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Volume 29 • Number 6

# Marine News

JUNE 2018
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ON THE COVER

One of four 38' Metal Shark patrol boats delivered last month to the Dutch Caribbean Coast Guard (DCCG) is shown idling in an uncharacteristically tranquil moment at the island of Curacao. No doubt more exciting duty awaits this vessel. Metal Sharks' penetration into the patrol boat and export markets has them on a trajectory for success. The story begins on page 42.

***Image credit: Metal Shark***

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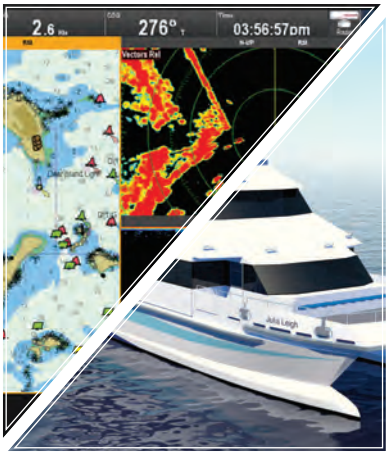
# Departments & Analysis







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*Series 9100 Digital Communication System installed on Multi-Mission Interceptor (MMI) from SAFE Boats International*

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*Rob Goley - Coast Guard veteran and currently Business Development Director for Federal Programs, SAFE Boats International*

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*-Rob Goley*

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The topic of port security arguably encompasses a wide range of topics and issues. If that's true, then the deeper subject of global maritime security is a yawning, gaping hole of a chasm that simply can't be covered by one magazine; certainly not within a single issue. I won't even try. Deciding which aspect of this important part of the global supply chain is of most immediate concern to *MarineNews* readers – that's a bit easier. That's because, and as the 600-foot warship being used as the primary maritime security vehicle goes the way of Tier 2 propulsion, it can be said that the era of the small, littoral combat and patrol craft has arrived.

The most compelling aspect of the trend toward smaller, faster and more agile craft is that domestic builders are not only meeting demand with innovation and quality, they are also competing – and winning – on the international stage. Sure: some of that output is a function of federal FMC contracts. Much of it is not. The sheer volume of U.S. built patrol, combat and security vessels being exported to foreign buyers not only shows well for these builders, it also augers well for a sector that needs to fill gaps that the dormant offshore sector and moribund inland barge building markets have created.

The mantra about U.S. yards is that they cannot compete on price, delivery time and a half dozen other metrics on the global markets. Current conditions to the contrary, it is clear that in this sector and scale of vessel that they can, and do. And I haven't even yet mentioned the domestic municipal first responder market. Not to worry: we'll get there, too. Many yards and OEM's are part of this success story, but Louisiana-based Metal Shark has had a particularly good run as of late. That recipe for success is complicated and not easily achieved but the ingredients are nevertheless available to stakeholders who want a slice of this growing pie. That story begins on page 42.

Also in this edition is a close look at the methods, equipment, and regulatory regime that comprise the world of oil spill response, salvage and firefighting. Providing guidance are maritime attorney and Coast Guard veteran Dennis Bryant and ASA President Jim Elliott. Both subject matter experts, each with few peers, weigh in on the complicated domestic regulatory environment, one which by all accounts, is running just fine. Separately, *MarineNews* contributor Tom Ewing looks at the technology which will, very soon, impact the way we respond to future emergencies.

R.W. Fernstrum's President, Sean Fernstrum, within these pages in April, said it best when he advised simply, "As is usually the case in the marine sector, as one sector rises, another falls ... Diversification is an absolute must." He was talking about his business plan, but it could've been two dozen others. Fortunately, a robust patrol craft market is providing a rising tide where other markets ebb. Those doing it well know exactly what he is talking about.



**Joseph Keefe**, Editor, keefe@marinelink.com

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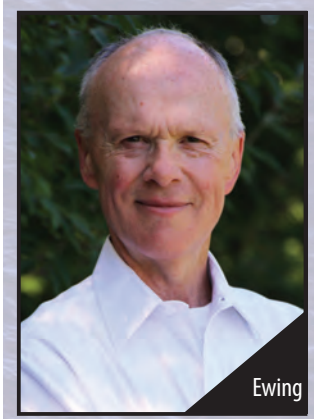
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**Dennis L. Bryant** retired from the U.S. Coast Guard with the rank of Captain after 27 years active duty. He had various tours as a law specialist, including an assignment as the Coast Guard's Law of the Sea officer and also served a tour in the Office of International Affairs and finished his career supervising the staff charged with implementing the Oil Pollution Act of 1990. After leaving the Coast Guard, he was with a major maritime law firm for 13 years. Now he is an independent consultant. He also speaks at various fora both domestically and internationally. He publishes a blog on recent maritime developments and writes maritime-related articles.

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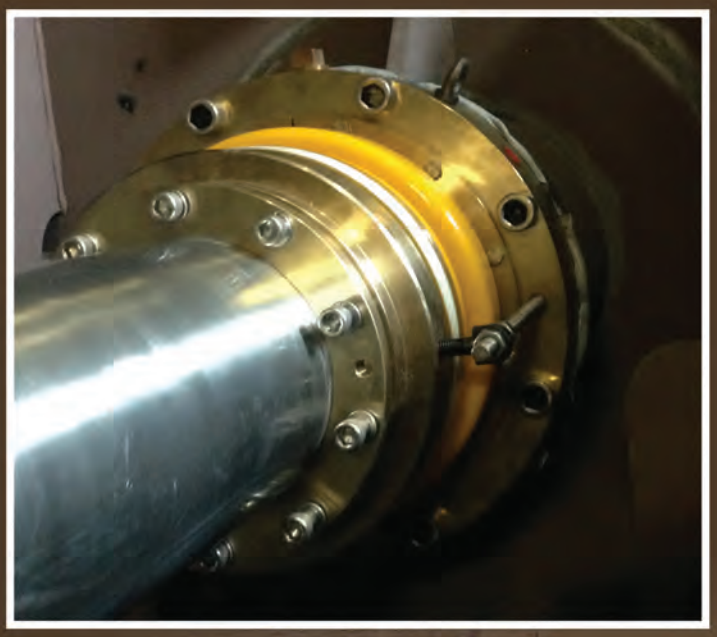

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# Domestic Workboat Sector Set to Cash In on 'Dieselgate'

Don't do the crime if you can't do the time – or at least pay the staggering fine. And pay it forward, Volkswagen will. The auto manufacturer got caught using software to trick emissions control software during testing on some cars – nearly 500,000 2.0 liter and 83,000 3.0 liter diesel vehicles – in order to get a passing grade, after which the cars operated in violation of the Clean Air Act. The years of cheating on vehicles from model years 2009 to 2016 sold and leased in the U.S., resulted in emissions of up to 40 times the permitted level of nitrogen oxides (NOx) and particulate matter.

As part of a series of three settlements with the U.S. Environmental Protection Agency (EPA) totaling close to $14.7 billion, Volkswagen was required to fund two mitigation trusts to the tune of $2.925 billion, which will be used to clean up diesel emissions – one for the states, Washington D.C. and Puerto Rico; and one for the Indian Tribes. The money is to be used specifically to fund projects with "eligible mitigation actions," such as upgrading tugboat or ferry engines, to reduce the excess emissions that were produced by the illegal cars. Engines change outs can only be repowered to EPA levels Tier 3 or Tier 4. However, operators can use Verified Emissions Upgrade Kits to move their existing engines from any EPA level to a Tier 1 or Tier. Other eligible options include hybrid engine solutions or all-electric.

How much money each state receives depends on how many of these "illegal" vehicles were sold or leased per state. As it happens, the top 10 recipients of trust funds are also the states with the largest marine sectors.

The states and tribes can take up to 15% of their funding to cover administrative costs. They have to select a board or agency to oversee the process and distribute the funds; pick up to 10 categories – of which tugs and ferries are one – in which to spend the money; create a public-facing web site and post a draft mitigation; collect public comments; revise the plan; and submit it for approval. Some states might opt for upfront grants; others may prefer to reimburse post implementation.

The beneficiaries have 10 years to request their funding and implement approved mitigation actions. Any monies not spent after 10 years will be redistributed to the states that did use up their allocations. Applications must include projected NOx reductions and impact on air and community health. Project priority will be based on the emissions reduction or offset per dollar spent, as well as factors such as health benefits and impact on wild areas.

Applicants can work through the process themselves, which one analyst likened to doing your taxes; work with their dealer or supplier; or, depending on how complicated or big the project, hire a firm that helps clients write and defend winning applications. Only a couple of states have made it to the final approval stage, one of them being Maine, which has committed a major part of its funding to reducing marine diesel emissions.

States are expected to start getting their funds this month, accepting applications in late summer through the fall, with projects kicking off anywhere between the fall and the spring of 2019. The beneficiaries, or states, are encouraged to be as cost-effective as possible and to, where possible, look for way to serve Environmental Justice areas that have been overly burden with pollutants and wastes – typically area around ports and industrial areas. ***When it comes to financing engine upgrades and replacements using other people's money – this is as good as it will ever get. You're going to want to apply early and probably in more than one state.***

**Table 5-36. Typical Emission Impact per Tug per Year – NOx (lbs)**

| | | New/Improved Equipment | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Tier 1 | Tier 2 | Tier 3 | Tier 4 | DOC | DPF | B20 | Hybrid | LNG |
| Old Equipment | Pre-Control | -17,970 | -49,917 | -61,798 | -96,840 | 0 | 0 | 439 | -100,733 | -100,084 |
| | Tier 1 | | -31,947 | -43,828 | -78,870 | 0 | 0 | 367 | -82,763 | -82,114 |
| | Tier 2 | | | -11,880 | -46,922 | 0 | 0 | 240 | -50,816 | -50,167 |
| | Tier 3 | | | | -35,042 | 0 | 0 | 192 | -38,936 | -38,287 |
| | Tier 4 | | | | | 0 | 0 | 52 | -3,894 | -3,245 |

# MISSION-CRITICAL VESSELS

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***By the Numbers, the VW windfall looks something like this:***

| |
|---|
| **2.9**: Billions of dollars represented by the VW settlement fund. |
| **10**: Number of years that operators have to apply for the VW money. *Don't delay!* |
| **13**: Dollars in public health benefits represented by just one dollar spent on diesel engine cleanup. |
| **23**: Years that an upgrade alone can add to the life of a workboat and its engine. |
| **28**: Number of marine workboats in NY Harbor (out of 47) powered by pre-emission standard engines. |
| **40**: Percent of cost that can be obtained from the fund by replacing a pre-Tier 3 diesel engine. |
| **50**: Percent of a repower paid for by the Diesel Emissions Reduction Act (DERA) option. *Combine your discounts!* |
| **55**: Percent of its $110.7 million share that PA is reserving for rail and tug engine replacement projects. |
| **75**: Percent of an 'all-electric' solution paid for by the fund (plus monies for charging stations). |
| **80**: Percent of NOx cut by installing an EPA Tier 4 engine. |
| **91**: Percent of particulate matter (PM) cut by installing an EPA Tier 4 Engine. |
| **85**: PCT of marine market said to be owned by engine makers Cummins & Global Marine Caterpillar. |
| **100**: Percent of projects funded if assets are publically owned. *Municipal ferries take note!* |
| **132**: Equivalent number of cars represented by just a single electric ferry replacement job. |
| **620**: Metric tons per year of CO2 that Washington State is hoping to cut through just one all-electric ferry. |
| **1,000**: Number of 3500 series engines sold by CAT from 1993 to 2004, which might qualify for VW trust monies. |
| **74,000**: Number of cars represented by swapping out an uncontrolled engine for a Tier 4 engine in one tugboat. |
| **96,000**: LB of NOx cut by swapping out an older uncontrolled engine for a Tier 4 engine in just one tugboat. |
| **500,000**: Estimated minimum cost in US dollars for a single diesel engine upgrade. |

| **The Top 10 Recipients of VW Mitigation Trust Funds** | |
|---|---|
| $423 Million – California | $103.9 Million – Washington |
| $191.9 Million – Texas | $97.7 Million – Illinois |
| $152.3 Million – Florida | $87.6 Million – Virginia |
| $117.4 Million – New York | $87.2 Million – North Carolina |
| $110.7 Million – Pennsylvania | $71.4 Million – Ohio |

The VW settlement represents an unparalleled opportunity to upgrade or replace engines at a significant cost reduction versus no regulatory incentive to do so. In its absence, by 2020, the EPA has estimated that only three percent of tugboats, and five percent of ferries, will be running on Tier 4 available engines. The hope is that trust fund will motivate vessel owners to more quickly lower the industry's emissions output.

### Free Calculators Can Help Estimate NOx Reductions

Need a little help figuring out the eligibility of your project? Vessel owners can avail themselves of a variety of tools designed to calculate the likely emissions savings, cost and competitiveness, of their engine updates. Many rely on information from the same databases. ***Here are a few options:***

The Global Marine division of Cummins has developed an emissions estimator that it says can help calculate the emissions produced by previous Cummins products and emissions produced by EPA Tier 3 Cummins products.

Separately, Gladstein, Neandross & Associates (GNA), consultants specializing in low-emission and alternative fuel projects, has a free VW Funding Project Competitiveness Calculator. Fleet owners can input their fleet size, current fuel, and planned fuel to receive a recommendation on possible funding eligibility which helps companies track, evaluate, and apply for funding programs throughout the U.S. and Canada. Access it by clicking: **https://www.gladstein.org/volkswagen-settlement-funding-project-competitiveness-calculator/**


## President, Ocean Tug & Barge Engineering Corp.

Robert (Bob) Hill of Ocean Tug & Barge Engineering Corp., of Milford, MA has specialized in the design of AT/B's for many years. Hill's name is, in most maritime circles – here and across the big pond – synonymous with the words "articulated tug/barge systems." As probably the world's most experienced designer of large articulated tug/barge (AT/B) systems, Hill's success comes, in part, from a willingness to innovate. Ocean Tug & Barge Engineering Corporation and Robert Hill are the co-inventors of the Intercon Connection System. In a nutshell, his firm has had a hand in over 70% of the operational AT/B's in service in America – including, 80% of those built or converted since 1994. In large part due to Bob Hill's efforts, the AT/B is now a familiar standard in the U.S. flag fleet for coastal, Jones Act and some inland applications. This month, Hill gives us an update on what's new in the world of AT/B's, why, and what's looming just over the horizon.

**A flurry of replacement tonnage has occurred in the last five years, but the need for coastwise tonnage, especially in the tanker sector, is slowing. Are other opportunities in other sectors making up for that?**

The short answer is YES. A longer, more detailed narrative would run afoul, in my case, of the myriad "Confidentiality Agreements" that we must sign onto with clients. That said; we work with unusual AT/B's; tackling the new projects that surface. We have done everything from the Mosaic/Savage Ammonia Carrier AT/B, to the Great Lakes Dredge and Dock AT/B hopper dredge, to the SeaOne Maritime CGL AT/B's and Minyan Marine's "Chemitainer" design. We are currently servicing projects that run the gamut from LNG carriers, to large bulk carriers, to container carriers, to bunkering barges to railcar carriers. If a ship can do it - an AT/B can do it. It is that simple. We are also seeing inquiries for smaller AT/B's - tugs under 3000 HP and barges under 250 feet.

**Some aspects of U.S. yards are doing well – ferries, for example. How active is the ATB buyer market? Has it changed much? What are they asking for? Rank these in order of preference for today's domestic operators.**

We are seeing a wider range of clients than perhaps 10 years ago. We continue to design for traditional clients such as tug and barge companies, but increasingly we are being contacted by traditional shipowners, commodity brokers, and industrial clients. Our workload potential has expanded so much that it at times eclipses our staff size and to that end, a major announcement about our firm is coming in the next month.

1. **Different Service (as compared to oil and product carriers);**
2. **Different Size Units (both larger and especially smaller);**
3. **Higher Speeds (and less fuel consumed vs. traditional); and**
4. **Propulsion Changes (to make number 3 possible).**

**Where is the biggest opportunity for future ATB growth? Why?**

We feel that the introduction of the AT/B into services and/or geographical areas that it had previously not been employed is future of the concept. If it can move by water, an AT/B can move it. This includes the use of AT/B's that can transit both deep and shallow water, large AT/B's (we have a design for a liquid carrier of 100,000 DWT), LNG, and CNG gas carrier AT/B's, and vehicle carriers. The list is almost endless.

**Q-LNG is building an ATB LNG bunker vessel. What else exciting or cutting edge is being planned or underway at the moment?**

A long time ago, we designed a 10,000 cubic meter AT/B LNG carrier for Argent Marine. We remain in contact with Argent regarding future work, so LNG is basi-

cally on the horizon in general. However the expected rush to LNG never materialized fully, and most LNG projects we deal with are on hold. Other projects to move gasses in other places by various means are alive and well. For example, the Mosaic/Savage Ammonia Carrier is doing incredibly well, and is delivering product at a rapid pace.

**The iconic ATB changed the marine transportation industry in many ways – in terms of economics, operating practices, etc. – especially for tanker operators. In what way did its advent eventually impact the overall marine transportation industry?**

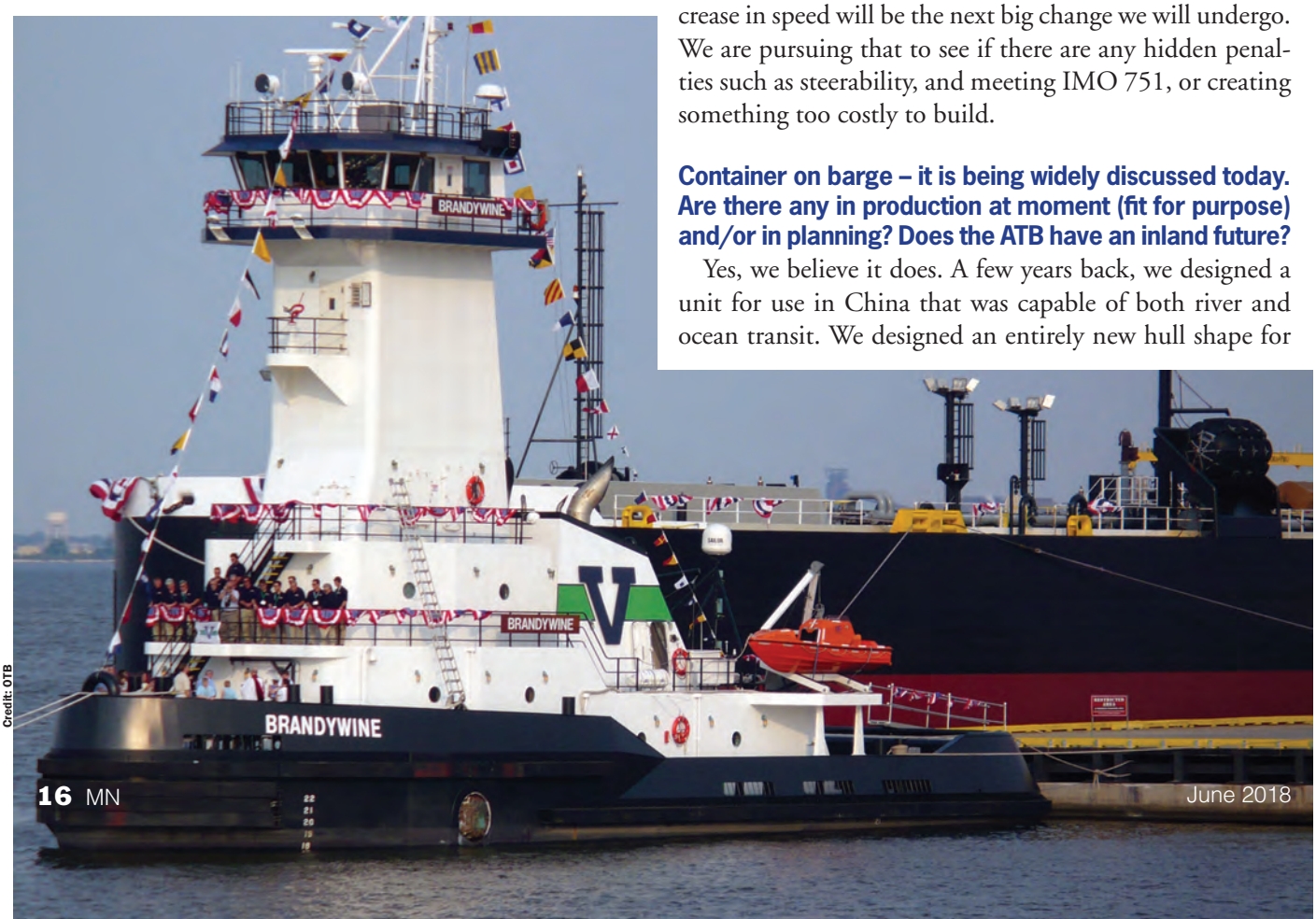
AT/B's married low-cost marine transport with reliable marine transport. Barges have always been a less expensive option to move cargo, but towed barges were slow, fuel-inefficient, and unreliable in bad weather. By good fortune, the push toward the AT/B occurred right about when the petroleum industry was changing from a 'full inventory always' model to a "just in time" model. The latter would have killed off the towed barge market because towed barges in the Northeast were historically as much as 40% delayed. When Mobil approached us to design their 140,000 BBL AT/B for Northeast service, the entire reason to even consider an AT/B was weather-reliability. Mobil did not want a towed barge. The choice was a tanker, or a provable AT/B concept. The AT/B won out and while the Exxon-Mobil merger changed the trading patterns that created the unit in the first place, she did exactly what was expected of her while in service. That unit still works for Kirby Corp. AT/B's did not occur suddenly. Pioneers like Ed Fletcher and the Bludworth family paved the way. These early systems, while not perfect, did open a small window for consideration as operators openly queried whether or not the shortcomings of each could be improved. Once the Intercon System appeared, then Articouple began selling in the US, and JAK made an appearance, the flood gates opened. The entire narrative of how the Intercon System came to be is a story, in and of itself. The credit for the success of the AT/B is a story of engineering, risk-taking, and a rapid industry-wide acceptance of a concept – something which is quite rare on the waterfront.

**In terms of design changes, what is the most innovative thing that has hit your sector? Why is it important?**

The entire concept itself is the truest 'innovation.' However, the use of DC-bus/inverter-based electric propulsion systems will allow a reduction in emissions and fuel consumption. Beyond that, we now have model tested enough units to know that we can extend the speed range for large AT/B's up into the 17 knot range (with about the same power as a comparable sized ship), and not 'blow the doors off horsepower' as has been the case historically. The increase in speed will be the next big change we will undergo. We are pursuing that to see if there are any hidden penalties such as steerability, and meeting IMO 751, or creating something too costly to build.

**Container on barge – it is being widely discussed today. Are there any in production at moment (fit for purpose) and/or in planning? Does the ATB have an inland future?**

Yes, we believe it does. A few years back, we designed a unit for use in China that was capable of both river and ocean transit. We designed an entirely new hull shape for




Credit: OTB

it. Container AT/B's can run the gamut from simple deck barges with lashings to fully cellular barges like Minyan's Chemitainer design. Units capable of ocean and rive transits will have to be a different kind of animal to allow for both. Then you have canal-constrained services like the NY Barge Canal, where waterborne container moves are limited not only by draft but by the small locks of the canal. Here, highly specialized high-value container moves (such as chemicals) may be feasible. A NY Barge Canal-capable AT/B could run from New York City to Chicago without any towing, but the cargo would need to be high value and move only from April to late November. Those problems do not exist on the great river systems.

**Are you seeing a (more pronounced) move towards LNG as a fuel in this sector? Has the bunkering discussion – midstream versus alongside advanced any further with the Coast Guard?**

There is no big move in LNG fuel for AT/B's as yet that we can see – unless the barge is carrying LNG. We have designed such tugs for Argent Marine, and others, where LNG is the cargo. LNG has not really caught on in the US as a propulsion fuel for tugs in general, let alone AT/B's. The low cost of diesel has hurt LNG, as has the now proven domestic crude oil reserves. The biggest detriment is the cost of the tug and machinery plant to burn LNG as propulsion fuel and the inability to carry enough of it to go long distances. As advancements in LNG fuel storage come along, we may solve the storage volume issue, but not the cost of it. Unlike railroads that can by law place a large LNG fuel tender between locomotives and connect the fuel to the locomotive via vaporizer/hose arrangement, the U.S. Coast Guard has been opposed to such arrangements where large fuel amounts are carried on the barge. One of our clients has developed a safe breakaway system to allow that between and AT/B tug and a barge, but the USCG has not approved such things. Certainly, we have developed tugs that can carry LNG or CNG fuel, at least conceptually. Thus far, no one is biting , but that may yet happen.

**For the larger coastwise units, is Tier 4 the law now, and if so, what's the preferred method to achieve that standard in newbuild tonnage today?**

We have designed Tier 4 AT/B tugs and one is nearing completion right now for Reinauer. Considering the ways a diesel can be made T4 compliant, you have three basic choices. You can use an EGR engine, you can use an SCR-based engine with urea, or you can burn LNG in some cases. With EGR, there are questions of wear and other issues with reintroducing exhaust gas back into the cylinders. The Reinauer tug has GE T4 engines and they (GE) have the most experience with this, with a large number of locomotive in US service to draw experience from that are fitted with GE T4 engines. With SCR/Urea engines, EMD has come with a T4-compliant 2 cycle engine based on their highly successful 710 series engine. However, there is a cost associated with purchasing and storing the "DEF" or "diesel exhaust fluid" in the tug. We have fully designed a 16,000 HP AT/B ocean class tug with this system. One client elected to change to the EGR design engine, another is sticking with a diesel-

*An OTB designed ATB arrangement, The HARVEST/ABUNDANCE Ammonia Carrier*

Credit: Craig Alness

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electric, EMD T4 solution with urea. Neither design was overly-complex to design. The GE installation is clean and easy to lay out, with great engineering support behind it, as is the EMD-urea-based setup. American diesel manufacturers in these power ranges have a robust investment in the rail industry and solutions must fit inside a locomotive carbody, as both the GE and EMD solutions, do. From my point of view as a naval architect, either the GE or EMD solution is, engineering-wise, equally easy to do and install.

**Is the urea storage issue giving ATB's any problems – especially in terms of the fact that ATB's tend to have longer voyages and need robust endurance specifications?**

Not at all. We had no issue finding space for urea tanks on a 160 foot, ABS-approved 16,000 HP design. The amount of urea required is a percentage of fuel consumed and easily accommodate on this sized platform. When we first started on the urea-based boat we'd heard all the horror stories about carrying urea, but none proved to be true.

**The safety record of ATB's is by and large good. And, it has gotten better. Discuss some design changes that have, over time, made it better.**

First of all we and other designers try to make quiet, spacious and comfortable tugs. This means that the crews are more rested and alert. They also have an easier ride than bouncing around the ocean on the end of a long towing hawser. There is a generally accepted link between crew comfort and performance on the job. You need only look at Mr. Guidry's supply vessels as proof of that. Secondly, we build very strong tugs. A class society-minimum tug will never come off our boards here. We know AT/B's well enough to know where to put the steel in them. The same holds true for the design and practicality of machinery systems. Finally, and most important, the crews, and owners themselves are conscientious, safety-minded people. The safety culture in most tug and barge companies is set to the highest standard and where it is not, I hear about it from the crews. I can say that none of our clients are less than perfectly devoted to safety.

**The dreadful condition of the domestic offshore energy situation notwithstanding, you've been rethinking the iconic design of the traditional OSV. What advantages would the ATB bring and are you planning DP capabilities, etc?**

The "Provider" class AT/B (Patent filed for) is an effort to rethink the entire OSV idea. Multiple cargo boxes are possible with a lesser number of tugs to handle them. This is a perfect service for "drop and swap" type operations. A barge can be loading while the tug is taking a second barge out and when the tug returns, barge number two is ready to go. We envision the tug staying with the barge at the rig, and not leaving it unattended. For the same size tug and crew, you can have twice the cargo deadweight of a single supply boat. You pay for one tug and crew, but loading is done with shoreside crews while the tug is away. The tugs and barges will be fully DP-capable, and the machinery, first class. We are happy to share the concept with prospective customers.

# U.S. Salvage Industry Update:

## *Coast Guard Recognition and Continuous Improvement for the domestic salvage industry and its working professionals.*

**By Jim Elliott**

Elliott

Professional salvors are called in when the ship's crew is overwhelmed – the last resort to protect lives, minimize environmental impacts and save the ship and cargo. These salvage masters, divers, firefighters, naval architects, heavy lift operators and other salvage team members regularly go into harm's way and consistently perform incredible feats. They commit their lives and livelihoods to this work. As American Salvage Association President, I am extremely honored to represent these professionals – the men and women of the marine salvage industry.

### Coast Guard Recognizes Salvage Industry Performance

On April 18th, Rear Admiral Anthony "Jack" Vogt, Assistant Commandant for Response Policy, released an update on the status of the most recent U.S. Salvage and Marine Firefighting (SMFF) industry verification initiative. According to the report, the Coast Guard has conducted 58 scenario-based SMFF verifications within the last year across 19 different Captain of the Port Zones, with 16 different vessel owners and operators. To date, all results have been found to be satisfactory and reflect compliance with the Coast Guard's Salvage and Marine Firefighting regulations.

This latest report from the Coast Guard on the marine salvage industry's exceptional performance and continued compliance with the regulatory planning standards is a testa-


All images: ASA

"... this positive Coast Guard report tarnishes the validity of a recent paper by a special interest that the American salvage industry lacks the required capabilities to respond to a marine casualty in U.S. waters within the planning standards."

ment to the salvage industry's dedication and commitment to continuous improvement of the U.S. and international emergency response capabilities. Additionally, this positive Coast Guard report tarnishes the validity of a recent paper by a special interest that the American salvage industry lacks the required capabilities to respond to a marine casualty in U.S. waters within the planning standards.

Of significance, the U.S. salvage industry's phenomenal response to the historic 2017 hurricane season is another testament of the industry's capacity – simultaneously salvaging hundreds of ships, barges and boats in multiple locations following three hurricane landfalls, all while continuing to effectively meet the regulatory standards for salvage and marine firefighting.

## Salvage Regulatory Oversight In-Perspective

As background, the U.S. marine salvage industry is regularly and thoroughly audited by the U.S. Coast Guard, maritime industry and insurance providers. Prior to the implementation of the U.S. salvage and marine firefighting regulations, hundreds of so-called salvors were listed on Vessel Response Plans. These entities included standalone surveyors with no owned assets and even companies with no salvage and marine firefighting experience.

During the regulatory implementation process, the U.S. Coast Guard reviewed these salvage service providers, ultimately narrowing the field of qualified salvors from hundreds to just four national salvage companies and a handful of regional salvage providers. This "verification" process did not stop there. Salvage and marine firefighting service providers are audited and verified during plan preparation, remote assessment exercises, table-top exercises and full-scale deployment exercises.

Most importantly, on every U.S. marine casualty incident, the salvage company must submit a written salvage plan that is reviewed and approved by Coast Guard master-degreed naval architects and experienced Captains of the Port. In addition, salvage companies are also audited by insurance companies and vessel owners and operators who are ultimately responsible to ensure their Vessel Response Plan is effective and meets regulatory standards. Following implementation of this regime, hundreds of successful salvage and marine firefighting operations have been completed by ASA members.

It should be noted that the salvage and marine firefighting regulatory standards for the desired response timeframes are "planning standards." In presenting this concept, the preamble to the Coast Guard regulations states: "the specific response times are planning standards based on a set of assumptions made during the development of this regulation. We understand that these assumptions may not exist during an incident."

To meet these planning standards, the U.S. marine salvage industry has spent millions of dollars to pre-position marine firefighting systems and other salvage equipment, such as dewatering and cargo transfer pumps, around

the U.S. and in remote territories to meet these planning timelines. The industry has trained marine firefighters and actively engages with municipal and industrial firefighters to continuously build capacity and partnerships. Additionally, the salvage industry created an innovative network of responders, including vessels of opportunity – a concept supported by the Coast Guard during a Congressional Hearing on the issue in May 2017 – to rapidly address all 19 services required by the regulatory planning standards.

Without a doubt, and in the past 10-years since the publication of the U.S. salvage and marine firefighting regulations, U.S. salvage capacity and capabilities have grown significantly and continue to expand. In sum, the U.S. marine salvage industry has been "verified" to effectively meet the U.S. regulatory planning standards and continues to expand capabilities both domestically and internationally.

## Proactive Partnerships, Communications & Training the Next Generation

Building on this record of success, the ASA continues to proactively work with the U.S. Coast Guard and other Federal agencies to meet evolving regulatory standards and achieve operational success. The creation of ASA "quality partnerships" with the Coast Guard, NOAA and other agencies, for example, has improved salvage safety and created a culture of transparency and continuous improvement. The U.S. Navy's global salvage capability is supported by response contracts with ASA members. Salvors also have agreements with municipal fire departments; for example, the New York City Fire Department and several others municipal firefighters have agreed

to work side-by-side with salvors in the event of a vessel fire to achieve their mutual goals.

In addition to working with government leaders, the salvage industry has myriad relationships with maritime and transportation partners to enhance the U.S. salvage capability. As one example, through our agreement with the Association of Diving Contractors International, salvage divers consistently meet or exceed regulatory safety standards. Formal agreements, regular meetings and routine interactions throughout each year ensure the salvage industry remains aligned with regulatory safety standards and best industry practices.

Today, proactive communications during emergency salvage response operations ensure that the right personnel and equipment are deployed to manage the incident. Historically the salvor was often the last response organization to get the call during a marine casualty event. With a proper Vessel Response Plan activation, communications between a vessel in distress and a salvor now begin within an hour and the salvor is then immediately integrated into the Incident Command System structure.

Salvage plans are quickly formulated and submitted for Unified Command approval within the regulatory planning timeframes. These proactive verbal and written communications during an emergency response consistently improve operations and the end result.

When not engaged in salvage operations, ASA members also regularly present salvage courses to Federal, State and local regulatory agencies and port stakeholders. In essence, salvors are training the next generation of Captain of the Ports and responders on how to effectively manage a marine casualty event, promote salvage best practices, and improve safety. These valuable courses have also been sought out internationally. For example, the ASA trained the Panama Canal Authority in salvage response operations during the canal expansion project that led to a formal agreement with the ASA.

In the end, salvors are extremely dedicated, hard-working members of the maritime industry – they will always respond with determination and a vision toward achieving success. As they say in our industry, we will consistently offer our "best endeavors" to save a ship and protect lives and the environment.



***Jim Elliott*** *is President of the American Salvage Association and Chief Operating Officer of the Teichman Group of Companies, including T&T Salvage and T&T Subsea. With three decades of leadership experience in maritime operations, Mr. Elliott has served as a senior Coast Guard officer, incident commander, salvage master, commercial diver and project manager on salvage operations from the Equator to the Arctic. He holds a Bachelor of Science in Environment Management, a Master of Environmental Policy, Master of Arts in National Security and Strategic Studies from the U.S. Naval War College and a Master of Business Administration from Middlesex University London.*

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# A Post-Casualty Rush to Judgment Can be Costly

By Randy O'Neill


O'Neill

It was a warm and sunny early summer morning in an increasingly popular and typically busy domestic harbor. And, not surprisingly, the water and waterfront were crowded with commercial and private vessels of every description. From a slowly moving tug/barge combination, a working dredge and a small tanker delivering fuel on the more industrial side of the harbor, to numerous water taxis, sightseeing boats and larger catamaran ferries, the harbor was buzzing with activity.

All of these commercial vessels were operating in close quarters with a fleet of small yachts, cabin cruisers, sailboats and even a few very brave kayakers who were paddling around the congested waterway competing for the very limited open water and dock space located adjacent to the ferry and water taxi landings.

## An Unexpected Casualty

In this frenetic mix of activity, one of the larger ferries was close to completing one of its brief but regularly scheduled runs across the harbor and was approaching its dock to offload almost 100 passengers and pick up a similar number of new passengers for the return leg. The vessel's approach to the dock was proceeding normally and the veteran captain engaged the engine controls to effect neutral and then reverse to prepare for docking. To his complete surprise, the engines did not immediately respond to his input, causing the vessel to violently allide, bow-first with the dock.

Despite announcements to remain seated until the vessel came to a complete stop, many passengers had already left their seats and had lined up to disembark when the abrupt impact threw many of them against bulkheads and down the stairs on top of one another from the top deck. In a matter of seconds, a tranquil ferry trip on a picture-perfect morning turned into a scene from a disaster movie. The scene was filled with dozens of obvious injuries; bone fractures and lacerations, and an unknown number of less obvious, but no less serious injuries.

The emergency response was both swift and massive by police, fire and EMS first responders. Full media coverage, both professional and social, of the event was broadcast 'live' seemingly from the moment of impact. Local television stations hastily dispatched their air and ground news teams to the scene to provide words and pictures for their 'breaking news' and regularly scheduled midday newscasts.

## An Impulsive Decision

In this chaotic and highly charged atmosphere, a senior member of the ferry's management team was unexpectedly interviewed at the scene by a reporter. After apologizing profusely for the 'actions of his captain,' the manager then announced that the company was immediately terminating the employment of that same veteran ferry captain. Obviously, this decision was made prior to the commencement of any investigation into the actual cause of the allision, and strongly implied that it was due to the negligent acts of its own long-term employee. And, while it was certainly within the scope of a senior company executive to unilaterally make such a personnel decision, the snap judgment to fire its own captain was picked up and immediately broadcast by the local media. Eventually, this would come back to haunt the ferry operator who was perceived as judging its employee guilty until proven innocent.

Prudently, and prior to being unexpectedly terminated, the ferry captain had contacted his license insurer to report the incident and the local maritime attorney assigned to represent him went immediately to the scene to prepare him for the first round of interviews – not with the local press but with investigators from the U.S. Coast Guard.

While on the scene for several hours after the ambulances, helicopters, camera crews and reporters were long gone, it slowly became apparent to the maritime attorney and lingering first responders that the more likely cause of the ferry's violent allision with the dock was some type of mechanical failure and not the negligent actions or decision-making of the dismissed ferry's captain. Eyewitnesses on both the ferry and the dock were adamant in claiming that, from their perspectives, the vessel's engines did not promptly respond to the captain's pre-docking commands until it was too late to avoid striking the dock.

## The Focus of the Investigation Shifts

A few weeks later, the now unemployed bridge officer, accompanied by his attorney, met with the Coast Guard for an expansive casualty investigation interview. By then, he

had submitted his 2692 Marine Casualty Report and had been thoroughly prepared by his attorney on what to expect and how best to respond to the questions of the two Coast Guard accident investigators. The interview went well for the captain who handled himself professionally and honestly, and it became increasingly clear that the investigators' focus had shifted from the captain's performance that day weeks earlier to the working condition of the vessel's electronic computer controls on the morning of the casualty.

This was a major sea change in the case because, in large part due to company manager's statements made to the press at the time of the accident, the ferry operator was facing over two dozen lawsuits demanding several million dollars in total to compensate the most seriously injured passengers involved in the incident. And, because the Coast Guard was very unlikely to file negligence charges and commence Suspension & Revocation proceedings against the captain's license, his former company and the mechanical condition of its vessel were now in the crosshairs of the plaintiff attorneys representing the injured passengers.

It also went without saying that, in light of his abrupt dismissal, the company's former captain was not likely to be a strong witness for the company's defense against the dozens of potentially costly civil suits now threatening his former employer.

While terminating the captain immediately following the casualty can be debated as to its timing and appropriateness, the 'blame' that it inferred on him and the damage it caused to his professional reputation turned out to be disproved by the subsequent investigation. In fact, the cause of the allision was ultimately determined to be "the result of mechanical failure." Consequently, the vessel owner was required by the Coast Guard to conduct sea trials before resumption of service. The company complied and the ferry was eventually placed back in service.

## Rash Decisions Can Have Lasting Consequences

What's the point? As certain areas of the U.S. maritime community continue to grow in terms of both size and number of vessels, and more and more operators in the passenger vessel and brown water sectors are providing license insurance coverage to their licensed officers as an employee benefit to help recruit and retain these valuable employees, it has become increasingly important for management to show patience and restraint before taking any post-accident disciplinary actions against their officers until the emotional, media-driven atmosphere subsides and professional investigators can determine the scientifically valid cause of the casualty. Prematurely (and mistakenly) assigning blame could easily turn out to be a lose/lose outcome – for everyone.

***Randy O'Neill** is Senior Vice President with Lancer Insurance Company and has been Manager of its MOPS Marine License Insurance division since 1984. Over the past 29 years, Mr. O'Neill has spoken and written on many occasions on the importance of USCG license protection. He is a regular contributor to **MarineNews** magazine and the opinions expressed in this article are his alone. He can reached at: roneill@lancerinsurance.com*

# Vessel Response Plans:

## *A primer for the Domestic Waterfront.*

**By Dennis L. Bryant**

Bryant

Congress enacted the Oil Pollution Act of 1990 (OPA 90) a mere 17 months after the disastrous oil spill following the grounding of the tanker Exxon Valdez in Prince William Sound. Among the many provisions in the voluminous bill was a detailed planning requirement. For the first time, tank vessels and facilities handling oil in bulk were required to develop extensive plans for responding to a worst case discharge of oil into waters of the United States. As regards vessels and marine-transportation-related facilities, the U.S. Coast Guard was charged with promulgating the regulations to implement the requirement.

Realizing that there were insufficient response resources available in the United States, the Coast Guard placed caps on the regulatory requirement for vessel response plans (VRPs) upon promulgation in 1993, but clearly stated that those caps would be increased in five year increments, charging the maritime industry with the responsibility to commence the acquisition process sooner rather than later. Those artificial caps have since been phased out.

The Coast Guard took some non-regulatory steps to enable development of the oil spill response organizations (OSROs). The Coast Guard examined entities that chose to hold themselves out as OSROs. If an organization met the Coast Guard standards, a response plan holder could contract with that organization without having the responsibility of verifying its oil spill response capability.

### SMFF

With regard to salvage and marine firefighting (SMFF), the situation was starkly different. Such specialized response resources were sorely lacking in the United States. There were a handful of large marine salvage companies with the capability of handling major marine casualties in offshore waters. These companies were mostly found in major ports, but there were significant gaps in coverage, particularly on the West Coast. Smaller companies were available in most ports, but these could only handle routine incidents in sheltered or near-coastal waters. Marine firefighting was 'catch as catch can,' with many tugs having fire monitors onboard and some ports having fireboats.

Faced with that situation but having the statutory requirement to address salvage and marine firefighting in the VRP, the Coast Guard elected to include a vague provision requiring plan holders to plan for such contingencies, but establishing no criteria or targets. It wasn't until late 2008 that detailed regulations were promulgated requiring tank vessels to submit SMFF plans. This regulation had been preceded by a number of workshops with the marine industry and a proposed rulemaking that received numerous comments.

In 2004 and 2006, Congress amended OPA 90 to include nontank vessels of at least 400 gross tons carrying oil as fuel for main propulsion and operating on the navigable waters of the United States within the requirement to have oil spill response plans. Regulations implementing the requirement were not promulgated until 2013. By that time, most if not all covered nontank vessels had response plans in place because the statutory requirement was self-executing. The regulations merely added a few specifics. The regulations also made it clear that the NTVRPs had to address salvage and marine firefighting.

### Issues & Answers

There are two lingering problems with the SMFF program. The first is that, unlike the OSRO program, the Coast Guard elected to not examine the SMFF service providers and determine their capabilities and competencies. Thus, the onus for such verifications resides with the response plan holders. There are thousands of response plan holders and only a few have the capability to make the necessary verifications. The vast majority of plan holders are either unaware of their responsibilities in this regard or are assuming that the SMFF service providers capabilities are consistent with their clearly outstanding reputations. Either way, the uncertainty remains.

The second problem concerns casualties that occur in CONUS nearshore coastal waters (within 12 nm of the boundary lines) far from a port where the SMFF resources are located. The regulations require that on-site fire assessment commence within six hours of the activation of the response plan. If the casualty occurs off, for example, Jacksonville, the time limit is of little consequence because resources are located within the port. On the other hand, if the casualty occurs off, for example, Fort Pierce, the six hour timeframe is probably unrealistic.

The Coast Guard created this timeframe problem when it promulgated the SMFF regulations and treated the CONUS situation differently than the OCONUS situation. For marine casualties in OCONUS waters, the timeframes relate to casualties occurring within 50 nm of COTP cities. Therefore, the regulatory timeframes for SMFF responses do not apply to marine casualties occurring in nearshore coastal waters off Hilo because Hilo is located more than 50 nm from Honolulu. SMFF responses are still expected to occur as rapidly as possible, but there is no applicable regulatory construct. It would be wholly realistic and logical to apply the OCONUS rule nationwide, because the problem exists not just off Fort Pierce but in numerous other locations where the distance between COTP cities is greater than 100 nm.

### Alphabet Soup: VRP, SubM & COI's

An unrelated situation is starting to impact the vessel response plan program. Towing vessels are in the process of becoming inspected vessels of the United States. Previously, as uninspected vessels, very few regulations limited their operations. As inspected vessels, though, towboats are being issued Certificates of Inspection (COIs), which include routes the vessel is authorized to ply and activities in which the vessel is authorized to engage. Many towboats are identified in vessel response plans as resource providers. The holders of plans that identify towboats as resources must now check to ensure that the towboats identified are actually authorized to provide the identified service in the location provided for in the plan.

Those complications aside though, the marine casualty response situation in U.S. waters generally exceeds that of any other nation worldwide. The U.S. Coast Guard and numerous stakeholders, including owners and operators of tank vessels and nontank vessels, and the oil spill response organizations (OSROs) and salvage and marine firefighting (SMFF) resource providers can be justly proud of their achievements in this respect.

***Dennis L. Bryant*** *retired from the U.S. Coast Guard with the rank of Captain after 27 years active duty. He had various tours as a law specialist, including an assignment as the Coast Guard's Law of the Sea officer and also served a tour in the Office of International Affairs and finished his career supervising the staff charged with implementing the Oil Pollution Act of 1990. After leaving the Coast Guard, he was with a major maritime law firm for 13 years. Now he is an independent consultant. He also speaks at various fora both domestically and internationally. He publishes a blog on recent maritime developments and writes maritime-related articles.*

# Spill Prevention & Response: *Old Lessons, New Challenges*

Credit: and paid for by Sea-Machines

*Emerging spill response trends fit into two big categories: technology and a combination of economic and social forces. Both will shape what comes next.*

By Tom Ewing

Florida's stunning Tampa Bay stands out as exactly the kind of place where you have to think about hazardous materials emergencies. It was 25 years ago, on August 10, 1993, that a freighter collided with two barges near the entrance of Tampa Bay, causing a fire and spilling over 32,000 gallons of jet fuel, diesel, and gasoline and about 330,000 gallons of heavy fuel, devastating beaches, wildlife and habitat. Tampa Bay doesn't want to relive it.

At 400-square miles, Tampa Bay is the largest open-water estuary in Florida. It also boasts more than 80 miles of man-made deepwater shipping channels. The Port of Tampa is also among the nation's busiest. Every year, more than 4 billion gallons of oil, fertilizer components and other hazardous materials pass through Tampa Bay, all of it transiting the most diverse water bird nesting colonies in North America.

## Preparing for – and Preventing the Next big One

The Tampa Bay Estuary Program (TBEP) was established by Congress (in 1991) to assist with Bay protection and improvement efforts. TBEP has a "Comprehensive Conservation and Management Plan" to sustain progress in bay restoration through the year 2027. Spill prevention and response gets major attention, which TBEP divides into two broad parts:

- *Technology to improve ship coordination, and*
- *A focus on specific environmental priority areas.*

For example, Tampa Bay's Physical Oceanographic Real-Time System (PORTS) provides information about tides, winds and currents. The Bay is one of a few Coast Guard sites testing virtual, or electronic, navigation aids. On

Credit: Spill Control Association

the policy side the Bay has a public-private sector Spill Committee that meets monthly. Readiness includes unannounced drills at industrial facilities. A full-scale test of the Area Contingency Plan is held every four years, at a cost of $100,000.

Tampa Bay is unique, but on the other hand it isn't. Comprehensive 'hazmat' planning occurs everywhere. That's because, as former U.S. Coast Guard Commandant Jim Loy used to say, "If you've seen one port, you've seen one port." Tampa Bay hasn't had a major spill in 25 years, a record of success largely duplicated across the United States. On the other hand, familiarity breeds contempt in much the same way that complacency tends to distract. In as little as 10 years, autonomous vessels might transit Tampa Bay, or a hundred places in between. Stakeholders find themselves asking, "Does an accident in 1993 properly advise scenario assessments for 2023?"

"For NOAA and a lot of other agencies, especially the Coast Guard, there surely is a balance between how much you do for preparedness versus response," commented Doug Helton,

NOAA Emergency Response Division Regional Operations Supervisor for the West Coast, Alaska, Hawaii, Great Lakes Region. Helton was on site for the 1993 Tampa Bay spill, hired by NOAA one year before to develop the Agency's Rapid Assessment Program (RAP) for oil and chemical spills. "The US is in a pretty good spot," Helton said, "because we have the big trust fund set up after Exxon-Valdez that pays for initial response actions. Those financial changes that happened as a result of the Oil Pollution Act have really been beneficial."

Closer to home, at least for Tampa Bay, Timyn Rice is State Scientific Support Coordinator-Pollution Response for the Florida Fish and Wildlife Conservation Commission. He works closely with the Bay's Spill Prevention Committee. Florida stays ready, Rice said. It has to, because while there have been no major spills in 25 years, as many as 850 smaller (25 to 5,000 gallons) spills are reported here annually.

Still, change is constant and there are trends that spill prevention and response experts are watching, trends making new demands on planning and accident response capabilities. For example, today's oil markets allow for the export of domestic crude oil. Hence, loaded tankers now move both ways through harbors. That's good for commerce. But, are spill plans and resources keeping up?

## Emerging Trends

Emerging spill response trends can fit into two big categories: (1) technology and (2) a combination of economic and social forces. In Tam-


Credit: Spill Control Association

pa, first responders now arrive with real-time information regarding spill size, material characteristics and spill direction. Apps – and applications – change, adding strength to this field. Then there are other technologies, presenting a more complex mix of moving parts, big moving parts – such as autonomous vessels.

Boston-based Sea-Machines (S-M) builds and installs a range of marine technology, including emerging technology for piloting unmanned vessels. Hazardous environments – oil spills and clean up – is a major focus area. S-M's automated systems are today mostly in a test-case mode with selective companies. S-M's SEA MACHINES 300 System will likely be ready in the 3rd quarter of this year. To that end, Sea Machines recently partnered for tests with Marine Spill Response Corporation (MSRC).

Testing centered on the ability to autonomously control a Munson boat to deploy and tow a spill collection boom working in tandem with, and controlled by, a 210-foot MSRC oil spill response vessel.

Michael Johnson is S-M's CEO. Initial tests with MSRC went well, Johnson said, demonstrating performance in critical areas such as remote control and maintaining vessel distance and speeds. Johnson said upcoming tests still need to "push the system more in different conditions. We're on the water daily," he added, "working hard to find the solutions."

For his part, John Swift, MSRC Vice President, said, "This technology has promise. Anything you can do to maximize safety and minimize fatigue of personnel is always a good thing."

Separately, ASV Global is working on autonomous projects with a similar focus. ASV recently partnered with UK's Peel Ports Group to develop autonomous vessel technology, starting with shallow survey operations. Spill response is another big part of ASV's upcoming product and technology developments.

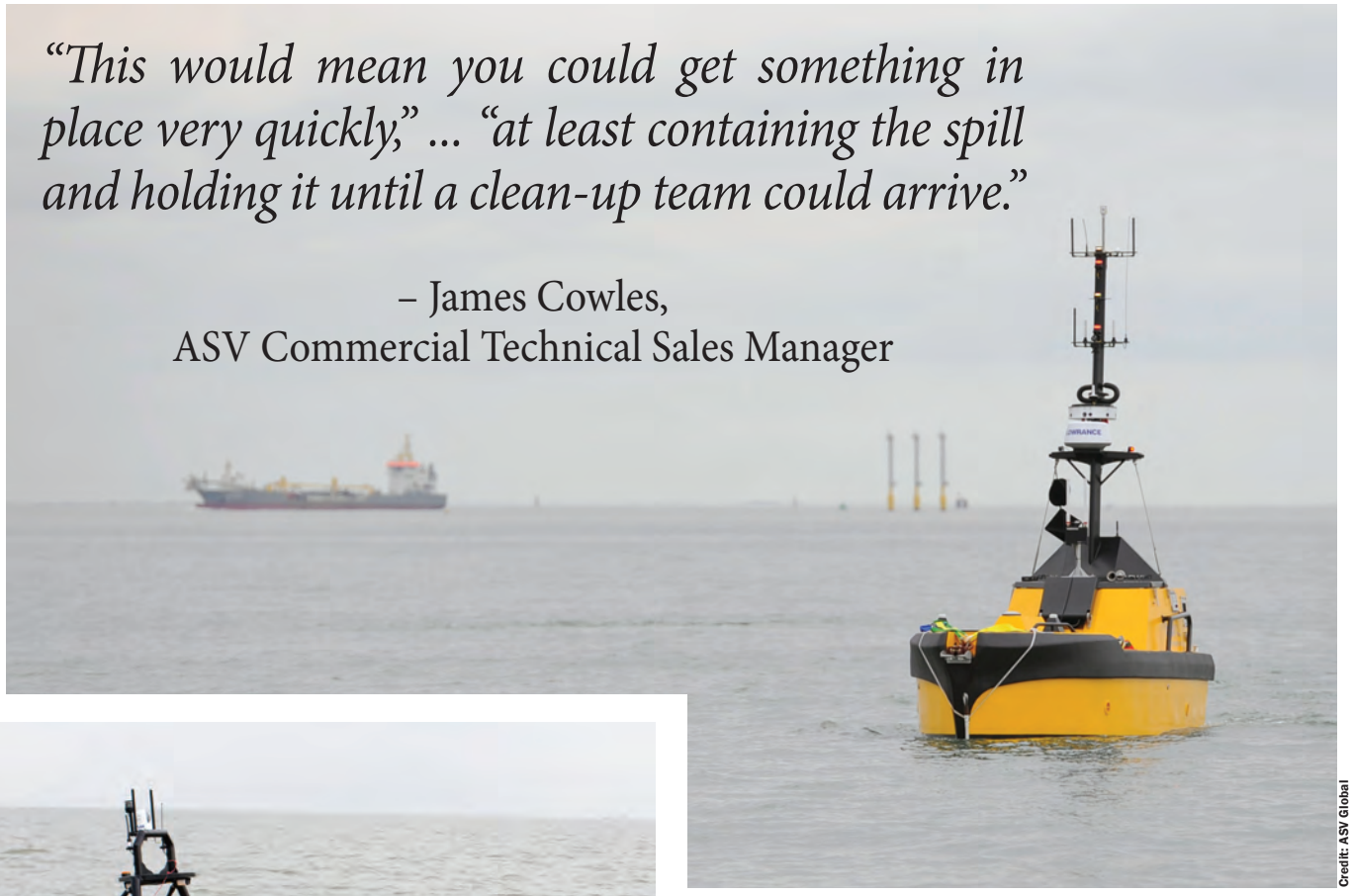
*"We have tenured professionals exiting the industry faster than the next generation can gain experience."*

– Devon Grennan, SCAA President and CEO and President of Seattle-based Global Diving & Salvage

James Cowles is ASV's Commercial Technical Sales Manager. Cowles said ASV is working on a "follow me" system, towing a boom, for example, with the effort under the control of a larger, manned vessel. This has obvious advantages – it keeps personnel out of harm's way. A related project with an Israeli-based Harbo, involves a lightweight and flexible boom system. One goal is to pack 500 meters of material into an autonomous boat, ready for instant deployment. "This would mean you could get something in place very quickly," Cowles said, "at least containing the spill and holding it until a clean-up team could arrive."

These ideas are not yet commercially ready. R&D is still under way.

Another emerging autonomous




Credit: ASV Global


technology is Short-Range Unmanned Aircraft Systems (SR-UAS). R.E. "Bob" McFarland is Incident Management & Preparedness Advisor with the U.S. Coast Guard District 13, based in Seattle. McFarland called SR-UAS "one of the most significant new and emerging technologies available," supporting the Guard's strategic commitment to invest in new technologies. Better yet, Coast Guard units will be able to contract for UAS services as needed from commercial vendors, avoiding capital investments. In other words, costly equipment won't have to just sit around.

Other emerging technologies are not quite so mechanically linked. In March 2016, the Coast Guard identified non-floating oil as a risk and implemented a voluntary Oil Spill Response Organization (OSRO) classification guideline addressing detection, recovery and storage capabilities of non-floating oils. Ceren Karaer, MSRC's Business Development Manager told ***MarineNews*** that MSRC is working on a range of topics, from improved sorbents to remote sensing to "herders" that can move petroleum molecules towards each other enabling more effective mechanical recovery or in-situ burning.

## Beyond Technology

Tech-based developments don't stand alone or provide the panacea for all problems. For example, two emerging issues have spill response managers concerned. First, experienced personnel are leaving the field and recruitment is difficult. Secondly, spill prevention presents a downside: businesses can't stay in a field if there's no work.

The Spill Control Association of America (SCAA) keeps a close eye on these developments. Devon Grennan is

SCAA's president as well as CEO and President of Seattle-based Global Diving & Salvage. "We have tenured professionals exiting the industry faster than the next generation can gain experience," Grennan said. Because of that, SCAA has a Future Environmental Leaders committee focusing on recruitment.

Grennan further notes that "as incident frequency has dropped to historic levels, many owner operated companies have transitioned to additional services." This presents consequences: potentially less response capacity nationally just when alternative modes of energy transport, and related activities, are expanding – barges, trucks, rail, pipeline, vessels and the transfers among that carriage. In other words, increased risk and increased pressures on talent and resources.

Both SCAA and MSRC are watching revenue issues closely. MSRC notes that decreased spills mean "lower revenue for OSROs (oil spill response organizations) because, in addition to retainers, we rely on spill response revenues. Maintaining a robust (response) capability is not inexpensive." SCAA's Grennan notes that while the Oil Spill Liability Trust Fund was recently renewed, the funding formula might be something to revisit, to align more closely with the changing dynamics of oil markets and transport.

Another emerging topic is that of liability. "Responder immunity remains a cornerstone issue for SCAA," writes Grennan. Big issues hang over this field as a result of lawsuits filed against first responders after Deepwater Horizon. Left unresolved, the threat of lawsuits could present even more barriers for entry into this important business. Nevertheless, some relief was obtained from the 2016 U.S. District Court ruling that dismissed claims for damages against emergency responders. For SCAA, this issue needs closure and they have drafted language that would statutorily expand liability protections. Implementing this language is part of SCAA's ongoing political advocacy work.

Collectively, that's a lot to think about.

*Tom Ewing is a freelance writer specializing in energy and environmental issues.*


MetalCraft


North River Boats

# Design Trends for an Increasingly Active Market


Wing


North River Boats

***Customer requirements define what comes next as the smaller, littoral combat and patrol craft replaces and surpasses the traditional 600-foot warship in importance – and utility.***

**By Joseph Keefe**

## METALCRAFT – INTERCEPTOR LINE OF PATROL CRAFT

MetalCraft's most visible entry into the patrol craft market isn't necessarily new, but it takes its shape and derives many of its standard features from a familiar legacy of building for this sector. The Interceptor is based on the original boat's nomenclature – the Long Range Interceptor II – and how the design came to be, MetalCraft has a long history designing RIBs for patrol and SAR missions, dating back to 1984, where they developed the first SOLAS self righting RIB with a foam collar. The design of the Kingston hull shape dated 1987 became the hull shape of the MetalCraft RIB program. It was chosen by the U.S. Navy as Force Protection Medium after the Cole incident and MetalCraft sent 24 C-130 certified KPR-28's and 32's over to the Middle East for Force Protection. As RIB development evolved to the new age of collar design being used for fendering and flotation, MetalCraft was already there.

By 2012, the U.S. Coast Guard set out to acquire a new generation vessel, the Long Range Interceptor II, for the National Security Cutter Program. The key to the boat they were looking for was that the boat could be recovered by the NSC ship at speed in large seas so that the ship would be less of a target and would be recovered up the ship's transom boat ramp. She can be recovered at 12 knots. A davit or crane recovered ship's boat requires the

ship to slow to under 5 knots. The 35-foot boat had to reach 40 knots at full patrol load and carry a 5 man crew and a 10 person boarding party for 236 nm.

MetalCraft had done extensive study into the former various test craft that had been unsuccessful in navigating the ramp at sea. MCM did identify the issue and submitted a bid that was very different than other bids that included Cummins diesels, Ultra Jet water jets with their signature Jetmaster joystick control, a bolt on wheelhouse, a collapsible sacrificial grounding bar, hull structure that was well in excess of ABS requirements, a portable clamp on ballistic protection package and a complete set of Shoxs 2G suspension seats for crew and boarding party.

The next customer to buy a version of the Interceptor was the Canadian Department of National Defence (DND). They were looking for a high speed land or shipboard boat that could also be deployed by air or trailer, C-130 or heli lifted. The boat was smaller, 30 feet, but had to carry 2 crew plus 10 boarding party. She was well armed, (four gun positions) and carried the latest targeting software called Sea Cross. At that time, vessels were known to shoulder a ship for boarding at a maximum 18 knots, but DND wanted 25 knots.

The unique hull design permitted the crew to trim the bow high and out of the water to dramatically reduce any chance of tripping the hull. This ability allows the crew great control in severe breaking seas. The design is low to the water yet a very dry ride. Being wet and cold at 53 knots for a hundred miles is not fun or safe. She has a radar mast that deflects radar waves and hull designed spray deflection makes the boat nearly undetectable by radar in 3 foot seas.

The boat was the introduction of Wing Inflatables to the Canadian market. They developed a proprietary dive door system in an air collar that will be offered to US military buyers. The full bolt rope attachment system and air collar design allows for immediate collapsibility for getting on the road and the built in compressor fills the 24" collar in 20 minutes powered by the boat's batteries. In a nutshell, the key design point required for vessel board and seizure are high static stability to ensure safety while boarding, with stability calculated to ISO 12217 Cat B Sea State 5.

The boat has also been sold to several Municipalities in both a Fire and Police version. By 2018, MetalCraft had delivered 52 hulls in this range, spanning the full 9 to 20 meter range. Today, the firm reports another six under construction – an 11 meter version, two 12 meter hulls, and another three in the 17-18 meter range. Beyond this, MetalCraft Contacts Manager bob Clark says that another 40 Options loom on the long term contract for the 9 Meter version.

Credit: Wing

## WING – A PREMIER INFLATABLE SOLUTION PROVIDER

Like many providers in the combat and patrol craft sector, Wing wasn't always in the business of supplying to the limitary and municipal first responders, but like so many other great concepts, the crossover was a natural progression. In the early 1980's, Wing Inflatables began as White Water Rafting Company. As the 1990's approached, however, Wing was approached by the US DOD to provide sponsons for RHIB's, leveraging WING's construction techniques and materials.

Wing was again approached by the US DOD to manufacture CRRC's and now holds every US DoD contract to manufacture combat rubber raiding crafts (CRRC), notably for the USAF (AFSOC and PJ's), US Army (SF, Dive, Engineering and Bridge Commands) and the US Navy (EOD & NSW) with over 1,000 craft fielded. The P4.7 craft is now approved for Sub-Lockout and multiple Air Drop configurations.

How Wing got from white water to ferrying military personnel in dangerous waters is an important part of the story. Along the way, Wing purchased UK-based Henshaw – in 2016. This allowed Wing to offer multiple material solutions and extended their global outreach. Most recently, the Wing Henshaw Engineering Team has been working on a new design of CRRC which will change the how end-users use inflatable craft and the conditions they can operate in.

Similar to many developments in this important and rapidly developing sector, advancements tend to come via customer requests. In this way, Wing's output is no different. Outside of the standard inflatable craft and sponson manufacturing, Wing has provided end-product for numerous applications. In the early 1990's, NSW came to Wing with the request for a Basic Underwater Demolition SEAL (BUDS) training craft. It's now used as a training vessel for multiple groups around the world.

Just this year, Wing Inflatables also purchased Lake worth-based Patten Inc., which has been manufacturing liferafts for aircraft, and navy applications for more than five decades, adds an entirely new realm of possibilities to the inflatable portfolio. Arguably, the Wing Patten Henshaw combination is now the most recognizable inflatable solution provider in the world. Leveraging that kind of history and experience, Wing remains ready to design and meet any requirement that's out of the typical scope of currently available inflatable offerings. As in the past, Wing today is shaping the future.

## NORTH RIVER BOATS

In 2017, North River Boats, based in Roseburg, Oregon, was awarded a 5-year Blanket Purchase Agreement for up to 8 vessels. Pending U.S. government funding, six hulls remain on this contract calling for an innovative training platform. The first two boats – the North River SFAC – were delivered in November and December of last year to the Naval Small Craft Instruction and Technical Training School (NAVSCIATTS) in Stennis, Mississippi. Like the output of wing and MetalCraft, NAVSCIATTS,


Credit: North River Boats

a Department of Navy schoolhouse operating under the United States Special Operations Command, trains Foreign Security Forces and other international students on small craft strategy, operations, communications, weapons, maintenance and instructor development. That kind of critical mission demands special equipment and, of course, fit-for-purpose, innovative platforms. North River stepped up to deliver.

The SFAC – Large is based off of the very popular North River Valor FP model, which is the current U.S. Navy Force Protection Large vessel. The SFAC – Large has 6" taller sides, an increased fuel capacity and a larger cabin. North River won this contract, in part, on its willingness to make design changes to suit the client. Specifically, this design improvement provides better seakeeping capabilities and higher freeboard."

The first two boats are in service at NAVSCIATTS for their training that started in January 2018. North River Boats holds a current 5-year GSA blanket purchase agreement where additional vessels may be ordered by qualified agencies.

Diversification is the key at Oregon-based North River Boats. Listening closely to customer needs won the day on the multi-hull U.S. Navy contract, but that's not all that's happening in Oregon. Roseburg, Oregon-based North River Boats has, over time, thrived by delivering one of the most diverse vessel portfolios in North America. Those offerings include both domestic and foreign deliveries, as well as recreational, commercial and military hulls.

If that formula has taught them just one thing, then that metric would be that different customers need different features. Like their federal customers, municipal first responders need affordable and well-designed hulls. As North River waits for the green light on the remaining six Navy hulls, that exactly what they deliver today.

Recently, North River Boats was contracted to build a new boat for Narragansett Fire Department in Rhode Island. The Landing Craft style vessel will be delivered in late August 2018. The new 31- by 10-foot North River Fire boat will have a 36-inch wide folding bow door operated using electric linear actuators.

Separately, North River Boats delivered a new 28 foot by 9 feet, 6 inch North River Sounder Fire Boat to Poulsbo Fire Department in Poulsbo, Washington. The fireboat was based on the popular and commercially reliable Sounder model. With well over a thousand of these boats in the marketplace, this is by far the most popular hull North River Boats builds. Also delivered by North River Boats, their second fire boat delivered in 2018, to the Biloxi Fire Department in Biloxi, Mississippi, was a 31 foot by 9-foot, 6-inch North River Sounder Fire boat. This fireboat was also based on North River's Sounder model design.

## THE CUSTOMER IS (ALMOST) ALWAYS RIGHT

A common theme to the stories of all three providers is that, notwithstanding the amount of innovation that each has brought to market; all have been able to adapt standard offerings to the unique requirements of their federal, international and/or municipal customers. Although the waterfront values cookie cutter, series-build economies, that's not always easy to do, especially for this sector. It's also why all three remain busy today – in multiple sectors.

Municipal customers want multi-missioned hulls that can transcend more than one mission set. Military buyers need next generation solutions to meet the next set of global threats. Both involve cramming as much equipment onto each hull as is possible, while still delivering a nimble and versatile platform. Those products are available now. All you need to do is ask.

# U.S. YARDS: COMPETING – AND WINNING –


***Louisiana-based Metal Shark powers into the second half of 2018 with a healthy backlog, multiple recent deliveries into foreign markets, and a portfolio of patrol craft that has attracted multiple clients – here and abroad.***

**By Joseph Keefe**

*(*) all images courtesy Metal Shark*

# HERE AND ACROSS THE BIG POND

At a time when more than a few workboat builders are feeling the pain of lingering offshore malaise and an oversupplied inland market that no longer needs large quantities of barges, Louisiana-based Metal Shark has found its groove in a suddenly active and highly competitive niche market. In fact, by the end of 2018, Metal Shark's military vessels will be either in service or in production for nearly 50 countries across Africa, Asia, the Caribbean, the Middle East, and Latin America. The last 18 months in particular, have been especially busy with Metal Shark delivering boats to over 12 countries.

## Exporting Quality in Volume

Key patrol boat contracts for this rapidly expanding builder include the U.S. Coast Guard Response Boat – Small (RB-S). Over 300 of these units are service since the award of the contract in 2012 and, says Metal Shark, new units are in production and shipping weekly. Separately, over 50 of the U.S. Navy Force Protection Boat – Medium (FPB-M) have already been delivered and are in service. That contract, too, is still active and boats are shipping regularly.

Looking ahead, Metal Shark was awarded a contract in October 2017 to produce up to 50 of the U.S. Navy's next-generation patrol boat, the PB-X. Production for this contract will commence later this year. Earlier, Metal Shark won yet another award; a contract to produce up to 13 Near Coastal Patrol Vessels (NCPVs) for US DOD FMS partners. These boats, intended for delivery to Costa Rica, Dominican Republic, El Salvador, Honduras, Guatemala, and other US FMS partner nations, will also see production kick off this year. Notably, the NCPV design is the first fruits of a multiyear partnership with global shipbuilder Damen. Based on the proven Damen 2606 Stan Patrol design, modified by Metal Shark to meet specific customer requirements, these hulls will be constructed at Metal Shark's Franklin, LA shipyard.

Beyond these largely domestic contracts, however, Metal shark has also managed to do what many U.S. yards have not: *sell in volume to foreign buyers.* Specifically, recent deliveries and contracts involve sales to Bangladesh, Bulgaria, Curacao, Colombia, Jordan, Kenya, and Vietnam, just to name a few. A four boat delivery to the Puerto Rico police department doesn't necessarily qualify as an 'export' but that contract undercores just how busy Metal Shark has been, all on the heels of the highly publicized multi-boat delivery of ferries to the New York City markets.

The Damen connection has also brought a new dimension to Metal Shark's portfolio. With a nod to Damen's highly successful and long running 'stock' hull program, Metal Shark has begun their own version of this program,

*"There are multiple facets to supporting our growth successfully. In terms of resources we have ample capacity at our 25-acre facility and the financial resources from profitable reinvestment to support the growth. We're currently producing around 200 vessels per year with capacity to spare. However, financial resources and facilities are a small part of the equation; people are the most important part. We've been working consistently to bolster our ranks, from the hands-on labor force to the highest levels of management, with a specific focus on middle management to further strengthen our engineering, planning, process management, and project management efforts. We've brought in a combination of seasoned shipbuilding professionals and integrated them into our young, intelligent, data-driven culture, while continually recruiting the brightest and most dynamic young talent. At the end of the day, people are always the best investment."*

**– Metal Shark CEO Chris Allard**

with the double intent of keeping personnel busy during slack periods (this won't be a problem, apparently, any time soon) as well as delivering hulls to customers much faster.

All that said; three recent contracts / deliveries stand out in particular.

### Patrol Boats for the Dutch Caribbean Coast Guard

In May, Metal Shark delivered four new high speed patrol boats to the Dutch Caribbean Coast Guard (DCCG). The new vessels are the first to be delivered to the DCCG under a 12-boat order announced last year, and all four have been commissioned on the island of Curacao.

Metal Shark Vice President of International Sales put this contract in perspective when he said, "This award is the result of a multi-year dialogue between Metal Shark, the Dutch Ministry of Defense, and DCCG end user operators in Aruba, Curacao, and St. Maarten. The DCCG selected Metal Shark due to our high quality construction, our ability to meet their operational requirements with our proven 38 Defiant design, and the flexibility of our in-house design team to modify the vessel to meet their mission set."

Designed in-house by Metal Shark and built at the company's Jeanerette, Louisiana production facility, the welded aluminum, enclosed-pilothouse, 38 Defiant monohull patrol boats are the result of a multi-year effort by the DCCG to procure a replacement for its fleet of open-cockpit RIBs. The new vessels, modified specifically for local requirements, will serve as the DCCG's main interceptors, patrolling the territorial waters of Aruba, Bonaire, Curacao, St. Eustatius, St. Maarten, and Saba.

Powered by twin Cummins Marine QSB6.7 diesel engines coupled with Konrad 680B counter-rotating dual-prop stern drives, the 38 Defiant reaches top speeds in excess of 45 knots. A fully-enclosed pilothouse shields the crew from the elements, while Metal Shark's signature "Pillarless Glass" pilothouse arrangement assures unimpeded visibility, day or night. Specially engineered composite armor panels provide ballistic crew protection from unfriendly fire. Shockwave Corbin shock-mitigating seating has been provided for a crew of six, and anti-fatigue floor covering has been employed in the pilothouse and the belowdecks crew spaces. For extended patrols at sea, accommodations include an enclosed head compartment, galley, and v-berth.

## Two Ways to Serve the U.S. Virgin Islands

Just prior to their 4-hull delivery to Curacao, Metal Shark in April also delivered two new custom welded aluminum vessels to the Virgin Islands Port Authority (VIPA). The vessels, designed by Metal Shark and built at the company's Jeanerette, Louisiana production facility, were delivered to St. Thomas and transferred to VIPA. Both vessels are now operating and serve the island of St. Thomas and also nearby St. John.

The new pilot boat is a 45-foot Defiant-class monohull pilothouse vessel with a military-proven hull design and a unique deck arrangement specifically designed for pilot operations. This vessel's climate-controlled pilothouse also features Metal Shark's signature "Pillarless Glass" for significantly improved visibility, in a reverse-raked arrangement developed by Metal Shark with input from numerous pilot groups. Visibility is further augmented by the vessel's elevated, centerline helm position. Large opening side and aft pilothouse windows and a wireless crew communication headset system facilitate crew coordination during pilot transfers, and large overhead skylights provide upward visibility while approaching and operating alongside moving ships.

Powered by twin Cummins Marine QSM11 diesel engines coupled with Hamilton HJ322 waterjets, the 45 Defiant Pilot demonstrates pinpoint maneuverability while delivering a cruise speed in excess of 30 knots and a top speed in the 40 knot range.

For its new port security patrol boat, VIPA selected Metal Shark's 32' Defiant, a proven patrol platform with over 100 units in military and law enforcement service worldwide. Funded in part by a FEMA Port Security Grant, the vessel has been outfitted with a positive-pressure Chemical, Biological, Radiological, Nuclear, and high-yield Explosive (CBRNE) crew protection system to assure safe and uninterrupted operation in a wide range of disaster response scenarios.

Powered by twin Evinrude E-TEC G2 300HP outboard engines, VIPA's 32 Defiant port security vessel cruises at 35 knots and achieves top speeds approaching 50 knots.

"Metal Shark has expanded into the pilot boat market by applying the same principles that made us so successful in the military patrol boat sector," explained Metal Shark's CEO Chris Allard. "We start with a proven hull design to deliver a boat that performs well and is built to last. Beyond that, we focus on offering genuine improvements by incorporating modern features into smarter and more user friendly arrangements that simply work better than what's out there. We continue to gain customers in new markets by delivering improved platforms that deliver tangible and sometimes unexpected benefits to operators."

## Metal Shark Deliveries to Vietnam Continue

Also in April, another six Metal Shark military patrol boats were delivered to the Vietnam Coast Guard. This newest round of vessels follows an initial six-vessel delivery of Metal Shark 45-foot Defiant-class patrol boats to the Vietnam Coast Guard in the province of Quang Nam in May of 2017.

Underscoring the increasingly cordial relationship between Washington and Hanoi, the new Metal Shark patrol boats were handed over during the inaugural visit of U.S. Coast Guard Vice Admiral Fred M. Midgette at a delivery ceremony on March 28th at the Vietnam Coast Guard's Region 4 station on Phu Quoc Island, the farthest southwestern territory of Vietnam. The boats were part of a 20 million dollar transfer of infrastructure and equipment by the U.S. to Vietnam.

## Competing and Winning in Overseas Markets

Metal Shark will tell you that there's no silver bullet for making it happen in the export markets, especially where it involves patrol boats and other military craft. It's about price, to be sure, but more importantly, it has more to do with quality, prompt, on time deliveries, and the ability to provide service after the sale.

It's simpler than that, actually. Metal Shark's CEO Chris Allard told ***MarineNews*** in May, "With our extensive portfolio of great-performing hull designs and the flexibility of our design team to meet customers' needs with innovative solutions, we continue to expand Metal Shark's global footprint." By-the-Numbers, that adds up to 50 countries, hundreds of boats delivered and an enviable backlog. Who says U.S. yards can't compete in the international arena? Today, Metal Shark is not only competing; they're also winning – here and across the Big Pond.

# Kongsberg, Robert Allan Drive the Future of Marine Fighting

*The first vessel in the series will be the 20 meter RALamander 2000, featuring FiFi1 capability, pumping capacity of 2400 m3/hour and with optional foam capabilities.*

**By Joseph Keefe**

Vancouver based naval architects and marine engineers Robert Allan Ltd., and international marine technology specialist Kongsberg Maritime are collaborating on the development of a radically new remotely-operated fireboat that will allow first responders to attack dangerous port fires more aggressively and safer than ever before. Like other autonomous efforts underway on the waterfront, this concept tackles and solves the so-called "3D's" – *dull, dirty and dangerous* – of workboat drudgery.

The concept began as Kongsberg and Robert Allan Ltd jointly responded to a number of inquiries for other type unmanned workboats requiring a communications solutions based on Kongsberg's Marine Broadband Radio (MBR) system. The fruit of those labors is the RALamander.

According to Vince den Hertog, RAL's Vice President of Engineering, the project that plays well to the respective strengths of both firms, given Kongsberg's strong background in offshore DP, sensing and communications and Robert Allan Ltd's track record with designing fireboats for service all over the world. Den Hertog explains, "Philosophically, we are also on the same page as far as setting realistic expectations for our clients and ourselves. We see autonomy being an incremental process and are both focused on practical solutions using best available technology, not autonomy for its own sake within a more futuristic vision."

## The Future of Marine Firefighting Unveiled

The un-crewed RALamander fireboat will offer in-close firefighting and 'eye in the fire' capability that keeps marine firefighting professionals out of harm's way. Fires involving containers, petrochemicals, shore-side structures or vessels can be attacked more quickly in situations where toxic smoke or explosion risk may delay or even prevent


*(*) Images / Renderings: Kongsberg and RAL*

manned assets from responding effectively. RALamander can serve as a force multiplier with conventional firefighting assets, or be deployed on its own.

Ultimately, the goal is to have one remote control system for both the vessel and the firefighting equipment. Together with dynamic positioning, one person should be able to control the complete vessel/operation. And, says den Hertog, in the future, one person should be able to control multiple RALamanders.

The Kongsberg Maritime control & communications system will feature a robust high-bandwidth, low latency wireless link to a semi-portable RALamander operator console that can be located on a manned fireboat, or other vessel of opportunity such as a tug or pilot boat. In common with other KONGSBERG autonomous control systems, the versatile architecture of RALamander's control system will leave the door open to a range of autonomy levels, which are configurable or future-upgradable to suit the operator or port's evolving needs.

The MBR, which is the primary communication link, has a range beyond line-of-sight. Combined with a land based internet link, the theoretical distance is unlimited. Sondre Larsson, Kongsberg's Sales Manager / Autonomy, explains, "We see it natural to start with a line-of-sight operation. When the functionality for more autonomous operation is installed, the operator/supervisor can be located anywhere. The experience from the first, purely remote controlled, RALamander will decide the path towards fully autonomous firefighting."

## RALamander 2000

With a total pumping capacity of 2400 m3/hour, the vessel's retractable mast can bring one of the three monitors to a high point of attack for shipboard or dock fires and it also can lower the air draft profile. Still, some fires need to be fought in littoral / estuary situations. Hence, the navigational draft is just 3 meters. Den Hertog told ***MarineNews***, "The propellers will be protected from impact with the bottom by the nozzles, and while there is no guarantee than choking by debris can't happen, our experience with shallow draft tugs with similar arrangements operating in debris-laden rivers is that the arrangement is simple and reliable for this application." Moreover, waterjet propulsion is also an option, if a client prefers it.

The onboard powering system is diesel electric with batteries. Propulsion is by twin propellers in nozzles with separate bow and stern thrusters, all electrically driven. The two diesel gensets will be typically be IMO III compliant but this may depend on where RALamander will operate.

A range of auto functions is planned for firefighting, including dynamic positioning, water spray target holding, and 'line protection' where RALamander automatically moves back and forth along a line while directing protective spray cover on shore structures or vessels threatened by a fire. A low-profile design also makes it possible to attack under-wharf and marina fires remotely. If a burning vessel poses a threat to its surroundings, RALamander can be used to tow it a safe distance by means of its Grapnel Emergency Towing (GET) system.


*"Philosophically, we are also on the same page as far as setting realistic expectations for our clients and ourselves. We see autonomy being an incremental process and are both focused on practical solutions using best available technology, not autonomy for its own sake within a more futuristic vision."*

**– Vince den Hertog, Vice President, Engineering, RAL**

*"We see it natural to start with a line-of-sight operation. When the functionality for more autonomous operation is installed, the operator/supervisor can be located anywhere. The experience from the first, purely remote controlled, RALamander will decide the path towards fully autonomous firefighting."*

**– Sondre Larsson, Kongsberg's Sales Manager / Autonomy**

## Designing to a New Standard

Since RALamander can be operated from a safe stand-off distance during an incident, commercial entities such as tug or pilot boat operators may be in a better position to offer fire protection services to a port since personnel are less exposed to risks. That's because, without crew-related accommodations, domestic systems or safety equipment, to worry about, there is more flexibility to optimize the overall hull dimensions to suit the speed and fuel requirements and place mission-related equipment like fire monitors, crane manipulators where it can be most effective. The retractable mast monitor on RALamander is a perfect example. Because there is no deckhouse or wheelhouse in the way, the placement and installation of this device is straightforward.

Allowing first responders to attack dangerous port fires more aggressively and safely is the most obvious benefit of this new vessel design. With that in mind, *MarineNews* asked if the new vessel would also need to be built more robustly in terms of being able to withstand tougher, hotter, more perilous situations.

"Not the physical vessel," insists RAL's den Hertog. He continued, "It is typically human safety considerations like heat and smoke that limit the operation of conventional, manned fireboats when fighting fires, not the physical robustness of the boat itself. In other words, the boat itself can typically take a bit more than the people on it. Windows are always a potential weak spot on manned fireboat especially with an explosion risk, but these are eliminated on RALamander right off the bat. For protection against heat, RALamander will be protected by water spray much the same as a conventional fireboat. That said, sensors, communications antennas and cameras will need to be suitably rated and/or housed, but this is straightforward engineering."

Of course, careful thought needs to go into the installation of communications and sensing equipment, cameras, lighting and so forth. Onboard machinery also has to be reliable enough for unmanned operations, but is worth noting that many large complex tugs already operate today with no engineer on board. And says Kongsberg's Larson, "In any case, with RALamander, shoreside maintenance will be possible between sorties. RALamander will not be operating 24/7."

## Built-In Affordability

With maximum flexibility built into the design from the start, the RALamander series will offer all the advantages

of remotely-operated fire response in a customizable system to suit a port's needs for capability and cost. But, can today's domestic cash-strapped municipalities afford such a tool? RAL and Kongsberg say that they can.

Like any new design concept, there are trade-offs and cost differentials. When considering a standard (manned) fireboat and this version, the end-user might pay a premium for the control system, but also achieve savings in other areas. RAL's den Hertog agrees. "Yes, that is exactly the situation. There are capital cost savings from dispensing with the deckhouse, wheelhouse, domestic systems or life-saving equipment, but there are offset by a premium for electronics, communications, sensing and operator console equipment to operate remotely. In the end, the cost difference will not be prohibitive since the capital cost of the vessel remains driven mainly by hull structure and major equipment/machinery. In any case, it's difficult to make apples-to-apples comparison between RALamander and a manned fireboat because they don't necessarily serve is the same roles."

For example, and in port service, manned fireboats are often tasked not only with firefighting, but also with rescue and medical service which RALamander cannot provide. On the other hand, RALamander is able to fight fires that are too dangerous for a manned fireboat, or respond in CBRNE (Chemical, Biological, Radiological, Nuclear, Explosive) events if a fireboat is not equipped for it. While some fireboats in major US cities like New York, Long Beach California and Seattle are CBRNE-equipped, the cost & complexity of the special equipment and arrangements required such as air locks, military-grade air filtration and citadel pressurization systems, and redundant detection are considerable. "RALamander needs none of these things and can respond immediately in a CBRNE event, even sacrificially if necessary," explains Kongsberg's Larsson, adding quickly, "So, we see don't see RALamander necessarily replacing manned fireboats in a port setting, but working with them as a force multiplier. Offshore firefighting is another excellent application for RALamander."

## A Look Ahead: what's next?

Over time, Vancouver-based Robert Allan Ltd. (RAL) has emerged as a leader in developing high-performance response vessels of many types, but particularly fireboats for many of the world's major ports. For its part, Norway-based Kongsberg Maritime is a global marine technology company providing solutions for all marine industry sectors. The firm's products and systems include all aspects of marine automation, safety, maneuvering, navigation, and dynamic positioning, communication and camera systems, among many others. Together, the two firms constitute a robust and proven team, fully capable of this kind of high-tech endeavor.

According to both RAL and Kongsberg, the concept has certainly generated interest and the partners report having "some irons in the fire with regard to the first customer." With well over one thousand of their tugs and other workboat designs built to date, Robert Allan Ltd has established long-standing close working relationships with shipyards around the world. And, says Vince den Hertog, "A first vessel built on speculation is a distinct possibility."


(*) all images courtesy FLIR / Raymarine

# On Patrol
## with Cutting Edge Technology

*Combat, Patrol and First Responder craft of all types are increasingly need state-of-the-art equipment to get the job done. That's where FLIR and Raymarine come in.*

By Joseph Keefe

Raymarine products are known around the world for their rugged reliability and tactical advantage. From best-in-class sensors to integrated navigation displays, Raymarine systems enhance multi-agency interoperability for military, law enforcement and first responders. As a trusted supplier to myriad coastal and response vessels, Raymarine offers a comprehensive suite of professional tools. That mission is about to get bigger still.

In April of 2017, FLIR was awarded a $50 million contract from the U.S. Coast Guard for integrated navigation electronics under the U.S. Coast Guard's Scalable Integrated Navigation Systems 2 (SINS-2) program. As part of the contract, FLIR will provide electronics systems that will be a standard fit on over 2,000 U.S. Coast Guard vessels, ranging from small-class boats through large cutter-class vessels. The massive deal underscores the close collaboration between FLIR and its DHS customer, as well as the trust that the Coast Guard has in FLIR's hardware.

According to Joseph B. Abeyta, FLIR's Director of Business Development for First Responder Programs, the Coast Guard is still in the prototype phase. Abeyta, a retired U.S. Coast Guard LCDR, told ***MarineNews***, "They have 51 vessel classes they have customized their systems to. The Coast Guard's strict prototype policy and process requires a 6-month prototype phase. They have currently completed prototyping on 6 classes with 2 classes being added monthly. Once a vessel class completes prototyping, the equipment lists are refined and full-scale production begins."


"Scalability is the key to the system. Whether it is a single eS 7 which is a small 7" display with just a transducer or a 5-display system on the National Security cutter, all of the components are interchangeable," James McGowan, Marketing Manager, Americas told MarineNews, adding, "This allows them to maintain a smaller inventory and maximize commonality across the fleet."

The contract involves a 5-year IDIQ contract with a 5-year renewal option. The Coast Guard hopes to have all vessels completed within the next four years. Additionally, as new vessel contracts are awarded OEM's will begin installing and ordering Coast Guard designated systems as well.

## Long Trusted, Easily Integrated

As impressive as the current contract may look, this isn't this firm's first rodeo with the nation's fifth uniformed military service. One of the first contracts with the Coast Guard was for the Safeboats Over-the-Horizon (OTH) platform. SAFE Boats OTH platforms were fitted with a Furuno system along with a FLIR M618CS thermal camera. Abeyta expects that, over time, these boats will be upgraded to the new Raymarine system for consistency across the fleet. That's because interoperability with existing FLIR camera assets was a very important consideration when this new system was chosen. Abeyta explained, "Raymarine was the very first electronics manufacturer to integrate fully with FLIR thermal cameras, and support advanced capabilities including target tracking. Post-upgrade, these OTH vessels will have an even higher level of system integration and performance than they have now with their Furuno systems."

In fact, much of the Coast Guard's legacy equipment from other OEM's won't integrate, in part due to its collective age. FLIR camera systems, on the other hand, will integrate seamlessly. James McGowan says that this is one of the real strengths of his firm's offerings.

"FLIR Maritime thermal camera systems work with all the major manufacturers of small-boat multifunction displays including Raymarine, Furuno, Garmin, and Simrad," explained McGowan, adding quickly, "Even for large-ship applications, FLIR products use industry-standard interface protocols and signal formats making them widely compatible with many other types of shipboard and shoreside display systems and network infrastructure, too."

## Encrypted, Protected and Next Generation Technology

Beyond the need for robust hulls and competent sailors to bring them out to sea, operators first need the ability to transmit data securely. To that end, and leveraging the same VHF frequency band as AIS, Raymarine's LightHouse OS is the first Commercially-Developed, Military-Qualified navigation system to send and receive data via encrypted SBU Type-III Tactical Data Exchange System (STEDS.) Designed specifically for the needs of the United States Coast Guard and first responders, SBU Type-III encryption-ready LightHouse software also supports secure text communication between agencies, enabling crews to send and receive short messages with tasking and status reports.

Abeyta describes the system like this: "Our LightHouse operating system for the Coast Guard is certified to Sensitive But Unclassified (SBU) Type III encryption requirements. This allows the 'good guys' to share information without fear of that data falling into the wrong hands."

The encrypted MFD and the network it participates on also ensures the accuracy and completeness of messages, tasking orders, and other missions. McGowan adds, "Consider a SAR pattern, which in the past would need to be manually plotted on a chart or entered into an electronic system. Not only was it time-consuming, but also the potential for data entry errors was very high. Our integrated, secure system allows a SAR pattern to arrive digitally without the need to manually copy it down or plot it out. It is essentially ready-to-use when it's 'beamed' aboard."

## SAR Patterns, Automatic Generation & Display

Raymarine MFDs can generate electronic navigation-compatible search patterns that comply with the requirements of the International Maritime Search and Rescue Manual (IMSAR). These pre-programmed SAR (search and rescue) patterns aid rescue agencies by ensuring search accuracy and increasing the probability of detection.

When interfaced to a compatible eAIS transceiver, encrypted Raymarine multifunction navigation systems can display Blue Force AIS symbology, along with conventional AIS targets. Mariners see the optimal course for intercepting any AIS or Radar (MARPA/ARPA) target of interest with easy-to-understand graphics that automatically update as conditions change or targets attempt evasive maneuvers.

## Municipal Customers and First Responders

Raymarine boasts that it has changed the landscape for the first responder. The proof behind that statement can be found in Raymarine's first responder interface kits that are sold over the counter and off the shelf with no price increase. Today, the first responder is getting Search and Rescue patterns and Target Intercept plotting with the COTS version offered by Raymarine. These are features unique to Raymarine. Currently, though, outside agencies are limited to just Search and Rescue patterns and target intercept. Eventually, and once the Coast Guard locks down the encrypted software features, other agencies will be able to order the systems with the Coast Guard specific software. Notably, that will add features such as encrypted vessel-to-vessel text messaging, encrypted vessel-to-vessel target intercept sharing and the ability to receive and send search patterns to and from command centers to the first responder's tool kit.

As more of these components become available on the open market to state and local agencies, FLIR and Raymarine will help to strengthen the interoperability of all first responders as they also satisfy the needs of their primary customer, the U.S. Coast Guard.

## Safety: a Partnership with Customers

At its lowest common denominator, this type of equipment all comes down to safety. McGowan insists, "Our LightHouse operating system was designed with safety and situational awareness in mind. For example, the electronic charting system is customized to the class of vessel it is installed on. The system knows the navigational draft, air draft and beam of the ship or boat and uses the data embedded in the navigation chart to alert the crew in advance to potential hazards. This can be especially critical in a high-speed rescue, intercept or pursuit-type operation. An alert, warning or cue from the system can help to prevent grounding or collision."

Joseph B. Abeyta agrees. "Total system integration is really where we shine. Of course, the Raymarine and FLIR components work together seamlessly, but that it to be expected. The extra work we've put in to deliver the secure communications, SAR patterns, intercepts, and more really put us out in front." In the end, Raymarine and FLIR didn't arrive at this juncture alone.

McGowan sums it up nicely, saying, "We knew going into this that we would need to listen to the specific needs of our customers, and deliver a solution that was powerful, reliable and simple to use. It's not just delivering on a contract. There is also a very strong sense of partnership we've developed with our first responder customers that helps us to deliver the tools they want and need to accomplish their missions." Knowing that, I feel safer already.

## Gladding-Hearn Building Second High-Speed Ferry for RI Operator


Gladding-Hearn Shipbuilding, Duclos Corporation, has begun construction of a second high-speed passenger ferry for Rhode Island Fast Ferry. Delivery is scheduled for 2019. Ava Pearl, the operator's first high-speed catamaran built by the Somerset, Mass., shipyard in 2012, provides passenger service to the island of Martha's Vineyard off of Cape Cod. Entrance into the boat is through the port and starboard side doors. With more than twice the passenger capacity of the Ava Pearl, the new ferry's seating arrangement reflects a blend of both interior and exterior comfort during the summer season.

The superstructure sits on resilient mounts to reduce the transmission of noise and vibrations. The vessel utilizes Incat Crowther's 'S bow' hulls which have demonstrated improved passenger comfort in the sea conditions typically encountered in the region.

## Lake Assault Boats 22-Foot Rigid Hull Inflatable Boat

Lake Assault Boats is now showcasing a new vessel. The company's first ever rigid hull inflatable boat (RHIB), features a modified V-hull design and a large protective collar that is ideal for fast shallow water response will be on display, as will a 28-foot fire boat powered by twin 250 hp outboard engines.

The 22-foot Lake Assault RHIB craft is engineered for fast and nimble fire and rescue response. The lightweight boat features a shallow draft, and is able to operate in as little as 12 to 14 inches of water. It is an ideal fit for departments responding to a wide range of water conditions including flooding. A patrol boat variant of the RHIB design was recently purchased by a county emergency response agency in northern Wisconsin. The Lake Assault RHIB is rated for up to 225 hp and is capable of speeds in excess of 45 mph. It features a large open deck, a T-top helm station, and a centrally-located operator's position for excellent visibility.

The heavy-duty buoyancy tube is available in three configurations: air filled, high density foam, or a hybrid air bladder with a foam exterior. The first unit is equipped with a Darley 375-gpm pump powered by a compact Honda engine.

## Moose Boats Awarded Contract for Memphis, TN


Moose Boats has been awarded a contract from The City Of Memphis Fire and Police Departments for the construction of a M2-38 Fire Rescue and Patrol Catamaran. Twin Cummins engines at 425hp each with Hamilton water jets will power the multi-missioned boat. Memphis Fire and Police's new boat will be equipped with a single Hale fire pump flowing close to 2,000 gallons per minute of water through Task Force Tips fire monitors and valves. The M2 will be equipped with a host of Simrad electronics including multifunction navigation screen, 4G radar, and AIS, and a FLIR thermal imaging camera to help with the wide range of response scenarios Memphis Fire and Police will encounter on the Mississippi River and inland ports. The M2-38 catamaran's large walk-around climate controlled cabin will be outfitted for patrols, search and rescue and incident command. The deck will be outfitted for deploying life rafts and water rescue teams, law enforcement personnel and a large volume discharge for fire suppression water supply to land based apparatus.


Pyne



Vigor
Blount McCreary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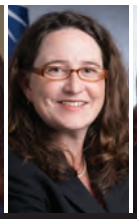
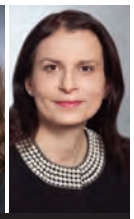


Women's International Shipping & Trading Association
Harrison Anagnostis-Irons Keeler Sherman Farrar

## Kirby's Chairman Pyne to Retire

Kirby Corporation announced that **Joseph H. Pyne** has retired. Pyne will continue to serve as Chairman of the Board in a nonexecutive role. Pyne began his career with Kirby in 1978, and in that time has held numerous executive positions including Chairman of the Board since April 2014. He has served the Company as a Director since 1988. He also served in various operating and administrative capacities with Kirby Inland Marine from 1978 to 1984.

## Two Industry Leaders Join Vigor

Vigor has welcomed maritime industry veterans **Bill Blount** and **Richard McCreary** to its team. Together they bring more than 65 years' experience to Vigor. McCreary has a long history in shipbuilding and ship repair. A graduate of the University of Michigan in Naval Architecture/Marine Engineering, he was EVP for VT Halter in Mississippi for five years, CEO of Marinette Marine from 2005 to 2011, and recently finished a six year tour with BAE Systems. At Vigor, McCreary will serve as VP of Business Development. Blount's 26 years of experience include serving as the Commercial Manager and later CEO of Donald L. Blount and Associates. After negotiating the sale of DLBA to Gibbs and Cox, he served there as Vice President for the past two years. Blount joins Vigor as Manager of International Business Development.

## Crowley Names Sullivan as VP

Crowley Maritime announced that **David Sullivan** has joined the company as vice president, business development and capture management, government services. Sullivan comes to Crowley from Northrop Grumman, where he was tasked with helping the company gain government program contracts. He began his career in 1990, serving as the personal aide to U.S. Sen. John Rockefeller IV. He has a bachelor's degree in political science and international affairs from Randolph-Macon College, and a master's degree in political management from George Washington University.

## Foss Executive Honored by Coast Guard

The U.S. Coast Guard has awarded **Grant Johnson**, Foss Maritime's HSQE Vice President, with a Meritorious Public Service Award in recognition of his achievements as a member and Vice Chair of NOSAC. The award is the Coast Guard's second highest service award. Johnson graduated from the U.S. Merchant Marine Academy and holds an MBA from Rice University. He served 20 years in the US Navy Reserve achieving the Rank of Commander, and worked in the oil and gas industry for 16 years before joining Foss.

## WISTA USA Appoints Harrison as President

The US Chapter of WISTA, the Women's International Shipping & Trading Association, appointed **Parker Harrison**, Vice President Procurement of Crowley Maritime Corporation, as President at WISTA USA's Annual General Meeting. Harrison has been a member of WISTA USA since 2004 and has served as WISTA USA membership secretary since 2008. She takes over the presidency from **Alexandra Anagnostis-Irons** of Total Marine Solutions. Other WISTA USA Board members include Ms. Anagnostis-Irons, **Frances Keeler** of Clyde & Co., **Laura Sherman** of International Registries, **Boriana Farrar** of Shipowners Claims Bureau, Inc., **Kathy Haines** of Heidmar, and **Kathy Plemer** of Chaffe McCall, LLP. **Marlene Boyer** of Chembulk Tankers was also elected to the Board.

## Glosten Names Fanberg President

Glosten has announced the appointment of **Morgan Fanberg**, PE as President. Morgan will serve as Glosten's sixth President since its founding in 1958. Morgan has led Glosten's Marine Engineering Group since 2009. He succeeds Glosten's fifth president, **John Springer III**, PE. Under John's leadership, the firm supported pivotal projects across the industry, including the functional engineering and production design of the innovative Savage ammonia barge Harvest for Vigor.

## HII Announces New VP of Contracts & Pricing

Huntington Ingalls Industries' announced that **Eric Crooker** has been promoted to vice president of contracts and pricing at HII's Shipbuilding division. He succeeds Don Perkins, who will retire from Ingalls on July 1. Crooker joined HII in 2012 and served as a senior counsel at In-


Glosten

Fanberg Springer


Crooker


Glück


Marine Jet Power

Natoce Tilton Gibson


Rickey

galls. He received a Bachelor of Science degree in economics and a Juris Doctor from Tulane University.

## Torqeedo Appoints Glück as VP Marketing

Torqeedo announced the appointment of **Oliver Glück** as its vice president marketing. He will oversee all marketing and communication strategies for Torqeedo. Prior to joining Torqeedo, Glück was head of marketing communication and brand strategy for Hyundai Motor Europe. He holds a degree in marketing from Ludwig-Maximilians-University in Munich, is well-connected in the boating scene and is an experienced regatta sailor.

## MJP Grows its Business Development Team

Marine Jet Power recently announced additions to its management team. **Douglas Natoce** was appointed President of MJP and Regional Director Americas for the MJP Group. Doug has 36 years' experience in watercraft business related to law enforcement and Department of Defense, and over 9 years as Regional and International Sales Manager for Boston Whaler/ Brunswick. Separately, MJP also announced that **Jordan Tilton** rejoined the sales team as Program Manager for key accounts and aftermarket business development in the Americas. Jordan began his career on the Great Lakes captaining high speed ferries and also worked as a captain onboard yachts and commercial vessels in the Gulf Coast and Caribbean before joining


Cannizzaro Larrabee Winfree

Fukunaga

Mitropoulos


Bell Blake Bronstien Finn

US Customs and Border Protection Office of Air and Marine as a Vessel Commander and Marine Interdiction Agent. He holds a Bachelor's Degree from Ohio State University and maintains a 200 Ton Near Coastal Masters license. Additionally, MJP has appointed **Philip Gibson** as Director of Sales for North, South and Central America. Previously serving as a Regional Sales Manager for Brunswick Commercial & Government Products, Philip has over 30 years military maritime experience. He retired from the U.S. Navy in 2005 with the rank of Master Chief Petty Officer, where he served as a U.S. Navy SEAL and advisor to the international military and police forces for riverine and counter-drug operations. He holds a Bachelor's degree in Spanish and an Associate of Arts degree in Technology Instruction.

## Honda Marine Adds to Management Team

**Mike Rickey** has been named Senior Manager, Honda Marine, overseeing total Sales, Operations and Application Engineering activities for the U.S. region. Previously he was National Sales Manager for Honda Marine during 2005-2009 where he expanded the Honda Marine dealer network and strengthened the division's sales support.

## CII Welcomes New Board Members

The Containerization and Intermodal Institute (CII) announced three new appointments to its Board of Directors. **Robert Cannizzaro**, VP, Marine and Terminal Operations for North America, Hamburg Sud, **Admiral Richard Larrabee**, USCG (ret.), former Port Director for the Port Authority of NY/NJ, and **Susan Winfree**, VP, Workforce Development and Corporate Diversity Officer, New York Shipping Association, (NYSA) all have joined the CII Board. Nearing its 60th anniversary, CII is a non-profit organization with an industry-education mission. Cannizzaro has more than 23 years of experience in containership operations and intermodal logistics. He is a graduate of SUNY Maritime College. Larrabee is the retired Director of the Port Commerce Department of The Port Authority of NY/NJ. Prior to that, he rose to the rank of Rear Admiral in the U.S. Coast Guard. Winfree has more than 23 years in marine and terminal operations. A graduate of the U. S. Merchant Marine Academy, she has a diverse background, including leadership positions at Trans Freight Lines, Sea-Land Service, the Port of Baltimore as well as Port of NY/NJ.

## Matson Board Welcomes Mark Fukunaga

The Board of Directors of Matson announced that shareholders elected **Mark H. Fukunaga**, Chairman and CEO of Servco Pacific, a new member of the Matson board at the Company's annual meeting of shareholders. Concurrently, **Jeffrey N. Watanabe**, the board's Lead Independent Director, retired from the board in accordance with Matson's mandatory retirement age policy.

## APC Adds Mitropoulos to Sales Team

**Georgios Mitropoulos** has been named Sales Representative for the MarineLine cargo tank coating system from Advanced Polymer Coatings. Mitropoulos was a Deck Officer from 1988 to 1992 and then became a coatings inspector and marine coatings sales representative for ENPLO LTD. He graduated from the Merchant Marine Academy in Aspropyrgos, Greece. He has a Coatings Inspector Certificate under the requirements of MSC 215 (82), MSC 244 (83), and MSC 288(87), as well as IACS UI SC 223. He also holds a Captain's diploma.

## MyTaskit Announces Advisory Board

MyTaskit has announced its newly-formed advisory board. This group will provide strategic guidance to the company's C-suite managers. **George Bell**, **Frank Blake, Jr.**, **Jim Bronstien** and **Sandi Finn** will serve on the board. A 30-year veteran of consumer businesses, Bell has served in various capacities, including as managing director and executive in residence at VC and private equity firm General Catalyst Partners. Blake is a general manager for The Home Depot. Bronstien has spent 32 years as a marine business owner and executive. His experience includes large scale yacht refit yards, including Rybovich, where


he presided for 20 years as owner. Finn has served in various executive leadership positions at Cendant Corporation, Haddon Holidays, and E.F. Hutton & Company.

## Lee Sworn in as Los Angeles Harbor commission President

**Jaime L. Lee**, the newest Los Angeles Harbor Commissioner, has been elected president of the Los Angeles Harbor Commission. Ambassador Vilma Martinez served as President of the Los Angeles Harbor Commission for five years before stepping down earlier this month. Lee holds a bachelor's degree in English from the University of Southern California and a law degree from USC's Gould School of Law.

## MLA Elects Nolan as President

Vedder Price attorney **Francis X. Nolan, III** has been elected President of The Maritime Law Association of the United States (MLA). Nolan has served on the Board of Directors and earlier as Vice President and Chair of the Marine Financing Committee. Nolan has represented clients in financing transactions for vessels under U.S. flag and numerous foreign flags, bareboat charter registries and under restricted flags, such as the U.S. Jones Act trades.

## NOIA Names Gellert Chairman, Clark Vice Chair

The National Ocean Industries Association (NOIA) has elected **John Gellert** as Chairman and **Richard Clark** as Vice Chairman for the upcoming 2018-2019 term. NOIA President **Randall Luthi** said, "John and Richard come into their roles at a time when the offshore industry is starting a new chapter. While the offshore recovery has been frustratingly slow, commodity prices are slowly climbing upwards, breakeven prices are steadily dropping and the Trump administration has been aggressive in unlocking America's energy potential." Gellert is the Chief Executive Officer of SEACOR Marine Holdings. Richard Clark is founder and President of Deep Gulf Energy.

## Canaveral Port Authority Appoints CFO

Canaveral Port Authority has named **Michael B. Poole** as Chief Financial Officer for Port Canaveral. Poole brings 30 years experience in maritime transportation, municipal finance, public accounting, and financial and operating auditing. Prior to joining Port Canaveral, he spent more than a decade as Chief Financial Officer at JAXPORT, and was previously Deputy Port Director at the Port of Pensacola. Poole is a Certified Public Accountant and holds a BA in Accounting from the University of West Florida.

## JAXPORT Names Interim CFO

JAXPORT has named **Beth McCague** as Interim Chief Financial Office. McCague, who has been serving as an advisor to JAXPORT's CEO, will oversee JAXPORT's $600 million capital program and will be JAXPORT's primary liaison with bondholders, lenders and credit rating agencies. Prior to joining JAXPORT, McCague managed the $1.6 billion Jacksonville Police & Fire Pension Fund through a transition in leadership.

## The Future of Class, Safety Discussed at ABS AGM

ABS held its 156th annual meeting in April, bringing together ABS members representing industry, government and academia. The meeting provides an opportunity to hear from ABS leadership on the performance and future focus of the organization. "Despite a year of continued market pressures and widespread change in everything from global economics, industry fundamentals, technology advancements and regulatory expectations, we held our own and delivered solid performance in 2017," said ABS Chairman, President and CEO **Christopher J. Wiernicki**. ABS reported the safest year in ABS history with zero work-related lost-time injuries recorded. ABS Members also heard from **Jamie Smith**, SVP of Global Marine and Chief Business Development Officer, and **Howard Fireman**, Chief Digital Officer, on advancements in the organization's digital journey.

## Klüber Lubrication's EAL Grease for ATB Couplings

Klüber Lubrication has introduced an environmentally acceptable lubricant (EAL) grease for articulated tug and barge (ATB) couplings. Klüberbio AM 12-501 is designed specifically for the large plain bearings, rams and connectors used in ATB coupling systems. It is based on fully synthetic ester oils for high performance and biodegradability, aluminum complex thickener for adhesion and resistance to water and select additives to reduce wear.

www.klueber.com/us/en/

## SubM Deadlines Loom, Fire Damper Delivers

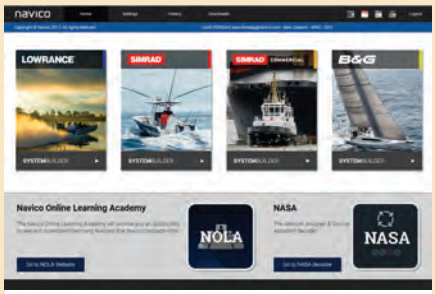
On July 20, towboats must comply with Part 142 of Subchapter M, Fire Protection, calling for yearly inspection and testing of fixed fire-extinguishing system pressure-operated dampers. The U.S.-made Delta "T" Systems' Slimline A-60 Rated Marine Fire Damper provides failsafe operation in the industry's shallowest housing (4.25" deep). The Damper is USCG approved for use in penetrating Class A-0, A-15, A-30 and A-60 bulkheads and decks.

www.deltatsystems.com

## OSIL Oil Spill Monitoring Buoys

Ocean Scientific International's Oil Spill Monitoring buoys systems are designed to integrate real time non-contact hydrocarbon sensors in the high visibility top frame design, equipped with a pulsed UV LED beam and optical photo-detector with on-board software to immediately detect variety of hydrocarbon based substances on the water autonomously and alert users to any changes to protect vulnerable areas, even under harsh weather conditions.

www.osil.com




## Navico Announces Web-Based System Builder Cloud

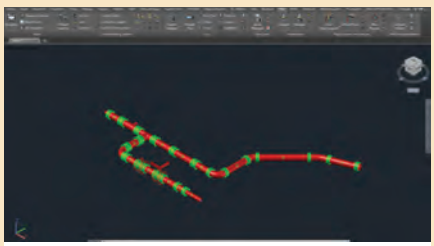
Navico's web-based version of its System Builder software – System Builder Cloud, like the original version of System Builder, is a software tool that allows sales personnel to quickly produce a quote for a Navico system that includes all the necessary components, in addition to SKUs, pricing and system diagram. System Builder is available to all authorized resellers who have access to the Navico Online Pricebook.

www.lowrance.com

## Centek Gen-Kleen Genset Pollution Control Systems

A Gen-Kleen system from marine exhaust systems manufacturer Centek Marine integrates with a generator wet exhaust system to remove hydrocarbon pollution (sheen, soot, unspent gasoline and diesel fuel) from the exhaust water before it is discharged. With over 100 systems installed worldwide, Gen-Kleen is trusted by owners, captains and engineers and is a proven genset exhaust solution.

www.centekindustries.com

## Victaulic Catalog Now Available for ShipConstructor

Victaulic's catalog is now available for use within SSI's Autodesk based ShipConstructor Pipe modeling product. On the Victaulic website, you can download native Victaulic content for M.E.P. CAD. Metric and imperial versions are available. Within ShipConstructor, engineering and production of piping systems become more efficient and users can quickly and accurately calculate on weight and space savings using Victaulic couplings instead of traditional flanging.

www.SSI-Corporate.com / www.victaulic.com


### EM&I's NoMan Remote Cameras Cut Inspection Costs

EM&I's unique 'NoMan' remote camera technology was used for tank inspections on an FPSO in the North Sea. Just two men in two days completed the work of a five man rope access inspection team, without entering the cargo oil tanks. NoMan meets the class and regulatory requirements providing General and Close Visual inspections, with an additional laser options for Structural Distortion Surveys and pitting measurements.

www.emialliance.com

### PIMA Valve's Multi-Turn Bronze Valves

PIMA Valve's wide range of American-Made multi-turn bronze products provides quick turnaround for specific customized orders. With over 1600 active patterns that are used in the daily manufacturing of raw castings for valves and even more in inventory, PIMA has a unique position in the industry to be responsive to our customer needs. PIMA's patternmaking capabilities and extensive inventory can satisfy your valve requirements.

www.pimavalve.com

### TOTE Maritime Launches Mobile Application

TOTE Maritime's mobile application offers a single platform for customers to access real time shipment data. The TOTE Portal mobile application allows TOTE Maritime customers to access their shipment information from anywhere using any device. This new tool is part of TOTE's eSolutions platform - an ongoing effort to provide online applications that are useful and relevant to TOTE's diverse customer base.

www.totemaritime.com

### Uniden's VHF Marine Radio with Private Text Messaging

The Uniden Marine 6 watt, Class D, floating, handheld VHF with Bluetooth marine radio features advanced features and solid performance for enhanced peace of mind on the water. Operators will be able to use a smartphone to text message other VHF radios and to update radio firmware. Leveraging the VHF band, the private text messaging capability of the MHS335BT functions even with no cellular coverage.

www.uniden.com/marine

### Safely Inspect Vessel Tanks & Holds with Video

The Tank & Hold Inspection System is designed to perform a safe visual inspection of the interior of a large tank or hold in a vessel for hygienic conditions, foreign objects, cracks and corrosion. This uniquely configured video pole camera system allows all areas of the tanker interior to be visually assessed for problems without a confined space entry.

www.zistos.com/index.php/products/industrial

### Thordon to Refit Towboat with RiverTough Bearings

Alexis Marine awarded a contract to Thordon Bearings for the retrofitting of 6" diameter RiverTough bearings to MV Kristin Alexis, the 60-foot twin-screw towboat. Both the vessel's shafts will be withdrawn and original rubber bearings will be replaced with Thordon's RiverTough tailshaft bearings. The polymer bearing manufacturer will also supply hard-wearing NiCrB sleeves to reduce the impact of operations in abrasive waters on the shafts.

https://thordonbearings.com

## VESSELS FOR SALE / BARGES FOR RENT



### OPERATIONS TECHNICIAN

**Full Time, Mid Career**
**Category: Laborer**
**Job Location:** 55 Shalland St Milford, CT, 06461 United States
*Contact:*
Administrative Manager
Email:kimberly.aldridge@dynegy.com
55 Shalland St Milford, CT, 06461 United States

*Job Requirements:*

- High School diploma, GED, trade school, military service (Navy, Coast Guard. Merchant Marine plant engineering watch standing), technical training school graduate or college graduate with a BS in Engineering (Mechanical, Electrical, Marine, Facilities)
- Gas turbine with heat recovery combined cycle power plant experience preferred.
- Must possess a valid driver's license with an acceptable driving record.
- Must have basic computer skills and have functional ability in the use of Microsoft Outlook, Word and Excel.

Knowledge & Experience

- Minimum of six years of experience as an Operations and Maintenance Technician in a power plant or equivalent technical based position in a marine, cogeneration, or utility/merchant type electricity generating plant; gas turbine based preferred.
- Knowledge of and ability to understand fundamental principles related to physics, mathematics, AC & DC electrical theory, heat transfer and fluid flow, thermal dynamics and chemistry.
- Knowledge of power plant safety, policies and procedures, especially in area such as chemical handling, high-energy systems, lockout tag-out, confined spaces, incipient fire suppression, first aid, rotating machinery, and heavy equipment.
- Proficiency and experience in the fundamentals of water steam cycle chemistry and other relevant plant chemistry applications.
- Team player with good communications skills.
- Ability to maintain confidentiality.

### 1ST ASSISTANT ENGINEER (FT)

Salary: $ TBD , Full Time , Engineer
**Category: Vessel Operations**
*Skills:*
EDUCATION and/or
EXPERIENCE
Must hold either a Stationary Engineer License (or equivalent state certification) or a U.S. Coast Guard Assistant Engineer's License (Unlimited Assistant or Assistant Engineer-Limited with a minimum 3000hp rating.)

*Description:*
To assist in providing a superior gaming experience, unattainable by our competitor, where guests can indulge themselves without apology. On the direction of the Chief Engineer the 1 Assistant Engineer will supervise and perform the maintenance and repair of all systems onboard the vessel. The 1 Assistant Engineer will also assume the responsibility of the watch when the Chief Engineer is not present or unavailable.

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