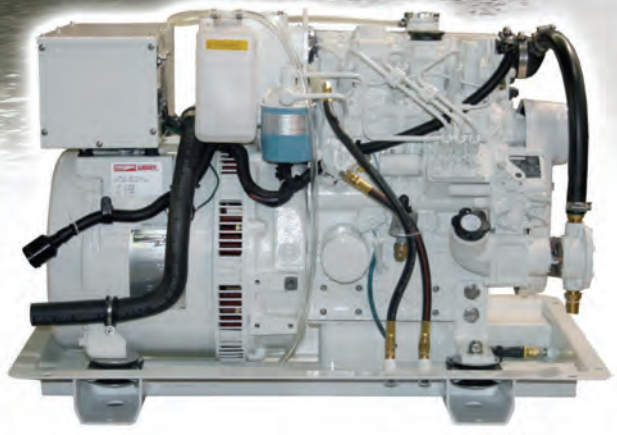

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EDITOR'S NOTE

keefe@marinelink.com

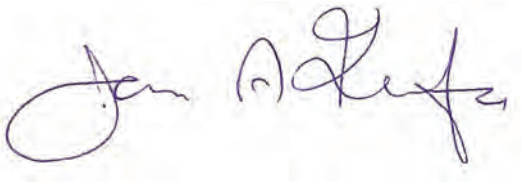
These are interesting times for *MarineNews* readers. It doesn't matter whether your focus resides in one category – offshore, inland, coastal, patrol, Great Lakes – or all of the above. In any of these diverse sectors, three common denominators connect them all. Environmental issues, regulatory and training requirements and the changing world of maritime security are all combining to push costs and issues into areas thought previously immune to these metrics. In this issue, we tackle all of it.

In a world where piracy and the threat of terrorism have changed many of the things that we used to take for granted, the same also holds true for military and law enforcement organizations tasked with keeping us safe. Nowhere is that more apparent than the change of platforms on which these missions are carried out. Port security and anti-piracy efforts, formerly the domain of larger, deep draft assets, are quickly switching gears to provide more nimble and appropriate response tactics. Increasingly, these efforts are launched from smaller platforms; RIB's and other similar-sized boats. Inside, Susan Buchanan leads us through a variety of different build and acquisition programs; some amounting to big dollars and all of which show the way to a new security strategy. New technologies and yes – some environmentally savvy and fuel-efficient options – are also in the works.

The environment, in case you had forgotten, remains as a prime mover in business decisions on the water. At the heart of that discussion, marine coatings have moved from something that you had previously hoped would simply adhere to the hull until your next drydocking and on to (an important) part of your overall "green" strategic planning. Whether you are hoping to save fuel (and reduce stack emissions) by gliding more smoothly through the water via use of a biocide-free fouling release coating or perhaps hoping to reduce the impact of your water treatment system on your ballast tanks, there is much to consider beyond the selection of color for your boot topping.

You may have heard that the Coast Guard had finally produced a final ballast water treatment (BWT) standard (details to be released later this month) and the EPA has its proposed Vessel General Permit (VGP) in place. Those two standards could very soon impact your bottom line in a big way. That's because the ballast water issue, long thought to be a "big boat" problem, has now been pushed down onto the 79-foot hull. That's probably you. Fortunately, there are viable, economically packaged and space-saving BWT options to consider. Naturally, you'll find details inside.

Finally, you will undoubtedly need some well-trained mariners to implement all of these changes in real operational situations. In that case, look no further than SUNY Maritime College where the curriculum – including Coast Guard approved Associate Degree programs, specifically targeted to serve the domestic brown water industry – is constantly evolving. The environment, maritime training and security, too, all come together in this edition. The voice of the modern workboat industry – *MarineNews* – delivers again, for you.



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USACE Defines the Inland, Coastal & Great Lakes Markets

The November 2011 Fact Card produced by the U.S. Army Corps of Engineers' Navigation Data Center is a revealing look at the composition of America's Inland waterways. Our attention was brought to the data, appropriately enough, at the Waterways Council's Annual Seminar held in Washington, D.C. in February. The fact card provides an overview of information about U.S. ports and waterways for the latest complete statistical year. Domestic data is collected by NDC. A partial snapshot of the data provided in the 12-page pocket guide is telling (the numbers are theirs; the analysis, ours).

Vessel Facts

Significantly (and in case you thought boatbuilding was dead here in these United States), there were 1,178 domestic vessels constructed in 2010, an increase of 25% from 939 that were constructed in 2009. This metric is reflected positively in the fact that the number of double hull tank barges has increased significantly from 2,530 in 1997 to 3,359 in 2010, a 32.8% increase. The inland carrier is getting safer and markedly more modern and in a very short period of time. That said, almost 40 percent of the domestic fleet is greater than 25 years in age. The overwhelming majority of all domestic vessels today are brown water, inland or OSV-type vessels. A compilation snapshot of American flag vessels operating in the transportation of freight and passengers is depicted (numbers / age / type) as depicted in table 1, below:

Type	Number	< 5 years	5–10	11–15	15–20	21–25	>25
Self Propelled	**9,078**	**949**	**691**	**773**	**426**	**464**	**5,767**
- Dry Cargo	875	61	110	111	63	109	421
- Tanker	77	17	7	9	3	3	38
- Pushboat	2,886	259	158	158	79	76	2,155
- Tugboat	2,580	314	145	172	66	71	1,809
- Passenger	843	27	59	92	114	155	395
- OSV	1,817	271	212	231	101	50	949
	Number	**< 5 years**	**5–10**	**11–15**	**15–20**	**21–25**	**>25**
Barge (total)	31,412	6,561	3,946	6,098	3,093	1,250	10,153
- Dry covered	11,373	1,888	1,629	3,139	1,043	125	3,359
- Dry open	8,567	1,529	991	1,868	1,319	786	2,053
- Lash/Seabee	7	0	0	0	1	0	5
- Deck	6,669	1,961	760	553	389	293	2,249
- Other Dry	232	13	18	27	12	10	138
- Single Hull (t)	400	27	2	16	11	11	333
- Double Hull (t)	3,359	766	456	446	307	23	1,360
- Other Tank	805	377	90	49	11	2	276
TOTAL (ALL)	**40,512**	**7,511**	**4,640**	**6,874**	**3,520**	**1,715**	**15,933**

Table 1: U.S. Flag Vessels as of December 31, 2010 (updates through October 19, 2011).

U.S. Trust Fund Facts

The Inland Waterway Trust Fund earned $84.0 million in Fiscal Year (FY) 2011. This included $83.9 million paid by the barge and towing industry and $0.052 million interest. The Fund disbursed $97.2 million for construction projects leaving a balance of $45.3 million. However, $13.4 million of the balance is set aside for prior year commitments, leaving only $31.9 million available for new construction obligations. That's a problem. But the answer is easy: The FY 2011 Harbor Maintenance Trust Fund equity grew 13.7% from FY 2010 to $6.42 billion. Total receipts increased 17.3% to $1.6 billion. *(continued on page 10)*

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BY THE NUMBERS

The taxes from domestic commerce of $122.3 million increased 13.5% over the previous year. The taxes collected from imports increased 16.3% to $1,059.1 million. All transfers totaled $826.9 million (U.S. Army Corps of Engineers received $791.4 million, a decrease from FY 2010's $793.0 million). Hence it is easy to see that disbursements, despite a huge surplus, are not anywhere near to the amount being paid in by industry. In the meantime, our inland locks and dams – most approaching or exceeding their 50-year intended lifespan – crumble and our deep draft (?) ports remain too shallow to accept the new Panamax-sized vessels that will begin arriving from the expanded and deepened Panama Canal as early as 2014.

Dredging, Locks & Dams: by the numbers…

Corps Dredging Facts

- Corps and contractor owned dredges removed 221.7 million cubic yards (mcy) of material from Corps constructed and maintained channels in Fiscal Year (FY) 2010 (1 October to 30 September) at a cost of $1,465.3 million. The decrease of 15.9% in cubic yards and 9.0% increase in cost from FY 2009 was due to the infusion of Recovery Act funds.
- In FY 2010, maintenance dredging accounted for 75.0% of the quantity dredged, an additional 14.9% of the total yardage was attributed to PL 109-062 Hurricane Katrina recovery dredging. New construction (channel deepening) 8.3% and emergency dredging 1.7% accounted for the remainder of the dredging volume.
- The average cost/cy for maintenance work dredging increased 33.2% to $5.97 and the average cost/cy for new work dredging decreased 17.3% to $15.27 when compared to 2009 values.
- Private dredging contractors removed 82.4% (182.7mcy) of the material dredged and were paid 90.5% ($1,327.4 million) of the total FY 2010 Corps dredging expenditures.
- In FY 2010, 111 private dredging companies submitted a total of 441 bids for 195 contracts. Awards were made to 57 different companies, 19 large and 38 small businesses. Large and small companies received 106 (54.3%) and 89 (45.7%) of the contracts respectively.
- The cutterhead pipeline dredge was the most widely used dredge in FY 2010 receiving 60.0% of the contracts, removing 56.3% of the contracted quantity and earning 56.5% of the contract dollars. Hopper dredges removed 33.8% of the quantity and earned 19.6% of the contract dollars. Mechanical dredges removed 9.8% of the quantity, earning 23.7% of the contract dollars. The remaining dredging was performed by a combination of more than one type of dredge.
- The District that awarded the most contract dollars in FY 2010 was Mobile with $203.6 million. New Orleans District had contracts dredging the most cubic yards (65.5 mcy).

Lock Facts

- In Calendar Year (CY) 2010, the Corps owned and operated locks were available to serve the public for over 1,918,121 hours with only 175,519 hours of downtime, an availability rate of 91.6%.
- Funding was received for 193 Corps owned or operated lock sites. Of the 193 lock sites, 39 have multi-chambered locks. Thirty-four have two chambers, four have three chambers and one has five.
- Many of the 193 lock sites serving navigation include multi-purpose dams. For example, 46 lock-associated dams currently produce hydropower.
- The Willamette Falls locks on the Willamette River are the oldest used locks owned and operated by the Corps, having been built in 1873. In CY 2010, together they locked 103 vessels carrying 14,990 tons of cargo.
- The youngest Corps lock is Montgomery Point on the McClellan-Kerr Arkansas River system. Built in CY 2004, during the 7 years it has been operational 10,325 vessels carrying 52,712,811 tons of cargo have passed through the lock.

Waterways Facts

- The Port of South Louisiana which stretches 54 miles along the Mississippi River is the largest tonnage port in the United States. It is comprised of facilities in St. Charles, St. John the Baptist, and St. James Parishes. In CY 2010 it shipped 114.0 million short tons of cargo. Primary outbound cargoes include corn, animal feed, wheat, soybean, petroleum coke, chemicals and fuel oils.
- Duluth – Superior, located at the western tip of Lake Superior, is the largest port on the Great Lakes and is one of the premier bulk cargo ports in North America. In CY 2010 it shipped 32.7 million short tons of cargo. Principal cargo loadings include ore, coal, and grain. It has a navigation season that usually begins in late March and continues until mid-January.
- Commercial dock facilities at Fairmont, WV are 2,080 statute miles from the Gulf of Mexico via inland waterways (Monongahela, Ohio and Mississippi Rivers). Those at Sioux City, IA are 1,899 statute miles from the Gulf via the Missouri and Mississippi Rivers, and those at Minneapolis, MN are 1,831 statute miles up the Mississippi River.
- The 12,000 miles of inland and intracoastal waterways, like highways, operate as a system, and much of the commerce moves on multiple segments. They serve as connecting arteries, much as neighborhood streets help people reach interstate highways. Waterways are operated by the Corps as multi-purpose, multi-objective projects. They not only serve commercial navigation, but in many cases also provide hydropower, flood protection, municipal water supply, agricultural irrigation, recreation, and regional development.

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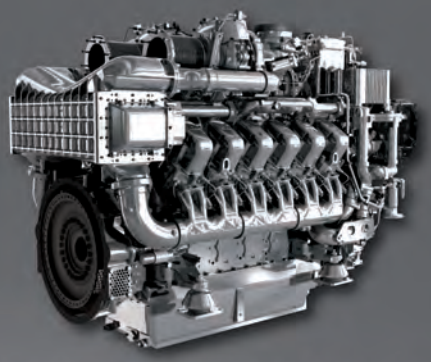

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Choosing the Correct Lubricant

The proposed 2013 Vessel General Permit prompts vessel managers to review the portfolio of lubricants used on their vessels.

By Benjamin F. Bryant, Klüber Lubrication NA L.P.

One of the Environmental Protection Agency's (EPA) changes in the proposed 2013 Vessel General Permit for commercial vessels over 79' is a requirement to use environmentally acceptable lubricants in certain applications. Given this proposed change, it is a good time for vessel managers to review the portfolio of lubricants used on their vessels to look for gaps in the operational performance of the lubricants, assess vessel compliance with current and proposed regulations, and align lubricant choices with the environmental values of their company and their customers. To conduct the review, the manager should have an understanding of the laws and regulations that influence lubricant choices and only then develop a framework for applying selection criteria to the decision making process.

The Clean Water Act, Oil Spill Pollution, and the Vessel General Permit

Federal regulations for the use of lubricants, whether a grease or an oil, on board vessels operating within the territorial waters of the United States are derived from language contained in the Clean Water Act of 1977 (CWA) which was later amended by the Oil Pollution Act of 1990. Section 311 of the CWA, under the title "Oil and Hazardous Substance Liability", prohibits the discharge of oil into the waters of the United States in quantities that may be harmful. For the purpose of the act, oil is specifically defined as "oil of any kind" and the phrase "quantities that may be harmful" is defined by regulation. Also, found in section 311 of the CWA is the authority for the U.S. Coast Guard to assess fines for oil spills and to implement oil pollution control measures. Section 311 of the CWA thus prohibits the discharge of lubricants into the environment regardless of the type of base oil used (whether mineral, ester, or synthetic and whether it is environmentally acceptable or not) and directs the U.S. Coast Guard to assess fines for the discharge of oil into the environment and to conduct oil spill prevention, response, and mitigation activities. Thus, choosing a lubricant based on whether or not a fine will be assessed, or how much of a fine will be assessed, should not be a primary consideration when selecting a lubricant because the U.S. Coast Guard must treat all oils the same.

The regulation that defines when an oil spill becomes a pollutant is 40CFR§110.3. The phrase "may be harmful" is essentially defined as any amount that causes a film, sheen, or discoloration on the water or creates a sludge or emulsion in the water. This regulation is commonly referred to as the "sheen rule" because a sheen on the water provides an indication that a discharge has taken place. The term "sheen" is further defined in 40CFR§110.1 as "an iridescent appearance on the surface of water". So while the absence of a sheen may remove the indication that a discharge has taken place, the incident is still a reportable discharge if it created a film or discoloration on the water or a sludge or emulsion in the water. Choosing a lubricant for its non-sheening characteristic leaves the operator open to charges of failure to report a spill should a discharge take place that is not reported as required.

In 2008, to allow for the discharge of pollutants from vessels under normal operations, without violating the CWA, the EPA issued the first version of the Vessel General Permit (VGP). The authority to issue VGPs is given to the EPA in section 402 of the CWA as part of the National Pollutant Discharge Elimination System. The VGP sets effluent limits for 27 different sources of operational discharges from vessels. Oils and greases are one of the effluent types listed. Because the VGP is issued under the authority of the EPA and not the U.S. Coast Guard, the two agencies signed a memorandum of understanding to cooperate in the implementation and management of the program. The U.S. Coast Guard was asked to assist with education and inspection activities associated with the VGP while the authority to enforce the VGP remains with the EPA. Furthermore, the VGP only allows discharges of lubricants from normal operations in amounts

(Photo courtesy of Klüber)

A working vessel with numerous lubricating needs on deck.

that do not exceed what is defined as harmful to the environment; i.e. film, sheen, discoloration, sludge, or emulsion. The first VGP did recommend the use of environmentally preferable lubricants, but it did not require their usage, nor did it define what an environmentally preferable lubricant is. So in practice, not much changed in relation to lubrication strategies on vessels as a result of the 2008 VGP.

However, with the issuance of the proposed 2013 VGP, what are now referred to as environmentally acceptable lubricants (EAL) may become mandatory in certain applications for new vessels greater than 79 ft built after December 19, 2013. For existing vessels greater than 79 feet, the requirement to use EALs would also apply when technically feasible. "Environmentally acceptable lubricants" means lubricants that are "biodegradable" and "non-toxic" and are not "bioaccumulative". A lubricant must meet specific standards included in the revised VGP to be classified as an EAL.

The applications listed in section 2.2.9 of the proposed 2013 VGP that would require an EAL are, "Controllable Pitch Propeller and Thruster Hydraulic Fluid and Other Oil-to-Sea Interfaces including Lubrication Discharges from Paddle Wheel Propulsion, Stern Tubes, Thruster Bearings, Stabilizers, Rudder Bearings, Azimuth Thrusters, Propulsion Pod Lubrication, and Wire Rope and Mechanical Equipment Subject to Immersion". In general, assessments for EAL usage should be made for mechanical equipment using hydraulic fluid to power propulsion, mechanical equipment below the waterline that use seals to separate lubricant from water, and any equipment that uses lubricants in an open system such as wire rope or open gears than may be immersed in water.

Suggested Framework for Assessing Lubricant Choices

To assess the correct lubricant for the application, the vessel manager can combine the regulatory criteria presented above with criteria specific to the application and with company and customer environmental values. To begin, place the lubricants into one of four categories. In the first and second categories, place all applications that are used external to the vessel and above the waterline; e.g. wire ropes, winches, anchor windlasses, and deck cranes. Then further separate these into lost in use or captured use categories. A 'lost in use' would be an open system such as the open gears on a deck crane. A 'captured use' would be a closed system such as a hydraulic driven winch. In the third group, place all applications that are used below the waterline and either have a mechanical oil-water interface or are used to power propulsion systems. And, in the fourth group, place all applications that are below deck and internal to the vessel.

Assess each category as follows:

1. **External to the vessel, above the waterline,** lost in use lubricants: Choose an EAL grease or oil that minimizes the amount of lubricant lost to the environment. Consider optimal viscosities, good adhesion qualities, and/or good retention of the base oil in the grease. For this category, sheen characteristics may need to be considered because while the discharge should be below the level of creating a film, discoloration, sludge or emulsion; a visible

sheen could still be created.

2. External to the vessel, above the waterline, captured use lubricants: While the proposed 2013 VGP does not require use of EALs for these applications, there is a risk of accidental discharge into the environment. Consider your organizational values and those of your customers to determine if a lubricant that exceeds regulatory compliance should be used. Sheening characteristics are not important because a failure of one of these systems is likely to lead to a reportable incident regardless of the sheen created.

3. External to the vessel, below the waterline lubricants: Choose an EAL grease or oil and in addition consider lubricates that exceed minimal OEM requirements. A failure of one of these systems could lead to at best an unplanned shipyard visit or at worst put the vessel in an unsafe situation. As to the sheening characteristic of the lubricant, a product that sheens may cause a reportable incident but it will also alert the vessel operator to a potentially serious problem.

4. Below deck, internal to the vessel lubricants: Any leakage of lubricants in these applications should be contained in the bilge of the vessel where they can be prevented from entering the environment. EALs are not necessary unless organizational or customer values require them.

5. For all applications, but particularly for EAL applications, ensure the lubrication is compatible with system components such as hoses and seals.

6. Finally, consider the performance characteristics of the lubricant in meeting or exceeding OEM specifications, improving efficiencies, reducing labor, extending the life of the equipment, extending the time between service intervals, improving safety, and reducing the amount of lubricants entering the waste stream. A correctly chosen lubricant can improve the overall operation of the vessel.

This suggested framework for assessing lubricant options is based on an understanding of current and proposed U.S. regulations. The proposed 2013 VGP will take effect in December of this year, so it is not too early to begin assessing the potential impacts to vessel operations.

About the Author

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Guido F. Perla, Chairman

Guido Perla & Associates, Inc.

Guido F. Perla needs no introduction to the readers of *MarineNews*. After founding GPA – an independent, full-service naval architecture and marine engineering firm – in 1979, the firm has developed from a single person company into a multi-disciplinary firm with offices in China, Germany, Chile and Brazil, and is renowned worldwide for its work and achievements in the naval architecture and marine engineering world. GPA is also recognized for being an independent and neutral opinion in the industry. GPA's team consists of over 80 professionals, including naval architects, marine engineers, mechanical engineers, electrical engineers and administrative support. Mr. Perla is responsible for the strategic development of the company, and focuses on preliminary and conceptual design work. This month, he weighs in on a host of topics as our INSIGHTS feature:

GPA was at the forefront of developing diesel-electric systems for operating auxiliary machinery for a wide range of platforms. Where is the concept of the most value and how has it developed over the years?

From small boats to the world's largest ships, propulsion selection is crucial to operational success. The best application for a diesel-electric system, which is not applicable to all types of vessels, is for vessels with an operational profile of variable power demand.

For a vessel with a constant power demand during operation, diesel-electric propulsion does not bring the same advantages as on variable power demand vessels. Converting from diesel power to electric power to propel such a vessel with constant power demand would not be as efficient as a direct diesel/shaft system as the mechanical losses on a diesel/shaft system are smaller than the electric losses on a diesel-electric system.

The advantage of a diesel-electric system is the ability to manage the power demand of a vessel as efficiently as currently possible. One of the best applications has been on Platform Support Vessels (PSV) in the offshore oil exploration area. These vessels operate with continuously changing power demands for the propulsion and auxiliary systems due to frequently changing conditions, such as free running, loading and unloading, Dynamic Positioning (DP), standby etc. These conditions require different power settings and that is where diesel-electric shines.

Another great advantage is the gained flexibility of equipment arrangement within the vessel, allowing the Naval Architect to make the best utilization of the internal space. Utilizing that internal space as efficiently as possible allows diesel-electric vessels, such as PSVs, to produce more revenue compared to a similar-sized standard propulsion vessel.

Over the years, diesel-electric systems have become more affordable, more compact and more accepted by operators, their crews and shipyards. Manufacturing cost of the equipment has dropped considerably due to demand and the technology behind these systems has improved. Those improvements allow manufacturers to create and construct more compact, lighter components while the Naval

Architect is able to better utilize space, resulting in a noticeable increase of the cargo capacity.

The crew work, as well as the need for maintenance and repair, has diminished because of new technologies on these systems. Many operators have realized that you do not need a PhD graduate to run such a vessel. If you mentioned diesel-electric systems a while back, everyone believed it to be rocket science. It is not.

As time has passed, shipyards better understand the advantages of the installation of these systems compared to a standard shaft system and can estimate better prices for the construction. Overall, when you add material, equipment and labor costs for both systems, the diesel-electric system is comparable to the standard shaft/gearbox/diesel system and in some cases, it is even better.

Although wind farms haven't taken off here as they have in other places, maintenance vessels do have unique mission sets. Tell us about some of the challenges that will be involved with designing this next generation of specialty tonnage.

Price dictates many things and that has been one of the major factors driving this industry. Another one is that this industry is still not well established and some operators feel it is a fad and may not last that long. This is changing a little at a time, but it is not proven and there is a risk in putting too much money into it or not enough.

You can find yourself with too much equipment or not enough. Some operators are still waiting for things to coagulate a little more. Here is where my father's saying, "The second mouse always eats the cheese" is very applicable. Thus, the Naval Architect needs to find ways of providing the proper design at an affordable cost.

Another area is ship motion and maneuverability. For some of the maintenance operations of offshore windfarms, ship motion and maneuverability is very important and a good practical design is very valuable because it brings a safer and reliable craft to the system.

There are many ways of approaching this issue and we at GPA have been developing a new design that will bring these qualities into the profession. As always, there are many different ways of arranging a living room.

Until the market develops and is more receptive to new vessel designs dedicated solely to offshore wind installation and maintenance operations, it is worth keeping the requirements in mind during the design of "regular" offshore vessels. In some cases, these vessels can be utilized during certain offshore wind projects. Just recently, BOURBON Offshore was able to capitalize on the flexibility and adaptability of a GPA 254L AHTS vessel and installed a semi-submersible wind turbine off the coast of Portugal for the Portuguese utility EDP.

Offshore operators are demanding PSV and OSV tonnage that can go further offshore (range), carry more cargo, and on larger hulls. With all those variables in play, share with us the primary driver(s) when designing for today operators, as opposed to that of just ten years ago?

As always, one of the primary drivers has been cost. That has not changed. GPA still spends a lot of time and effort in the design process to find ways of reducing costs of the construction of the vessel and operational expenses in order to bring a better return on the investment.

Unfortunately, for many reasons, the vessels are getting more expensive and it is getting very difficult to find ways of combating this. Still, simplicity has been another driving force by keeping costs down because simplicity reduces construction and operational costs on any vessel or equipment. The problem is that simplicity can be misunderstood or done the wrong way and then it becomes "cheapness" that is very detrimental for a safe, well performing, durable vessel.

Simplicity is when you take every unnecessary component out of a design and it still works as it is supposed to work. It is a very difficult science that is not taught in any school or university but by observation, common sense, logic and experience. It is the combined effort of the Owner's, Shipyard's and Naval Architect's visions, decision making and understanding of their own specialty and profession.

Unfortunately, new regulations, environmental requirements, operational demands and many other factors are making the vessels more complex and simplicity is becoming something more difficult to achieve. I am not saying it cannot be done. It is that these influential factors are growing so fast, that we have not had the time to gain the experience and been able to observe in order to find simpler ways to meet the new requirements.

One example of finding ways around these changes was when GPA pioneered the implementation of diesel-electric systems in the Offshore Industry support vessels. This resulted in an increased revenue capacity of the vessels and efficiency and thus, compensated for the increase in cost of a modern vessel.

Diesel-electric allowed us to keep the ships within reasonable size, carry more cargo and provide for more efficient operations. In addition, the application of the diesel-electric systems improves crew comfort, reduces environmental impacts, and increases the flexibility of operation and other factors. But as always, everything has its limits.

We started with the engine room (generator room in a diesel-electric) below the main deck on the GPA 640 PSV (for Rigdon Marine). Still trying to gain more capacity and increase the revenue power of the vessel, we closely worked with Rigdon on the GPA 654 PSV and developed a new concept by placing the generator room on the main deck. This concept is also applied on BOURBON Offshore's the GPA 654M PSV (Bourbon Liberty 100 series) and the GPA 254L AHTS (Bourbon Liberty 200 series) of which a total of 76 vessels were constructed.

This approach pioneered by GPA allows us to increase the cargo capacity of a vessel by about 30% without increasing the overall size of the boat. Some of these vessels are being built in other countries, such as Brazil.

As I said above, cost is still the primary factor, but the bottom line is not as hard a driver as it was years ago. Owners are looking at maybe increasing that bottom line to some extent and also investing in the future. They are asking us for more efficient hulls, better comfort level aboard, more flexibility of the design, improved environmental friendliness, they are applying higher technology equipment and systems to do their work, and they are relying more on technology rather than rely on their seat-of-their-pants approach.

We as Naval Architects are getting more involved in the decision making of the process of a project and invest in developing and learning new technology and knowledge, allowing us to stay with the changes and develop ideas and answers to the tasks now assigned to us. It is becoming more of a team effort than years ago where an owner or shipyard just bought an existing design and that was sufficient. GPA's motto since its beginnings of "Engineering ideas into reality" is becoming more and more the way.

Shipyards and operators alike tell us that they are looking more towards a seamless approach from Naval Architects to work closely with them after the design phase is over. What's the GPA philosophy for these ever-changing relationships?

For GPA, these "ever-changing" relationships have been very constant. From the beginning, GPA's approach has been to be with the project from the conceptual phase, through construction, delivery, and operational life of the vessel. This allows us to complement our technical and school knowledge with the real life experience of constructing, delivering and operating a vessel.

To develop the best design, you need to know how to construct and operate it. The science of simplicity that I mention above comes from this philosophy. If you do not know how to construct, how to operate a vessel, your designs are deficient. That is one of the reasons GPA has always required or tried to provide the production engineering for our designs. In addition, we keep a relationship with the owner of our designs beyond delivery to learn how certain things have worked out during the life of the vessel and thus improve on their development and design.

Another way we work this out is never offer stock premade designs. We have a "family of designs", but they are tailored to each individual owner or shipyard. We also encourage the owners to select a shipyard early on in the project and work as a three member team, so the design is developed for maximum efficiency of operation and construction.

GPA also spends time learning about new equipment and also how equipment operates and advantages and disadvantages of each one. Thus, we can provide the best design for specific equipment, but also advise our client of the best applicable one.

GPA is always very current and works with the regulatory authorities and class societies in all new changes in the regulations. Many times, GPA has been involved in helping with the outcome of some of those regulations and establishing new approaches to changes and use of them. New technology has made work easier for us to provide

equivalences in dealing with issues in the classification of ships. Class rules are general rules and GPA several times provided solutions to situations where in order to comply with the rule, it may overdesign or underdesign a vessel. We all have to understand that the class rulebook is not a design manual, but a standard and the Naval Architect should use his/her engineering knowledge and skills in applying those standards and designing the proper vessel.

If you had to point to just one hot trend in Naval Architecture and design today, what would that be and why?

Hot trend is a misleading statement. Hot trend can be something that is popular and chic or can be a gun to your head that is forcing you to come up with an answer. I would like to use the gun to the head. It is more appropriate to our profession. It is very difficult to just choose one because each type of vessel or operation has a hot trend.

If we look at a common denominator that can be applicable to almost all of the types, it is environmental requirements. It would be finding ways of making the vessels more environmentally friendly with the least amount of investment. I consider this a hot trend because regulations are going to be dictated and enforced that are going to create more problems than what they are going to solve, because of the available present technology. I am not saying that I am against saving the environment. Yes, I agree that we need to do something about it, but the problem is that there is not a practical technology available at this moment that can be permanent or permanent enough that would allow us to develop better and more practical ways to deal with it. I am referring here to the emission part of the environmental requirements. I am very concerned that we are going to regulate ourselves to a point that it would be prohibitive to operate.

All the available technologies at this moment are a temporary, expensive solution to what we are trying to achieve and if we do not do them in a careful way, we can waste a lot more than what we are trying to save. There is still a lot that can be done with our present proven technology and the design of ships. We can improve on all of them and get very good results with the least amount of

investment and with more certainty than with some of the "new" solutions. GPA is involved in improving our present proven technology and also working on our designs to make them more efficient and environmentally friendly. In spite of the facts mentioned above, we are also learning, studying, applying and implementing "new" technology when the project demands it use.

Saving space on the typical workboat hull is always an important issue. Name one area of design that has been particularly helpful in this utility, where GPA has been involved, and how.

There are different ways to save space in a vessel. That can be achieved by the use of technology, previous experiences, or new equipment or ways of doing something. Technology in design has allowed the Naval Architect to make better judgment of the design and the more efficient use and arrangement of the space than in previous times. The use of very good 3D technology allows us to do that. Also, Finite Element Analysis allows us to optimize the structure and eliminate redundancy, freeing more internal space and saving weight.

Structure can affect your internal space a lot and using the proper structural style or system for a vessel can free a good amount of space. For example, a transversely framed vessel has generally, if well designed, more available internal space than a longitudinally framed vessel of the same size.

One area of design that has helped in this respect has been the use of diesel-electric propulsion. This system has a lot of flexibility in the location of the propulsion and generating equipment and when combined with azimuthing and cycloidal propulsion units, it provides the Naval Architect with one of the best ways of freeing or saving space inside a vessel.

Erecting Barriers to Economic Prosperity

By Thomas A. Allegretti, President & CEO, The American Waterways Operators

On January 31, the Great Lakes Commission and the Great Lakes and St. Lawrence Cities Initiative released a report to great media fanfare that describes alternatives for separating the Great Lakes and Mississippi River basins by installing physical barriers in the Chicago Area Waterway System. The press coverage noted the startling price tags of the proposals – the least expensive alternative would run $3.26 billion – but even those stunning numbers don't capture the true economic costs of closing the CAWS.

The CAWS is the sole marine transportation link for $16 billion in vital commodities and products that move between the Great Lakes and the Mississippi River system annually. Severing this link would be devastating for the thousands of people, from Illinois to Louisiana, who rely on the CAWS for their livelihoods. Barges safely and efficiently carry almost 20 million tons of cargo through the CAWS each year, including energy sources such as coal and petroleum, manufacturing and construction materials like iron and steel, and other commodities that are essential to the regional and national economy. Almost one-fourth of commodity shipments via the CAWS originate in New Orleans and Baton Rouge.

A 2010 study conducted by the DePaul University Chaddick Institute for Metropolitan Development found that closing the Chicago and O'Brien locks on the CAWS – two of the report's proposed barrier locations – would result in the loss of $4.7 billion in economic value. This estimate does not take into account effects on employment. To get an idea of what those impacts might be, look no further than a September 2010 peer-reviewed study by Martin Associates, which found 17,665 jobs in Indiana alone were attributable to barge movements through the O'Brien Lock.

It is important to understand what inspired the advocacy piece released late last month. GLC and GLSLCI are convinced that physically separating the Great Lakes and the Mississippi River system is necessary to prevent the transfer of Asian carp and other aquatic invasive species from one watershed to the other, and in 2010, they announced an initiative to demonstrate "that separation is feasible, practical, and effective" by developing and evaluating separation scenarios. However, their belief in the necessity of separation ignores both sound economics and good science. There are many strategies to control the movement of aquatic nuisance species, including Asian carp. The U.S. Army Corps of Engineers recently identified over 90 available options and technologies that could be applied to avert the spread of aquatic invasive species via the CAWS. The vast majority of these controls can be implemented with minimal disruptions to CAWS vessel traffic. This inventory was conducted as part of the Corps' ongoing Great Lakes and Mississippi River Interbasin Study, an exhaustive exploration of control measures to prevent aquatic nuisance species transfer between the Great Lakes and the Mississippi River basins.

GLMRIS is not the only federal initiative to address the threat of Asian carp. Since 2010, the Asian Carp Regional

Coordinating Committee, a cooperative of federal, state, and local agencies, has spent more than $100 million on efforts to keep carp from entering the Great Lakes. The Coordinating Committee has conducted extensive monitoring activities using electrofishing, netting, and applications of piscicides; is actively working to reduce Asian carp populations downstream of the CAWS through commercial fishing and market enhancement projects; and, has heavily invested in the research and development of innovative, long-term control methods.

But the most effective deterrent to Asian carp movement has been the system of electric barriers installed and operated by the Corps in the Chicago Sanitary and Ship Canal. These barriers, which disperse an electric field that repels fish, have so far successfully prevented the migration of Asian carp into the Great Lakes with only small impacts on waterways transportation. To date, only one Asian carp has been found in the CAWS north of the electric barriers. However, forensic analysis indicated this fish was transported there by humans; it did not pass through the electric barriers.

Before economically disruptive activities such as physical separation are undertaken, it is important that their costs and benefits are fully considered. To this end, Indiana Congressman Pete Visclosky and Senators Dan Coats and Dick Lugar have introduced bills in both chambers of Congress that would require the Corps to prepare an economic impact statement prior to any federal actions that would interrupt the flow of commerce through the CAWS. S. 1197 and H.R. 2432 will allow communities, businesses, and individuals to review and understand how physical separation and other drastic mitigation measures will impact jobs and commercial activity.

The American Waterways Operators understands the concern surrounding the spread of aquatic invasive species and has worked closely with local, state, and federal agencies for over eight years to prevent Asian carp from establishing populations in the Great Lakes. However, AWO strongly believes that more reasonable and affordable solutions than physical separation can be implemented to effectively prevent the transfer of aquatic invasive species while also protecting the jobs across the country dependent on essential waterborne commerce.

We can stop Asian carp without erecting barriers to economic prosperity.

Vessel Crewing

Operators Face Liability for Numerical, Task Assignment, Competency, Training, and Demeanor Deficiencies

By Frederick B. Goldsmith

Vessel owners must know and meet the statutory and regulatory crewing, or "manning," standards for the particular class and service of vessels they operate, whether "inspected" or "uninspected," including, among other matters, number and type of crewmembers, work-hour limitations, and U.S. citizenship requirements. A good reference source for these statutes and regulations is Volume III of the U.S. Coast Guard's Marine Safety Manual, entitled "Marine Industry Personnel." This volume is available on the agency's website (type: "Volume III Marine Safety Manual" in an internet search engine).

Violation of statutory and regulatory crewing/manning requirements can expose the vessel operator to a Coast Guard civil penalty action. See, for example, 46 U.S. Code § 8101(f) ("The owner, charterer, or managing operator of a vessel not manned as required by this section is liable to the Government for a civil penalty of $10,000.").

Civil Liability Standards under the Jones Act

The attorney for a seaman or his or her family suing a vessel operator under the federal Jones Act for personal injury or wrongful death can put to effective use a vessel operator's violation of a Coast Guard manning statute or regulation. The Jones Act, codified at 46 U.S.C. § 30104, creates a statutory negligence action for seamen against their employer. The Jones Act states:

"§ 30104. Personal injury to or death of seamen

A seaman injured in the course of employment or, if the seaman dies from the injury, the personal representative of the seaman may elect to bring a civil action at law, with the right of trial by jury, against the employer. Laws of the United States regulating recovery for personal injury to, or death of, a railway employee apply to an action under this section."

First, a Coast Guard statutory or regulatory manning violation can serve as the basis for liability as "negligence per se" under the Jones Act. Black's Law Dictionary defines "negligence per se" as: "Conduct, whether of action or omission, which may be declared and treated as negligence without any argument or proof as to the particular surrounding circumstances, either because it is in violation of a statute or valid municipal ordinance, or because it is so palpably opposed to the dictates of common prudence that it can be said without hesitation or doubt that no careful person would have been guilty of it. As a general rule, the violation of a public duty, enjoined by law for the protection of person or property, so constitutes."

Second, under the Pennsylvania Rule, named after an 1873 U.S. Supreme Court decision in a vessel collision case entitled "The Pennsylvania," when a vessel operator has violated a safety statute, a rebuttable presumption arises that this violation caused the accident. Further, under the Pennsylvania Rule, the violator must show the violation not only did not cause, but could not have, caused or contributed to cause the accident. While the Pennsylvania Rule originally applied only in collision cases, courts have since applied the rule in non-collision and non-navigation cases. Finally, the Jones Act expressly adopts by reference the Federal Employers' Liability Act ("FELA"), the federal statute which provides a negligence claim for rail workers against their employers. Section 53 of the FELA, however, supercharges both the FELA and the Jones Act in favor of the employee when the railroad or vessel operator has violated a statute enacted for the safety of the employee. Section 53 states:

"§ 53. Contributory negligence; diminution of damages

In all actions hereafter brought against any such common carrier by railroad under or by virtue of any of the provisions of this act to recover damages for personal injuries to an employee, or where such injuries have resulted in his death, the fact that the employee may have been guilty of contributory negligence shall not bar a recovery,

but the damages shall be diminished by the jury in proportion to the amount of negligence attributable to such employee: Provided, That no such employee who may be injured or killed shall be held to have been guilty of contributory negligence in any case where the violation by such common carrier of any statute enacted for the safety of employees contributed to the injury or death of such employee."

Specifically interpreting Section 53 of the FELA, courts have found that where a seaman was injured due to a vessel operator's violation of a Coast Guard manning statute, the seaman cannot be charged with contributory negligence. This means the seaman's monetary damages cannot be reduced even if the seaman is also at fault in causing or contributing to cause the accident. He is essentially exonerated, or immunized, under Section 53 by the employer's statutory violation.

The U.S. Fifth Circuit Court of Appeals addressed this precise issue in 1985 in a case entitled, Roy Crook & Sons, Inc. v. Allen. In the Allen case, Captain Newell Allen drowned in the Gulf of Mexico while attempting to bring in the anchor of the M/V Lady Patricia, a ship owned by Roy Crook & Sons, Inc. At the time, only two crewmembers were aboard: Captain Newell Allen and a deckhand. The M/V Lady Patricia was sixty-five feet long, had a capacity of 89 gross tons, and operated under a Coast Guard Certificate of Inspection which required a crew of two ocean operators and two deck-hands. The appellate court found that the vessel operator had indeed violated the Coast Guard manning statute (which requires a vessel be manned in accordance with its COI) and thus that Captain Newell could not be charged with any comparative negligence.

Civil Liability Standards under the General Maritime Law for Unseaworthiness

Separate and apart from exposure to a seaman's Jones Act negligence claim, vessel operators face liability to their seamen employees in the crewing context under the general maritime law (or federal common, or judge-made, law) under the warranty of unseaworthiness. Under this doctrine, vessel owners essentially promise to provide for their

crewmembers seaworthy vessels, that is, vessels reasonably fit for their intended use or purpose. The duty to provide a seaworthy vessel is absolute and completely independent of the duty under the Jones Act to exercise reasonable care or be free from negligence. In other words, a seaman need not prove the vessel operator is negligent to win an unseaworthiness claim.

The seaworthiness duty covers not only the vessel itself, and its equipment, but also its crew. Seaworthiness is a relative term, and the standard varies depending on the type of vessel and the nature of the voyage. Generally, courts hold that vessels must be "staunch, strong, well equipped for the intended voyage and manned by a competent and skillful master of sound judgment and discretion," and that shipowners have "a nondelegable duty to provide a qualified master and crew for the intended voyage."

In the crewing and manning context, courts have regularly found vessels unseaworthy, and thus the vessel owner liable for injuries and damages which result, where a vessel is inadequately crewed, either in terms of number aboard, number assigned to perform a given task, competency, training, or disposition. Some examples from published court decisions:

- "While there was one other experienced crewman, the engineer, Nichols was the only experienced navigator and his physical and mental endurance must have been overtaxed by working long hours in such severe conditions with an undermanned and incompetent crew. The DEEP SEA was unseaworthy in such respects and the unseaworthiness contributed to his fatal mistake in judgment." (Petition of New England Fish Co., 465 F. Supp. 1003 (D. Wash. 1979))
- Vessel unseaworthy where a vessel owner failed to post dedicated lookout who had no other duties (In re Complaint of Delphinus Maritima, S.A., 523 F.Supp. 583 (S.D.N.Y. 1981)).
- "[I]t makes no difference that respondent's vessel was fully manned or that there was a sufficient complement of seamen engaged in the overall docking operation, for there were too few men assigned 'when and where' the job of uncoiling the rope was to be done. it makes no difference that the third mate and two men he assigned to perform the job were themselves competent seamen, or that the rope was itself a sound piece of gear. By assigning too few men to uncoil and carry the heavy rope, the mate caused both the men and the rope to be misused." (Waldron v. Moore-McCormack Lines, Inc., 386 U.S. 724 (1967))
- "Diamond B was aware that Bennett had trouble hearing the radio over the engine noise and that this noise also drowned out other vessels' fog signals; yet Diamond B sent him out anyway. Diamond B also sent him out without a lookout and with a radar system that Bennett had no training in how to use. Diamond B claims that Bennett had sufficient hands-on experience in using radar, but the fact that Bennett could not even tell which direction the CANE RIVER was traveling on radar indicates otherwise. In short, the facts found in this case go far beyond mere navigational errors. Diamond B knew, or should have known, that the MISS BERNICE was unseaworthy and

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Bad Business Planning

Don't Let it Sink Your Dreamboat

By: Richard J. Paine, Sr.

As a commercial marine lender, I have seen many business plans over the years. They've ranged from the two-page "shorty," to a ten-page quick-n-dirty and all the way to a 100-page version of "War and Peace." Does one size fit all? Probably not. A good business plan will not be judged by its length, but rather, what it does to educate the lender about you, your business and why someone should become an advocate for your financial request.

There are many computer programs that can help you write yours; even the government wants to help you out, but the bottom line is that at some point in time, someone like me is going to read yours and decide if it moves to the next step. So, given my perspective, let's start with the integral parts of a commercial marine business plan:

- Executive Summary
- Business Narrative
- Financial Details
- Supporting Documents

Executive Summary:

You can win me over or lose me in the first few lines of your Executive Summary. Educate me quickly about who you are, what your business is about, and then give me the 10,000 foot overview of why we are here and what we are trying to accomplish. The Executive Summary should be a concise statement of what will follow in the balance of your business plan. Avoid exaggerations or being overly sincere, trite or cute, but don't make it (and what follows) so dry to read that my eyes glaze over. Your purpose is to give me a reason to want to invest the next few hours getting to know you and your business. Demonstrate quickly to me that you understand this industry and your project deserves consideration. Quite simply; get to the point.

Business Narrative:

In this section you can begin to lay out your case in more detail. It is your opportunity to prove that you really "get it." I need you to provide me with a clear understanding of what your company does. Describe your business, its history, how and when was it started and by whom. Tell me about your market and where you fit into that market and how you find your customers. Are your rates spot or charter? Has your utilization increased or decreased over the past couple of years. What have you done to address the challenges? Have you sold off vessels, laid off crew, or made cuts elsewhere? Have you acquired new vessels or spent capex on upfits, refits or repowers? What have you done to boost efficiency? Tell me about management, crew and other employees – are you a union shop? What is your succession plan? Who is your competition and how do you stack up to their service? What is your market share and how do you plan on increasing or maintaining it? Try to limit the number of glossy color brochures you include from the local chamber of commerce – they don't impress and typically, they add no value to the presentation.

Financial Data:

Here is where the rubber meets the road. Your business plan has to make sense and you must demonstrate, with few doubts that you can pay back the funds that you are requesting. Do not confuse a loan with venture capital, although your business plan may request both. As a lender, I look at hard collateral for the loan; but I may also consider financing a portion of the operating capital cost of a start-up. That said, that will never happen if the foregoing business narrative does not provide me with sufficient comfort that my potential borrower knows the market, can read a balance sheet and can convey both with confidence and competency. That level of start-up risk dwells in the realm of venture capital. Your financial data section should include:

- Description of the asset(s) and cost of the project in detail. If you want to buy a used boat or real property, provide the coversheets from the most recent surveys, if a new

build, describe the project and who will build it. If a start-up, compile a capital equipment supply list.

- If you are already in business, you will have a strong basis for building your financial proformas. If not, the quality and sources of your data will become critical. Do not rely on your instincts; this is where facts (although projected into the future) are paramount.

- Your proforma financials should be extended a minimum of three years, detailed month by month, quarter by quarter. Your input data should reflect neither the best nor worst case scenario, but emerge from that area in between . . . reality. Your numbers must prove your project's viability without requiring an unrealistic set of market conditions for them to work. Personally, I like to see you prove your feasibility by using worst case numbers, rather than pie-in-the-sky, feel -good ones.

- Prepare your real-world income, cash flow analyses, balance sheets, profit and loss statements and breakeven analysis. State the sources and bases for your assumptions. Cite specific studies, articles or personal experiences that document your numbers.

- Break out any special issues that bolster your case. If, for example, you have negotiated a strong, hell or high-water charter with a financially sound charterer, make special mention of the terms and conditions and how they benefit you financially.

Supporting Documents:

If you make the first cut with an

LEGAL

(Continued from page 29)

that its captain was improperly trained." (Trico Marine Assets Inc. v. Diamond B Marine Servs., 332 F.3d 779 (5th Cir. 2003))

- "At trial, the plaintiff's expert, Dr. Nelson, testified that Marceaux was ill-trained for the task he was assigned to perform aboard the M/V LAKE CHARLES. Marceaux confirmed his lack of knowledge regarding his ability to lift the crossover hose using the procedures he had been taught by Conoco and testified as to how the attempted lift injured his back. In addition, there was testimony offered as to the lack of mechanical devices to aid him in the off-loading operation. There was clearly sufficient evidence for the jury to find that the vessel was unseaworthy due to an improperly trained crew and that the vessel's unseaworthy condition was a legal cause of injury to the plaintiff." (Marceaux v. Conoco, 124 F.3d 730 (5th Cir. 1997))

Conclusion

Proper vessel crewing, or manning, while it begins with compliance with U.S. Coast Guard statutory and regulatory requirements, does not end there. The crewing obligation also encompasses ensuring that a sufficient number of crewmembers are assigned to perform specific work, that the crewmembers aboard are competent and properly trained, and that they are capable of demeaning themselves in such a way so as not to injure other crewmembers or property.

Goldsmith & Ogrodowski, LLC
River, Rail & Motorcycle Lawyers

Fred Goldsmith is an attorney licensed to practice in Pennsylvania, West Virginia, and Ohio, who focuses his practice on admiralty & maritime litigation with Pittsburgh-based Goldsmith & Ogrodowski, LLC (www.golawllc.com). He can be reached at fbg@golawllc.com.

FINANCE

interested finance source, be prepared to provide documentation to prove your business and financial condition. If you are currently in business, these will include:

- Three years of personal and business financial statements;
- Three years of tax returns;
- Current quarter and historic quarter financial statements;
- Business licenses or other pertinent federal or state documents;
- Resumes of all principals and management;
- Copies of leases for operating location(s);
- Letters of interest from potential or current customers.

If you are a start-up or other new venture, your proformas – hypothetical financial figures based on previous business operations for estimate purposes – will be critical in evaluating the viability of your request.

Launching: and Staying Afloat

The United States Small Business Administration offers guidance in writing a business plan. You may want to see what they have to say. Your completed document should reflect the effort you have made in assembling and analyzing your data. Your narrative sections should let your professionalism and depths of understanding of the industry come through. And, just as important, is having your business plan read, evaluated and understood – in advance – by a finance source who knows the real value of your dreamboat.

SBA on the Web:
http://www.sba.gov/category/navigation-structure/starting-managing-business/starting-business/writing-business-plan.

Richard J. Paine, Sr. is a recognized authority on U.S. commercial marine lending and leasing. He can be reached at rpaine@marine-finance.com

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On Patrol

Small Boats Serve Diverse U.S. & Foreign Government Missions

By Susan Buchanan

Buoyed by multi-million dollar contracts, yards across the country are building small boats for harbor and sea patrol, rescues, firefighting and other functions for U.S. and overseas military, along with American states and municipalities. Made of aluminum, wood, steel, reinforced plastic, carbon fiber and other advanced composites, these vessels can be based on existing designs or custom tailored to meet mission requirements. Big government contracts are a boost to local economies, but spending cuts by federal and other authorities are expected to affect boat builders in the year ahead, and beyond.

Metal Shark Builds for U.S. Coast Guard, Customs And Navy

In mid-November, Louisiana-based MetalShark Aluminum Boats, a subsidiary of Gravois Aluminum Boats in the same city, was awarded a $192 million contract to replace the U.S. Coast Guard's fleet of Response Boat–Small or RB-S vessels. Up to 470 aluminum boats will be delivered over the next eight years to the Coast Guard fleet, along with 20 vessels to U.S. Customs and Border Protection and ten to the U.S. Navy.

"The RB-S is suited for port and waterway enforcement,

Brunswick 37 Justice

search and rescue, drug and coastal interdiction and environmental missions," said Dean Jones, Metal Shark's national sales manager. The contract is one of the largest of its kind for the USCG and is expected to give an economic lift to coastal Louisiana.

To fulfill the contract, Metal Shark is enlarging its facility in Jeanerette and expanding its team of aluminum welders, rigging and electronics experts, and installation professionals by 50 percent to 120 employees, Jones said.

Based on Metal Shark's Defiant platform, the 28-foot RB-S is powered by twin 225-horsepower Honda outboards for speeds exceeding 40 knots. The crew is protected by an enclosed cabin outfitted with ballistic materials. The RB-S has weapons racks and a weapons-ready mounting at the bow. The boat is road transportable between missions.

Kvichak Marine Supplies USCG And Navy

Seattle-based Kvichak Marine Industries recently delivered the thirtieth hull, under a five-year USCG contract signed in 2011, for construction of up to 80 aluminum Transportable Port Security Boats--to be used for security and search and rescue operations. The company is now building another 20 vessels for delivery by July.

The TPSBs, operated by a crew of four, include shock-mitigating seats to minimize crew fatigue, ballistic armor protection and up to four mounted weapons for tactical operations. The 32' 9" x 8'6" vessels are powered by twin Yanmar 315 hp diesel engines with MerCruiser Bravo 1-XR outdrives, capable of a top speed of 45 knots. The TPSB can

maneuver in two feet of water, or alternatively can operate in 8-foot waves and up to 30 knots of wind.

Under a long-term, $600 million contract with the USCG, awarded in 2006 for 180 45-foot aluminum Response Boat–Medium vessels, KMI recently delivered another four RB-M's--bringing the total to 80. Designed by Camarc in the UK, the RB-M is a self-righting, patrol boat that can handle a range of missions--primarily maritime security and search and rescue. The vessel is powered by twin, Detroit Diesel 60 series engines, rated for 825 BHP each, and Rolls Royce Kamewa FF375S waterjets. That combination fosters maneuverability and allows a speed exceeding 40 knots. Kvichak has been building vessels for the U.S. Navy for decades and the company has built thirty-three 40-foot Maritime Prepositioning Force Utility vessels for U.S. Navy assault craft units since 2006, along with two 75-foot Logistic Support Crafts--used as Navy Seals training platforms.

Brunswick Makes Boston Whaler Patrol Boats

In Edgewater, Fla., Brunswick Commercial and Government Products, part of Illinois-based Brunswick Corp., recently signed a $36 million contract with the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command to supply up to sixty 32-foot and 37-foot Boston Whaler Justice patrol boats over four years. Those fast, durable boats will be used to support the U.S. Southern Command's counter-narcotics assistance program in Central America and the Caribbean. BCGP sales manager, Jeremy Davis told MarineNews, "the models incorporate Boston Whaler's unsinkable Unibond construction, center console layouts, heavy-duty angled rub strakes and engine crash rails to prevent damage, along with bow mounts for weapons."

The 32-foot Justice is powered by twin Mercury Verado outboard engines and has two bolster seats at the helm. The 37-foot version uses triple Mercury Verado outboard engines and has an integrated bow thruster for maneuverability, along with a climate-controlled cabin with berth. Both models have shock-mitigating seats in the cockpit for rough seas. Brunswick Corporation's BCGP division supplies boats to homeland security, law enforcement, special operations and combat, and fire and rescue agencies. Boston Whaler's foam-cored construction process provides flotation, a superior ride and durability, Davis said.

Konrad powered Kopio Kuva 230

Konrad Marine: Stern Drives for Patrol Boats

Konrad Marine has secured a cooperative sale with the Indonesian and Australian governments and began delivery of 100 Konrad Marine Model 520 stern drive units in the last quarter of 2011, said Fred Sparling, Konrad's worldwide sales manager. Delivery will be complete in the first half of this year. The Indonesian police force plans to use the drives on 10.5-meter patrol crafts with Twin Cummins QSB 355 engines.

"Konrad stern drives were selected because the requirement was for extremely durable, stern drive propulsion, and ours have proven to be the most durable and reliable on the market," Sparling said. "Our list pricing for the stern drive propulsion portion is approximately $15,000 per drive," he said.

Separately, Konrad contracted with the U.S. Navy for twelve Konrad Marine Model 520 stern drive units for the Navy Airborne Mine Countermeasures division, Sparling said. The drives will be used on 7-meter Rhib multi-purpose patrol and touring vessels. "It was determined that our drives were the most capable to meet multi-purpose requirements and have significant, proven durability for this application," he said.

Konrad client Boomeranger has delivered a new Boomeranger RIB to the Swedish Navy for the Somalian Antipiracy Mission. "The boat is powered by an extremely effective combination of diesel engines connected to twin propModel 660 Konrad sterndrives," Sparling said. "The superstructure of the boat is built of carbon fiber and other advanced composites. The features of

Metal Shark

Moose Boats

the boat include details designed in cooperation with the end users. This new design was delivered in a short time period."

Significantly, and in late February, the Boomeranger C-950 was on its way to Somalia on board the Swedish Navy warship HMS Karlskrona--which on April 14 takes over as the force headquarters of the European Antipiracy Mission.

Willard Marine Builds For U.S. And Foreign Governments

C.J. Lozano, government products director at Anaheim, Calif.-based Willard Marine, Inc., said "our specialty is building Rigid Inflatable Boat or RIBs for large ships. We've produced them in various sizes for the U.S. Navy for 30 years. They have lifting fittings, and are adjusted to the meet the weight capacity of cranes so workloads are safe and no one gets dumped in the ocean." He added, "Our 7-meter RIBs are deployed aboard U.S. Navy Combatant Ships throughout the fleet. They are utilized as rescue platforms, personnel transfer and VBSS or visit, board, search and seizure operations."

Lozano continued, saying "in the last few years we've built high-speed 36 foot RIBs for Mexico and Lebanon. We have a large, 56-foot patrol boat in Jordan and some high-speed 7-meter outboard-powered RIBs in Egypt, along with some more-recent 5.4-meter RIBs. All of the boats for the Middle East are military craft and are used for a variety of missions--from SAR, patrol and VBSS." Willard has also built vessels for the Coast Guard, including dozens of boats for harbor patrol and firefighting and smaller craft for ocean surf rescues.

Moose Boats Accommodates Fire Fighting and Navy Needs

San Francisco-based Moose Boats, Inc. signed a contract in December 2012 to build a M1-44 foot aluminum catamaran for the Humboldt Bay Harbor District in Eureka, CA for fire protection and emergency response. The vessel will also serve as a back-up pilot vessel for Port of Humboldt. In early February, Moose was awarded a contract by the West Pierce Fire and Rescue in University Place, WA for a M2-37 catamaran fire rescue boat.

Moose has a M3-36 fire rescue CBRN vessel under construction for

the New Orleans Fire Dept. for fire fighting, rescue, dive and security capabilities. Mark Stott, sales engineer at Moose Boats, said "the M3-36 will be equipped with a dedicated 1,500 GPM fire pump, dual remote-control fire monitors, foam capabilities and a positive pressure CBRN air filtration system."

In January, Moose Boats delivered a M1-44 foot catamaran to the New Jersey State Police in Point Pleasant to fight fires in southern New Jersey, Stott said. The M1-44' is an all-aluminum catamaran powered by twin 600hp Cummins diesel engines coupled to twin Hamilton 322 water-jets with Hamilton Blue Arrow Controls and a hydraulically driven fire-fighting system with a remote control bow monitor rated for 750 GPM pumping.

Moose Boats designs and builds all projects from the ground up, Stott said. The company completed an eight-boat contract, valued at around $3.5 million, for the U.S. Navy last year, with the final vessel delivered in March 2011. They were M2-35 outboard-powered catamarans for the U.S. Navy's Force Protection Large classification.

Builders Hope to Weather Spending Cuts

Domestic small boat builders, especially those active in the small craft military solution niche, today find themselves looking beyond their current healthy backorder books. And, as the U.S. Congress lops off two larger, more high-profile Coast Guard platforms from their recapitalization plan, builders know that the smaller, multi-hull mission sets are also being scrutinized. "Cuts in the U.S. military budget this year and next will directly affect us since we're a small business," Lozano at Willard said. "But we have customers around the world, and are well positioned in the Middle East and other regions."

Davis at BCGP expects defense-spending cuts to impact upcoming, new small-boat programs by causing delays or cancellations. "Projects already in place and committed are unlikely to be affected, however," he said. Abbie Walther, vice president and general manager at Moose Boats, said "we are continuing to book orders from federal, state and municipal customers. The sales cycles per project have become longer in general, but orders are still being placed nonetheless."

The current trend in military and law enforcement spending is a stark reminder that, frequently, the weapon of choice in the battle against terror here at home and unrest abroad is no longer the 600-foot warship. Arguably, the smaller profile high-tech platform being produced today right here at home is every bit as important.

Recent Small Boat Contracts Between Selected U.S. Suppliers And Buyers

Supplier	Customer	Value	Details
Brunswick	U.S. Army	$36 million	60 Boston Whaler Justice patrol boats over four years.
Konrad Marine	U.S. NavyAirborne Mine Countermeasures	Not disclosed	twelve stern drive units, contract signed in 2011.
Konrad Marine	Indonesian & Australian Governments	Not disclosed	100 stern drive units in fourth-quarter 2011, delivery to be complete in first-half 2012.
Kvichak Marine	U.S. Coast Guard	Not disclosed	80 aluminum TPSB boats; 13 delivered.
Kvichak Marine	U.S. Coast Guard	$600 million	180 aluminum response boats, contract signed in 2006, 80 delivered.
Metal Shark	U.S. Coast Guard, CBP	$192 million	500 aluminum boats to be delivered over the next eight years.
Moose Boats	U.S. Navy	$3.5 million	eight-boat catamaran contract completed in March 2011.
Willard Marine	Mexico, Lebanon, Egypt	Not disclosed	high-speed RIBs for a variety of missions.
Willard Marine	U.S. Navy	Not disclosed	RIBs for large ships.

Source: Supplier Companies

BWT Downsized

Big Ideas Sometime Come in Small Packages

By Joseph Keefe

Hyde Marine's chemical-free, IMO Type Approved ballast water treatment solution packs performance in a smaller footprint. That's good news for small vessel operators who may soon find themselves impacted by a problem that previously was thought to be a "bluewater" issue.

BWT and Brown Water

The notion that ballast water treatment and invasive species are both strictly the domain of big, bluewater liners coming from the Far East and other exotic locales quickly went out the porthole last November when the Environmental Protection Agency (EPA) issued its long-awaited, updated draft Vessel General Permit (VGP) rule. The new rules potentially bring regulations to bear on vessels as small as 79 feet LOA and others, depending on service and routing. Separately, a recent workshop conference held at Duke University in January also highlighted the need for the world's research fleets to lessen their environmental footprint. Those efforts include the installation of ballast water treatment systems for smaller hulled research platforms. Prominently mentioned at the conference, also attended by MarineNews Editor Joseph Keefe, was the leadership of Hyde Marine in this effort.

Good News (at last)

As this issue of MarineNews went to press, the Office of Management and Budget (OMB) completed its review of the Coast Guard's Ballast Water Discharge Standard regulations in accordance with Executive Order 12866, and changed its designation from an Interim Final Rule to a Final Rule on February 24, 2012. The Coast Guard is preparing it for publication in the Federal Register, and expects to complete the administrative process within 30 days – or by the end of March.

John Morris of the U.S. Coast Guard's Environmental Standards Division said in a prepared statement, "We are not at liberty to discuss details of the rule until it is actually published, but wanted to clear up confusion about its status." At press time, then, the exact BWT standard was not yet public, but the fact that the final rule had been decided at long last, was indeed settled. That's good news.

Separately, in February, the New York Department of Environmental Conservation (NYSDEC) issued a press release stating that it will pursue a uniform national ballast water standard by leaving in place the EPA's current standards in New York for the remainder of EPA's current Vessel General Permit through December 2013. New York's decision to (at least temporarily) release its hold on a standard that is unattainable and one which no technology yet exists to measure its efficacy, is very good news. The move also gives hope that a national standard can be achieved at some point in the future. Both the American Great Lakes Ports Association and Transport Canada applauded the decision.

Ahead of all the news is Hyde Marine.

Hyde Marine: Early Entry + Deep Experience = Real Success

Hyde Marine, once a small, Cleveland, Ohio-based company recognized early the need for shipboard ballast water treatment as the effect of zebra mussels and other invasive species in the Great Lakes region gained attention. Today, Hyde Marine is a division of Calgon Carbon Corporation (NYSE:CCC), with corporate headquarters and production facilities in Pittsburgh, PA. That relationship is nothing but good news for Hyde, especially in a business where the wherewithal to outlast the prolonged regulatory process and the need to assure customers that service will be available long after the sale are both paramount.

In 1997 Hyde was selected to provide engineering services for the Great Lakes Ballast Water Demonstration Project and tasked with evaluating and assembling a collection of filtration and disinfection technologies that

Hyde will soon deliver a BWT system for retrofit on the National Park Service Vessel, "Ranger III"

could be combined to remove or kill organisms from ships ballast water. Hyde engineers brought more than 20 years experience with ballast tank sediment management (Hyde Mud Remover) and industrial wastewater filtration and wastewater treatment systems to this project.

Hyde's experience with various filtration techniques eventually produced a UV disinfection system that was practical, safe, and an environmentally sound method to treat ballast water. Simply designed, safe, and reliable, the efficient, automatic backflushing filter is used to remove sediment and larger plankton, and a powerful UV disinfection system destroys or inactivates smaller organisms and bacteria.

Hyde's early efforts included delivery of five prototype treatment systems, utilizing cyclonic separation and low pressure UV, on board vessels in 2000 and 2001. As the IMO BWM convention began to take shape, Hyde recognized that the performance and reliability of the treatment components needed to be improved. They also knew that equipment size would be critical, not only for the retrofit bluewater market, but for smaller hulls with even tighter cubic dimensions.

By 2002, Hyde had completed development of a two step treatment process of stacked-disk depth filtration and medium pressure UV treatment which was delivered and installed on the M/S Coral Princess in 2003. This Hyde GUARDIAN system was put into service and became the first to be accepted into USCG STEP and in April 2009 became one of the first systems to achieve IMO Type Approval.

Proven Track Record

As one of the first commercially available and fully approved treatment systems, Hyde began to receive orders for GUARDIAN systems primarily for new construction projects and for a wide range of vessel types and sizes. Today, Hyde has orders for over 175 treatment units on vessels with ballast pump capacities ranging from 50 to 5,500 cubic meters per hour. With that kind of scalability, Hyde is in a unique position to offer approved systems for smaller vessels. Hyde recognized this need when approached by the Dutch biological research team about fitting the system to R/V Pelagia, a 66 meter multipurpose research vessel. The research team had been impressed by what they saw, particularly the reliability of the self cleaning filters, during IMO G8 testing under extremely challenging conditions at the NIOZ test facility, and specified the Hyde Guardian to be purchased and installed on their

illustration of Hyde GUARDIAN BWT system.

own ship.

The Pelagia was the first of many research vessels and workboats that have selected the Hyde system, in what has become an important niche market for Hyde. As much as 10 percent of Hyde's current projects are on research vessels, smaller cargo ships and passenger vessels. Beyond this, more than 35 percent of Hyde GUARDIAN projects have been in the Offshore Service Vessel market sector.

Small Vessels: Big Challenges

According to Hyde's Jim Mackey, Key Accounts Manager for Hyde, smaller vessels have many unique challenges when it comes to ballast water treatment system installations. These include:

- **Space:** Space is at a premium on smaller vessels, especially for retrofitting equipment into existing boats. Suitable treatment systems must have a flexible design and be compact and modular so that treatment components, control panels and piping can be installed where space allows.
- **Operation in high sediment conditions:** Shallow

water, fresh water, and rivers with high sediment create extreme challenges for ballast water treatment technology, particularly for the filtration system. High sediment and organism content can easily cause plugging and can overwhelm a filter's self-cleaning process. The result is stopping the ballasting process while filters are manually cleaned. To avoid this, the Hyde GUARDIAN includes unique stacked disk filters, which automatically backwash with high pressure water jets when needed.

- **Short(er) ballast holding time:** Passenger ferries, offshore supply vessels and small cargo vessels often operate on short trade routes, requiring frequent ballast operations. This requires a BWT process that effectively kills the organisms without requiring residency time in the tanks. UV disinfection inactivates organisms by destroying their DNA as the water flows through, but does not change the water in any way so it can be discharged at any time. The latter point is especially critical in terms of discharging in U.S. waters, in light of the new, proposed EPA VGP.
- **Cold Weather (Arctic) Ops:** Vessels operating in northern climates, on the Great Lakes, and those designed to support Arctic oil E&P operations must be capable of ballasting in cold water conditions. Unlike electro-chlorination, medium pressure UV is not affected when the water temperature drops below approximately 5 degrees C.

Environmentally Sensitive Areas & OPS: Smaller vessels often operate in remote, unique ecological locations, intensifying the need to minimize risks of pollution. Oil and Gas operations are pushing into more remote and pristine environments while Research vessels, small passenger and expedition yachts operate in locations where protection of the ecosystem is of utmost concern.

Recent Smaller Hull Orders

Hyde continues to deliver BWT systems even in this challenging financial climate on the waterfront. Recently a Hyde system was delivered to Edison Chouest Offshore for the Icebreaking AHTS that is under construction at North American Shipbuilding (Hull 247).

Additionally, a Hyde Model HG60 will soon be delivered for retrofit on the "Ranger III," a Small Passenger Vessel operated by the National Park Service (NPS) in Lake Superior.

Due to stability limitations, the Ranger III must carry ballast during each crossing. Significantly, and according to NPS, the vessel's operating season is subject to ice conditions on Lake Superior, The NPS intends to install the system during winter lay-up, between October 2011 and March 2012. On another front, Hyde has delivered another BWT system to the Polar Supply and Research Vessel S.A. Agulhas II. Operated by the South African Department of Environmental Affairs, the vessel will function as a multi-purpose vessel, serving, among other things, as a supply vessel, research vessel, icebreaker, expedition vessel, as well as a passenger ship. Operating in a particularly sensitive area, the Polar Supply and Research Vessel will be used to carry scientists and research equipment between South Africa, the Antarctic islands and the Antarctica.

Decisions and Questions – for Smaller Hull Operators, too

At a time when the ballast water regulations dance appears to finally be winding down, the domestic situation in the United States also moves towards some sort of closure. And, while that may remove some headaches for foreign flag, bluewater, deep draft operators who would like to move ahead with compliance installations, the waters are muddier (no pun intended) for domestic, smaller vessel operators. Risk remains for operators to install any system in advance of the final VGP regulations. And, there is no guarantee, says a Coast Guard source, that the two federal standards – EPA and U.S. Coast Guard – will ever be married. As the issue plays itself out, here and abroad, Hyde remains deeply involved with not only delivering proven systems to a myriad of operators, but also in the regulatory and research process itself. Tom Mackey, Senior Consultant at Hyde Marine recently chaired a ballast water technology conference in the UK. With speakers coming from a dozen countries; and attendees from a wider demographic, including the U.S. Coast Guard, the conference was timed to ensure robust attendance of those also coming to London for IMO's Marine Environment Protection Committee 63rd session (MEPC 63) during the following week. Across the breadth of all markets, the issues of safety of vessel and crew (chemical hazards), and more recently, the increased risk of corrosion in ballast tanks due to residual chemical oxidants from some treatment processes are all in play. According to Hyde Marine, the choice of a non-chemical ballast water treatment technology will help to mitigate these risks. Ballast Water Treatment is no longer the primary domain of the deep draft, ocean-going vessel. As the rules impinge upon smaller hulls in niche markets, Hyde Marine continues to help customers navigate the turbulent waters of pending ballast water treatment regulation. At the same time, they have delivered scores of effective, smaller footprint and environmentally correct systems a wide range of players. Someday, you could be one of them.

www.hydemarine.com

SUNY Maritime's New Associate Degree

Limited Deck & Engine programs opening more doors for mariners

Stepping up to meet industry demand, SUNY Maritime College is now offering two new Associate Degree programs that are approved by the US Coast Guard. SUNY Maritime College's Limited Deck License program has advanced from a 200 ton to a full STCW approved 1,600 ton US Coast Guard program and the college's Limited Engine License Program has advanced from a Designated Duty Engine License to a full STCW approved Assistant Engineer Limited (Oceans) License (for vessels up to 1,600 tons). Both are two-year courses of study.

Classroom exercises at SUNY Maritime College.

Supply & Demand

"We listened to what our alumni and others in the maritime industry were telling us," said Captain Ernest Fink, USCG (Ret.), Department Chair of the SUNY Maritime College Professional Education and Training Department. "There is a need within the industry for limited engine and limited deck licensed professionals. Our goal in creating these two license and associate degree programs was to increase the number of well trained men and women who would be able to walk right into a job and serve in a number of afloat or ashore positions."

SUNY's programs are designed to offer students interested in small boats, who may not have considered a four-year college degree program, an opportunity to receive the training that will allow them to advance, secure an Associate Degree and obtain a deck or engine license. "Jobs are available in this area and the Associate Degree, on top of the license, provides flexibility. In a tight economy, for many, this pro-

gram offers a great opportunity," said Captain Fink. "Completing this two-year program allows a student a chance to enter the job market in this growth area and then pursue their bachelors degree on-line, with less financial pressure. It provides flexibility and a great opportunity to enter a company and move up the ladder."

Curriculum Tailored for the Smaller Platform

The Associate in Applied Science (Deck) provides a strong general education with professional training that leads to a US Coast Guard Merchant Mariner Credential, also endorsed as Officer-in-Charge of a Navigational Watch, Lifeboatman, Able Seaman-Unlimited, Ordinary Seaman, Wiper and Stewards Department. Successful completion of the degree requirements as well as passage of the US Coast Guard approved Mate 500 or 1,600 Gross Ton Ocean or Near Coastal Program allows the student to sit for a license as Mate of Ocean or Near Coastal Steam or Motor Vessels of either 500 or 1,600 gross tons.

The Associate in Applied Science (Engine) also provides a strong general education with professional training that leads to a US Coast Guard Merchant Mariner Credential, also endorsed as Officer-in-Charge of an Engineering Watch in a Manned Engine Room, or Designated Duty Engineer in a Periodically Unmanned Engine Room, Lifeboatman, Qualified Member of the Engine Department (all ratings except Deck Engine Mechanic and Engineman), Ordinary Seaman, Wiper and Stewards Department.

Students studying in the two-year, Associate in Applied Science Marine Technology: Small Vessel Operations, Deck Limited License take classes that include Introduction to Business and Economics; Introduction to Business Computing; Computer Laboratory; Water Safety and Survival; Professional Studies; Basic Safety Training; English; Ship Construction and Stability; Vessel Ops & Seamanship; Navigation; Tugs and Towing and Bridge Watchstanding, etc. A total of 75 credits are needed to complete the degree, with additional seven (total of 82) for the Ocean Endorsement.

Still another program is the two-year, Associate in Applied Science Marine Technology: Small Vessel Operations, Assistant Engineer Limited License include: Introduction to Business and Economics; Introduction to Business Computing; Engineering Graphics; Water Safety & Survival; Introduction to Ship Systems; Small Vessel Engineer I; Ship Construction & Stability; Nautical Ops: Safety; Marine Cargo Operations; English; Small Vessel Resource Management, among others. A total of 77 credits are needed to complete the Associate Degree with Assistant Engineer Limited License.

Innovation, Quality and Career Placement, too.

Captain Eric Johansson is a recognized authority on var-

Hands on training for engineers at SUNY Maritime College

ious aspects of the tug industry. As a professor in the SUNY program, he notes, "The tug and tow boat industry is growing and there is increasing demand for individuals with deck and engine licenses who are interested in pursuing a maritime career." But Johansson also stresses the quality of the SUNY approach to the curriculum.

One of the hallmarks of the SUNY Maritime limited license, associate degree program is that when the students graduate and pass their license exams, they have had not only classroom experience, but hands on experience as well. Both programs require extensive Cadet Internship and Cadet Observer requirements. These two programs, administered by the College, apply strong academic training with real world hands-on applications and help to prepare students for their license in a professional, industry-supported environment. Future plans include an expansion of the Small Passenger Industry Offshore Supply Vessel and other Limited License areas.

A student's interaction with the Maritime College does not end with receipt of the degree and license. Aggressive career placement services allow SUNY Maritime Graduates to find employment at leading maritime firms such as K Sea in New York City and Penn Maritime in Philadelphia. The Maritime College's Career Placement office has a consistently strong record of full placement for graduates within three months after graduation.

The Leading Edge of the Learning Curve

"Many maritime organizations and companies, both large and small have been excellent partners, working with us to tell us what the needs of the industry are, but also what we can do to continue to provide our students with an education that will prepare them to meet the challenges and opportunities that lie ahead," noted Captain Fink. As Chair of the SUNY Maritime College Professional Education and Training Department, he ought to know. No other state maritime academy produced more licensed mariners than SUNY this past year. Beyond this, nobody else produces a more diverse and focused mix of those mariners.

At SUNY Maritime College, the numbers, the curriculum and the innovative approach speak volumes. The oldest and largest maritime academy in the nation continues to evolve, shaping itself to meet industry demands and the global waterfront that changes daily. Based on that, change appears to be the norm for maritime education today. And, just look who is at the leading edge of the learning curve.

Marine Coatings Evolve

It is a Marathon, not a Sprint

It's been a long time since boat operators looked at paint as merely something that they hoped would stay on their hull long enough to make it to the next scheduled dry-docking. The high cost of marine fuels, increasingly onerous environmental regulatory schemes and even the impact of ballast water treatment systems on ballast tank coatings have changed all of that. And yet, the paint industry didn't evolve immediately to meet the latest challenges that arrive at the foot of your gangway. When it comes to coatings, the journey is a marathon; not a sprint.

SIGMAGLIDE biocide-free system

At the forefront of the effort to help operators increase profitability and at the same time, reduce their environmental footprint; is Protective & Marine Coatings (PPG) and its SIGMAGLIDE coating system. But, that didn't just happen overnight. Since the launch of the first generation SIGMAGLIDE in 1995, PPG has continued to develop the product range and today, the SIGMAGLIDE 990 system is its third-generation, pure silicone based fouling release system. Among the major benefits to vessel owners is a product that boasts enhanced slime release properties and the highest volume solids in the market. It's no secret that boats move better and faster if not handicapped by marine life attached to the hull. To that end, PPG has been developing marine solutions, specifically biocide-free fouling-release coatings. According to PPG, by creating an extremely smooth surface, this coating system reduces hull friction resistance, lowers CO2 and SO2 emissions, and provides significant fuel savings. And, because it contains zero biocides, PPG's SigmaGlide products are friendly to marine life and help ship owners in adopting environmental compliance programs. Also, the high solids content and long-service lifetime contribute to low solvent emissions, meaning the number of empty waste drums is reduced and wash water from hull cleaning operations doesn't have to be treated as chemical waste.

The performance of this coating system is a function of the water-repellent or hydrophobic nature of the topcoat. In addition, the ultra-smooth finish that can be attained by standard airless spray equipment means the average hull roughness figures are also significantly lower to

those achievable with a biocide-based coating – typically 50 to 70 µm (2.0 to 2.8 mils) for the SIGMAGLIDE system. For comparison with conventional antifouling coatings an average hull roughness at application of 125 µm (4.9 mils) is achieved.

A recent inspection of a vessel which had been coated with SigmaGlide and then spent two idle months prior to its dry docking showed excellent fouling release performance. Beyond this, the vessel eventually sailed from the present dry docking without any painting required. And, it was estimated that the silicone paint fuel consumption saving has an average impact of 3-4% in a fleet sailing at average speeds of 15 knots and spending 30% time in port in West Mediterranean and Brazil waters. Consuming about 13,000 tons/year of IFO 380, potential savings could be as much as $200,000 annually.

Key advantages of the SIGMAGLIDE system include the shortest minimum overcoating and refloating times in the market. Additionally, the system allows an extended period for overcoating, ensuring the largest application window is available to the customer and the shipyard. With more than 200 vessels coated with the SIGMAGLIDE system ranging from static vessels (FPSO), low activity vessels (shuttle tankers), to high activity vessels (high- speed ferries) PPG is so confident in the performance of the system that it guarantees a fuel saving of 5% (subject to average speed and operational activity of vessel).

The system is based on two coats of epoxy: the first being the primer and the second being an anti-abrasive coating; this is then followed by a tiecoat, SIGMAGLIDE 790, and then a topcoat of SIGMAGLIDE 990. A key advantage is that this two-component system, with the volume solids content of the tiecoat at 79% and the topcoat at 80%, considerably reduces packaging waste costs and reduced solvent emission at application.

PPG's Sijmen Visser told *MarineNews* this month that the latest offering from PPG comes not only from a wealth of PPG research and development work but also the feedback from customers. The combined efforts, he says, have paid off. Visser explains that the most important things that an operator should be looking for in a marine coating include not only fuel savings, but also robustness of the coating (ease of application and performance in service), reliability of the coatings organization and supplier and – in what he calls the ultimate end-game for customers – a biocide free paint.

HULLSPEED 3000-SERIES

Also with an entry into the quickly expanding world of eco-friendly marine hull coatings is **HullSpeed**, a division of New York-based Greenfield Manufacturing Incorporated. The HullSpeed product line was developed in 2002 and includes performance coatings and finish topcoats for marine craft, aircraft, automotive and construction applications in the industrial, racing and consumer markets. HullSpeed coatings are green products, contain no anti-fouling agents and are fully cured epoxy silicone paints that harden to create pro-environment, high performance services.

Recently, a 65' passenger ferry operated by the Potomac Riverboat Company was coated with HullSpeed 3000-Series. The Alexandria, VA based boat was hauled for its regular coast guard inspection and will be receiving routine maintenance including new bottom paint. The

Jotun Passes IMO PSPC for COT Tests

Jotun recently reported that it successfully completed testing of coating systems consistent with the new IMO PSPC rules for cargo oil tanks (COT), scheduled to come into force next year. The new IMO PSPC rules for cargo oil tanks (COT) will go into effect January 2013. Focused on maintaining the long-term integrity of tanks, the new standard requires that all coatings used in the tanks must provide long-term protection against the corrosive effects of crude oil.

Jotun has successfully completed testing for coating systems at one of the IMO-approved test institutes (COT in the Netherlands), passing with several tank coating systems. Two test methods are used. The first test simulates the composition of the vapor phase in crude oil tanks both in ballast and in fully loaded condition. The second test simulates immersion in a crude oil tank with a model liquid developed to replicate some of the most corrosive crude oils.

According to Jorunn Holdhus Skovly, Jotun's Product Manager for tank coatings, Jotun coating systems performed well in these rigorous test. "Jotun welcomes the IMO regulations as they ensure a given standard for the whole coating process, from steel preparation to control measures," she says. "Type approval for coating systems ensures that our customers can trust they are selecting appropriate and high-performance coating systems, fit for purpose."

www.jotun.com

Potomac Riverboat Co. operates more than eight vessels and turned to HullSpeed for a bottom paint that could potentially be a simple cost saving tool. HullSpeed coatings create a durable low drag surface that is ideal for boats that are routinely under way. By reducing fuel consumption, improving speed and improving the ease of cleaning, the ferry would be able to operate more efficiently and save the company thousands. Previous vessels coated with HullSpeed have seen speed increases up to 9.5% and fuel savings of up to 8.5%. Decreases in fuel consumption directly reduces the carbon foot print of the vessel and helps to reduce the contamination of local and global water ways.

With marine coating regulations moving away from traditional antifouling paints, commercial entities such as the Potomac Riverboat Co. could help lead the way in the implementation of eco-friendly bottom paints. Separately, the Florida Fish & Wildlife Conservation Commission (FWC) took delivery of a new 12M Impact in December. The boat was coated with HullSpeed 3000 after production speed trials were completed and then tested again. Both testing protocols were conducted by Impact manufacturing staff. The application came at the request of FWC in efforts to improve fuel economy, speed and introduce eco-friendly bottom paint into their fleet. Beyond this, however, FWC and similar environmental enforcement organizations are becoming increasingly aware of conservation laws concerning environmentally harmful bottom paints.

HullSpeed 3000 test results demonstrated significant improvements compared to the untreated factory gelcoat finish. The greatest improvement in speed was recorded at 9.1% and fuel economy improvement was logged at 5.0%. HullSpeed technology is very hard and durable while providing excellent speed and performance characteristics. The epoxy/silicone technology is water-based and provides a foul-release surface that is one of the most eco-friendly marine paints available. Another FWC HullSpeed 3000 application is scheduled for completion in March in the St. Petersburg area.

A Marathon, Not a Sprint

Once viewed as merely a protective and decorative element to a boat's appearance, marine coatings have had to evolve with the rapidly changing regulatory playing field, just like everyone else. Operators now demand eco-friendly paints that stay on the hull longer, with attributes that discourage marine growth and at the same time reduce an operator's environmental footprint through reduced fuel consumption and stack emissions, but also provide for a faster and more economical ride through the water. In the case of PPG, research and customer feedback have produced a third generation SIGMAGLIDE product that provides value and performance in all of the key metrics mentioned above. Newer to the game, but also starting to turn heads is HullSpeed and its line of eco-friendly line of coatings. Both evolved over time and in response to market demands and customer feedback. It's a tall order. And, the current formulas on the market didn't happen overnight. That's because when it comes to the development of marine coatings, it's a marathon, not a sprint.

Revolution

Revolve Tech partners with EJ Bowman to develop a new marine diesel engine.

Designed primarily for coastal work boats, RIB's, power boats and sailing yachts, the Revolve marinized 5 cylinder diesel engine has been developed from the renowned Ford Duratorq TDCi engine. Also playing a key role in the development of the engine's cooling system was heat exchanger specialist EJ Bowman. As a result, the Revolve engine combines OE standard engineering, packaging, product quality and heat management in a compact, space efficient unit. Along the way, Revolve was able to produce components that have taken marine engine cooling design to a new level.

Working in partnership with Ford, the jointly developed technology for this engine has also been used in Ford's European model range, including the flagship Ford GT super car program. Arguably, and until now, marine engine technology has lagged behind the automotive industry and hasn't benefited from the technological leaps that have occurred ashore. That said; environmental issues that have been the focus of automotive engineers for decades are now being

transferred to the marine industry; especially in terms of CO2 emissions and noise. The new diesel engine from Revolve is a perfect example of an efficient response to that metric.

Economy – and Performance, too

As the cost of fuel continues to climb, boat operators find themselves concerned with not only the environment, but how to survive in an increasingly expensive operational arena. In this case, the Revolve engine has been RCD certified for marine applications and offers power outputs of between 74 –147 kW at the crankshaft and is capable of cruising fully laden at about 40 knots. Delivering power with a high torque curve, which suits marine applications well, the engine's remarkable fuel efficiency is also gratifying operators and the environment alike. In tests, it has regularly achieved economic fuel consumption rates of 11 liters per hour, including high speed runs. This, coupled with the new engine's low noise levels, could translate into greater range of "stealth" military operations for the new entry in the small engine market.

Reliable & Clean, too

According to Revolve, and throughout the engine's development, reliability has been a hallmark of this unit. Available now as 3.2 litre model, this five cylinder engine will later, it will be joined by a smaller four cylinder 2.2 litre version. In terms of emissions, the engine is fully Euro V emissions rated/compliant. Revolve backs those claims with a full 2 year/1,000 hours warranty, believed to be the first time a marine engine has ever been offered with this level of confidence.

http://www.revolve.co.uk

PEOPLE & COMPANY NEWS


Shanker


Cox


Jonsson


Hoddinott


Hickling

Markey Adds Professional Staff

Markey Machinery has added two appointments to the Markey engineering team; Srihari Gowri Shankar and Brian Cox. Both have joined Markey as Design Engineers. Srihari recently graduated from UC Davis with a Master's Degree in Mechanical Engineering. His primary focus was in the area of Dynamics & Control Engineering. Brian graduated from the University of Washington with a Bachelor's Degree in Mechanical Engineering in 2011. He focused his University studies on Computer-Aided Engineering and a Human-Powered Submarine Design.

Volvo Penta Appoints Jonsson

Volvo Penta´s engineer Kåre Jonsson has been appointed Group Senior Specialist within the Volvo Group for his unique propeller competencies. Group Senior Specialist is an honorary title that is awarded to individuals with unique skills and expertise in a specific area within the Volvo Group. Jonsson is one of the world´s most renowned propeller experts and one of many Volvo engineers that has contributed to Volvo Penta´s world leading position within propeller technology. He joined Volvo Penta in 1979 and he is one of the people behind the IPS system which since the launch in 2005 has established Volvo Penta as a leader.

Sea Star Names Keller President

Industry veteran, Peter Keller has been named president of Sea Star Line. Keller served Sea Star Line as a consultant and key advisor during the recent restructuring of the company. His extensive experience in the Liner industry, intermodal operations and supply chain economics and strategies, coupled with over 40 years associated with the Puerto Rican trade, made him a natural choice to lead the organization. Prior to establishing an international maritime consultancy, Keller was EVP and Chief Operating Officer of NYK Group Americas, Inc.

TITAN's Hoddinott Named

TITAN Salvage's Mark Hoddinott has accepted the position of general manager for the International Salvage Union (ISU). The position will combine the role of secretary general with that of general manager. In this new role, Hoddinott will be responsible to the president of the ISU and its executive committee for the day-to-day running of the ISU and its work on relevant issues.

He will start with ISU in April 2012 and will work closely with Secretary General Mike Lacey, who will be retiring at the end of the year, to ensure a smooth transition of responsibilities between them before Hoddinott takes up the position formally in October.

ISS Announces 2012-2015 Board

The ISS (International Superyacht Society) announces its 2012-2015 Board of Directors and Past Presidents Council. ISS elections are held annually by peer selection. During 2011, ISS membership ratified changes to the Association's Bylaws which now state that a total of 24 elected Board members will serve three-year terms. Key appointments included Ken Hickling of Awlgrip Paint, who was named to a 3-Year Term as President of the Executive Committee. Of the Executive Committee, three members are based full-time in Europe, two full-time in the U.S. and one with homes and business interests in both regions. ISS was founded in 1989 and represents the large yacht industry.

Seakeeper Welcomes Shaw

Citing a rapidly growing worldwide market for its gyro stabilization products, Seakeeper has named Steve Shaw its newest field service manager. Originally from the UK, Shaw has 16 years of experience in the US marine industry. He most recently served as the head of service for a large East Coast shipyard.

Mobilarm Appoints Marshall

Global marine safety equipment provider, Mobilarm Limited has appointed David Marshall to its

Shaw

Marshall

Bibby Offshore Graduates

MMA's New Building, Simulator Facility.

board of directors, effective 20 January 2012. Marshall is the founder of UK based safety systems specialist Marine Rescue Technologies (MRT), a successful international business that joined forces with Mobilarm in June 2011.

Bibby Offshore Launches Graduate Training Scheme

Aberdeen-based subsea installation contractor Bibby Offshore has recently welcomed its first six graduates onto the Bibby Offshore Academy Graduate Training Scheme. Bibby Offshore Academy was launched last year to address the training needs of potential future employees and for the management and development of current staff. Six graduates were recently enrolled on the graduate scheme and plans are already in place for a further intake in September this year. The recent intake includes three graduate project engineers, two contracts engineers and an asset management graduate.

MMA Unveils Transas Simulators

Massachusetts Maritime Academy (MMA) recently hosted the grand opening ceremony for the start-of-the-art, American Bureau of Shipping Information Commons Building, which houses the Academy's new cutting-edge Full Mission Ship Simulator, supplied by Transas USA Inc. The 42,000 square foot academic building combines maritime tradition with the latest technology in maritime training, including the campus library, museum, archives, model ship collection, plus hi-tech simulation facilities, multimedia 'smart' classroom, and resource centers. The new simulator and its support areas represent the showcase facility for the Marine Transportation program offered at MMA. The simulation facilities include a full mission, 360 degree bridge simulator meeting the highest international training and certification standards, debriefing room, instructors control room and an ante room.

Markey Wins Trademark Dispute

Markey Machinery has announced that it has prevailed in a dispute over its' longtime trademark, Render/Recover®, which was initiated by another winch manufacturer. On February 6, 2012 the United States Trademark Trial and Appeal Board did "dismiss with prejudice (the) Petition for Cancellation of the trademark Render/Recover, Serial Number 3,545,593." "The court decision recognized our origination of the term in 1994," said Markey President Blaine Dempke. "It's unfortunate that we had to defend something that was so clearly identified with our company, but defend it we did. We really had no other choice." Founded in 1907, Markey Machinery designs and manufactures custom deck machinery.

Cleveland Cargo Volume Up 31%

The Cleveland-Cuyahoga County Port Authority reported that overall cargo tonnage increased 31 percent in 2011, largely the result of growth in steel, iron-ore and oversized "project" cargo handled by Port facilities. The Port handled 3.4 million tons of cargo last year – the highest volume since 2008. General cargo volume rose 16 percent as both steel and project cargo posted increases; while bulk cargo increased 33 percent, as more iron ore was handled by Port operations. Overall tonnage transiting the St. Lawrence Seaway increased 2.5 percent in 2011. Separately the Port Authority's Board of Directors agreed today to enter into a contract for nearly $3.9 million to construct an on-dock rail loop that will make the Port more competitive. Nearly 18,000 jobs and 1.8 billion in economic activity result from the roughly 13 million tons of cargo that move through the Cleveland harbor on average each year. The Port also provides innovative financing services for a wide range of development projects in Northeast Ohio, and is leading initiatives to solve infrastructure challenges along Cleveland's waterfronts.

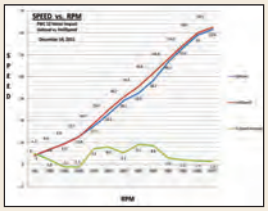
PRODUCTS

Patterson's New Website Includes Savings Calculator

Patterson Manufacturing announced that it has launched a newly redesigned website. The site's most innovative new feature is the YoYo Winch Saving Calculator (http://www.patterson-mfg.com/calculator.html), which allows barge owners to learn how much they could save by switching to the YoYo Winch. Users enter several figures (number of boats running tow, boat cost per hour, number of locks to traverse per haul, etc.), and the tool automatically calculates the total return on investment and seven-year savings possible by switching to the YoYo. The tool also estimates lost savings opportunities for those who delay making the switch.

www.pattersonmfg.com

FWC's RIB has Hullspeed Eco-Friendly Paint



The Florida Fish & Wildlife Conservation Commission (FWC) took delivery of a 12M Impact in December. Coated with HullSpeed 3000 after production speed trials were completed, and then tested again, the application reflects FWC efforts to improve fuel economy, speed and introduce eco-friendly bottom paint into their fleet. HullSpeed 3000 test results demonstrated significant improvements compared to the untreated factory gelcoat finish. The greatest improvement in speed was 9.1% and fuel economy improvement was logged at 5.0%. HullSpeed technology is durable while providing excellent speed and performance characteristics, with a foul-release surface that is eco-friendly.

www.HullSpeed.us

Snap N Save Paint Can Transfer System Saves Paint

Created to improve the way paint is poured and saved, General Development Laboratories has released Snap N Save, a solution for traditional paint cans utilizing a unique design that fits snugly on one-gallon cans. A centered spout makes pouring easy to eliminate wasted paint while an adaptor enables marrying of cans so paint is conserved. Lids protect the paint and the can from rust and debris and system helps save and store any viscous liquid that comes in one-gallon metal cans. Manufactured with durable plastic, the lids snap on easily, forming a tight seal for mess-free pouring.

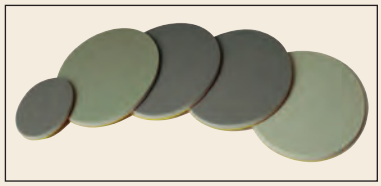
www.SmallBrandNation.com

Sherwin-Williams Beats Cold/Damp with Macropoxy 80

Sherwin-Williams has launched Macropoxy 80, a high-build HAPs-free epoxy coating formulated for application to marginally prepared and damp surfaces in marine applications. The coating combats steel corrosion caused by immersion in salt and fresh water as well as from atmospheric exposures and can be applied at temperatures as low as 0o F. A modified phenalkamine epoxy, it is recommended for use in salt and fresh water immersion, bilges and wet void areas, water and wastewater tanks, underwater hulls, and decks and superstructures. It can also be used as an anti-corrosive primer in an underwater hull system with anti-fouling coatings.

http://protective.sherwin-williams.com/industries/marine/

Klingspor introduces Fusion Foam Pads



Klingspor's new Fusion Foam Pads are the latest in high technology abrasives for surface preparation. Fusion Foam is the perfect choice for final finishing of solid surface materials, marble and granite surfaces, sanding filler, primer, orange peel, fiberglass, clear coats, and fine finish restoration. Also excellent for scuff sanding lacquer sealers, conversion varnish sealers, vinyl sealers, or any surface that requires preparation of a top coat.

http://www.klingspor.com

Jacksonville Shipyard Purchases Marine Travelift

The Commodore Point Facility at North Florida Shipyards has invested in a Marine Travelift 600C mobile boat hoist. The Marine Travelift 600C mobile boat hoist will lift vessels out of the water for repair without using a dry dock, allowing more than one vessel to be worked on at a time. The new mobile boat hoist is aiding the Shipyard's ability to handle a larger share of the market, generating new customers and added income; in addition to hiring new employees and completing projects faster.

www.marinetravelift.com

Voith Announces First Voith Linear Jet Order

Voith announced the first Voith Linear Jet order with Turbine Transfers UK for a 19 meter BMT Wind Support Vessel. The Voith Linear Jet will provide for this application a substantial higher bollard pull without a requirement for increased installed power. This higher bollard pull will allow Turbine Transfers the safe transfer of personnel up to higher sea states. The Voith Linear Jet (VLJ), a new ship propulsor, will give Naval Architects new ways to optimize their vessel designs. Similar to a propeller, the efficiency is at a constant high level relative to the ship speed. This gives a VLJ equipped ship a considerable range advantage against its waterjet sister vessel.

www.voithturbo.com/marine

New Website for FIREBOY-XINTEX

Fireboy-Xintex Inc. has a new, updated website, www.fireboy-xintex.com. The new site features an updated look and user friendly design. Product information including fire suppression, carbon monoxide detectors, gas detection for CNG/LNG/ Propane/ Methane/ Gasoline is easily navigated on the highlighted, left-hand side of the screen. Links for product application, technical and product bulletins, manuals/installation instructions and contact information, along with a search bar are located at the top of the homepage.

www.fireboy-xintex.com

OceanWorks Completes Survey and Upgrades for Turkish Navy

OceanWorks International announced the delivery of a major system upgrade, Lloyd's certification renewal and completion of sea trials for the Turkish Navy's Atmospheric Diving Suit system. After 5 years of operation, the Turkish HARDSUIT Atmospheric Diving System (ADS) was returned to complete the survey and upgrade system electronics to the latest configuration. The HARDSUIT Quantum was upgraded to include new LED lights, a new low-light pan and tilt camera and an updated pilot control system which allows for redundant surface controls. A new electronic panel system inside the suit also improves accessibility for maintenance.

http://www.oceanworks.com /

FLIR Introduces Gyro-Stabilized Thermal Night Vision

FLIR Systems announced the release of the latest addition to its M-Series family of thermal night vision cameras at the Miami International Boat Show: the new gyro-stabilized M-618CS. Housed in a rugged, waterproof gimbal enclosure that provides continuous 360° pan and +/-90° tilt capability, the M-618CS provides horizon-to-horizon coverage, and incorporates cutting-edge Ethernet connectivity for easy installation and control.

www.flir.com

Schat-Harding Launches Global Multi-Brand Service

Lifeboat manufacturer and service provider Schat-Harding has widened the range of its service network. For the first time, operators will be able to get most of their lifeboats, hooks, winches and davits serviced by a trained engineer working to the highest global standards, backed by a global service network. They will also be able to use Schat-Harding's range of modern hooks to replace older models. IMO SOLAS regulations require regular service and testing routine for life- saving appliances, and new requirements have been put in place to test all lifeboat hooks and bring them up to new standards.

www.schat-harding.com

Navis Engineering Achieves DNV Autopilot Certification

Navis Engineering Oy has received MED-B type approval for its latest generation AP4000 autopilot from classification society Det Norske Veritas (DNV). Issued for a five-year period, the MED-B certificate provides assurance that the product complies with all the relevant international standards imposed on marine equipment of this type. The approval covers equipment delivery to newbuildings or existing vessels for retrofit. The AP4000 is one of the few autopilots on the market that has a configuration for two independent rudders. In addition, it is designed to allow for an interface with bow thrusters.

www.navisincontrol.com

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Estimator
Job Location: Canada, North Vancouver, BC

Estimator
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Experience, expertise and technology: that is what Lower Mainland Shipyards—a member of the Seaspan Marine Corporation—brings to the marine industry in the design, construction and repair of all types and sizes of vessels.
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Competencies required:

•A diploma or degree in naval architecture or engineering
•10 years' experience in the marine industry with increasing responsibility
•Excellent communication skills in the English language, both verbal and written, including knowledge of correct marine terminology
•A strong customer service orientation and outstanding interpersonal skills
•Above average analytical, mathematical, problem-solving, decision-making and negotiation skills
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Seaspan is committed to fostering a culture that values diversity and invites applications from all qualified individuals, including those designated under employment equity.
Human Resources
Seaspan Marine Corporation
Email: hrsea@seaspan.com

Terminal Manager
Job Location: Canada, Port Alberni

The Port Alberni Port Authority (the "Port"), formed July 1, 1999, is mandated under the Canada Marine Act to oversee and manage harbour and port activities within the jurisdiction of the Alberni Inlet, including 17 acres of crown-owned industrial land.
The Alberni Inlet is prone to calm waters, is free from any navigational obstacles, is ice free year round, and offers a direct shipping route to the Pacific Rim. With a length of just over 40 kilometres and an

average width of roughly 1.5 kilometres, the Alberni Inlet can easily accommodate Panamax size vessels.

The past few years have seen a revitalization of the coastal forestry industry and subsequent growth in activity for Port Alberni Terminals. Diversification to other commodities and current systems upgrades will also provide exciting challenges for the operation.

The Port is currently seeking an experienced waterfront leader to join the team as the Terminal Manager. Under the general direction of the CEO, the Terminal Manager is accountable to maintain a strong operational reputation, maintenance standards and health and safety programs for Port Alberni Terminals. Accountable for directing all terminal operations, including supervision of the Assistant Terminal Manager, the Terminal Manager will provide leadership and labour relations skills to optimize productivity.

Ideal candidates will have a broad knowledge of terminal, stevedoring, and/or marine operating procedures and practices, as well as knowledge of budgeting, maintenance and repair of terminal infrastructure and equipment. Unionized management experience will be crucial to leadership success in this growing environment.

To explore this exciting opportunity further, please contact Ken Werker, Patrick Reynolds or Alessandra Morzan in our Vancouver office at 604-685-0261, or please submit your resume and related information online at www.odgersberndtson.ca/en/careers/10708

Alessandra Morzan
Odgers Berndtson
710 - 1050 West Pender Street
Vancouver V6E 3S7 Canada
Phone: 6046850261
Email: derek.li@odgersberndtson.ca
Web: http://www.odgersberndtson.ca/en/careers/10708

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Vessels for Sale / Barges for Rent

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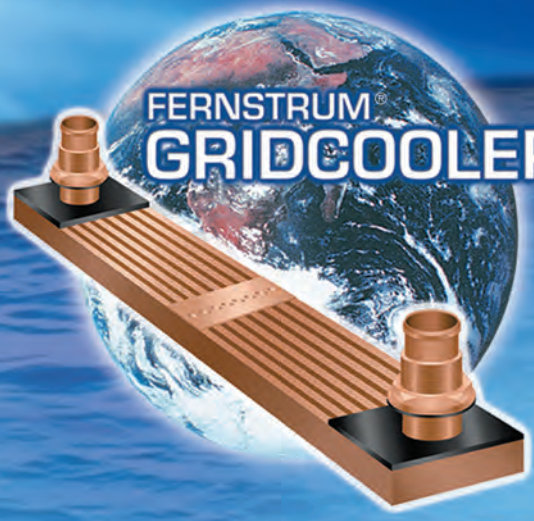

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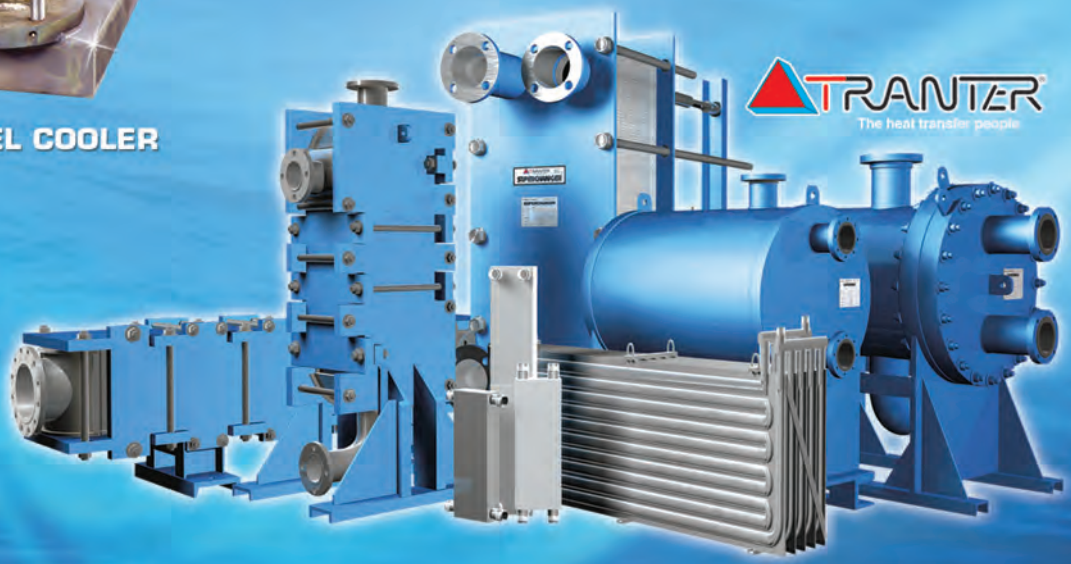

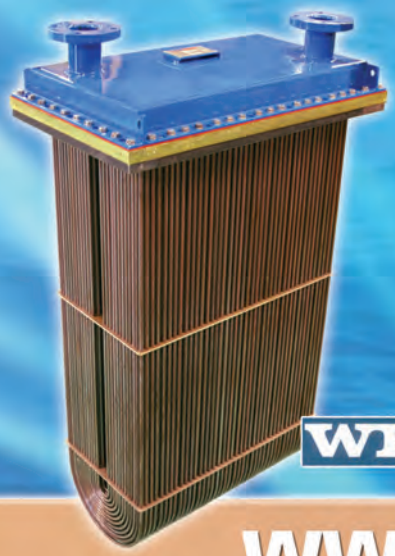

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