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# Marine News

JULY 2015
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# Features

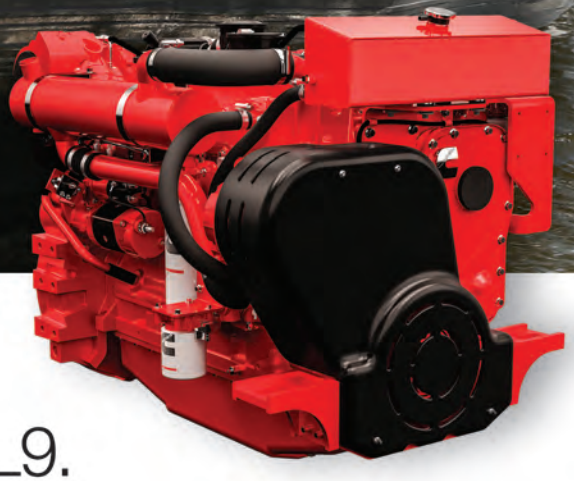


ON THE COVER

The Barge New Hampshire, operated by Moran Towing Company, is a 118,000 barrel tank barge and typifies the superior utility contained within today's modern, AT/B units. This edition's tight focus on AT/Bs begins on page 23.

*(Photo: Courtesy Moran Towing)*

# Count on Cummins.

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# Departments & Analysis





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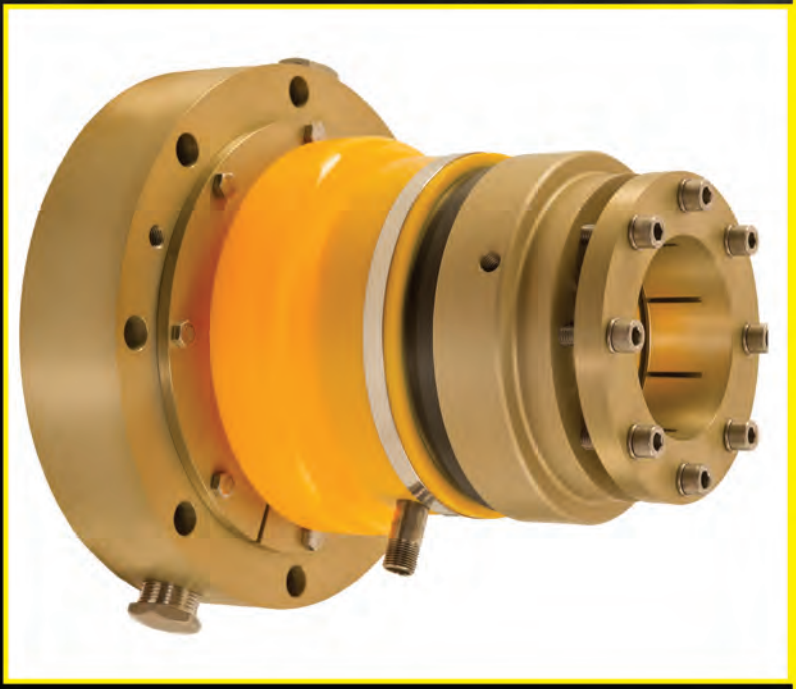
# TG100

## *Seals For Water Lubricated Propeller Shafts*



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This edition of *MarineNews* headlines the increasingly diverse articulated tug-barge (AT/B) units which are beginning to make up a large percentage of the domestic merchant fleet. Conventional, less expensive towed barges are much slower than the traditional ships they replaced. That's one reason that ATB's are here to stay. The demand for the now familiar AT/B grew out of the need for low cost, safe, reliable, and more rapid marine transportation. That story begins on page 23.

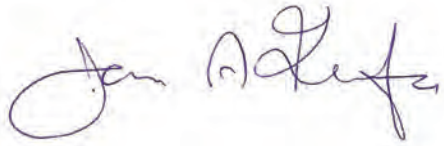
It turns out that safety is important to just about everyone. In the third quarter of 2013, I interviewed Harvey Gulf CEO Shane Guidry for an article that touched upon many things, but also seemed to always come back to one important metric: *safety*. Guidry insisted, "At our company, there is no budget in our safety department – they get whatever they want. They can make any changes they need to for the betterment of the boat; no matter what the cost or the time involved."

2013, for the most part, was the epitome of heady times for the offshore industry. The price of crude oil, at times, was hovering just over $110 per barrel and the offshore industry was booming once again, even in the choppy wake of Macondo and the perceived slowness of the federal government to open up more offshore areas for exploration and production. Domestic shipyard backlogs had begun to build again, with many of those hulls just now being delivered. It was an easy time to espouse a robust safety culture, with money to spend and most sectors of the U.S. marine industry firing on all cylinders. That was then; this is now.

As we put this edition of *MarineNews* to bed, I noted with interest the new program put forth by a prominent underwriter that offers favorable terms for those firms having to "stack" large numbers of their offshore support fleets. Separately, the same oil majors who spent lavish amounts of money to ramp up for the specter of $115 crude oil now spend similar amounts of sweat equity on negotiating discounted rates for charters, services, and equipment. And in that kind of climate, it is easy to see where some might be tempted to cut back on the very line item that probably got them to prosperity in the first place.

The price of oil shouldn't dictate the level of commitment to safety any more than the economy should dictate the safety of the vehicles we drive to work every day. Shane Guidry's formula for success in 2013 focused tightly on safety: "It's my most costly division and there's no doubt it brings in the most in terms of return." Hence, treating safety as a profit center has its rewards. Only time will tell if he is right, especially in the current offshore environment. But, safety extends across all maritime business lines, and nowhere is it more important than for the dangerous world of the workboats – and that means OSV's, AT/B's, tugboats and everything else in between.





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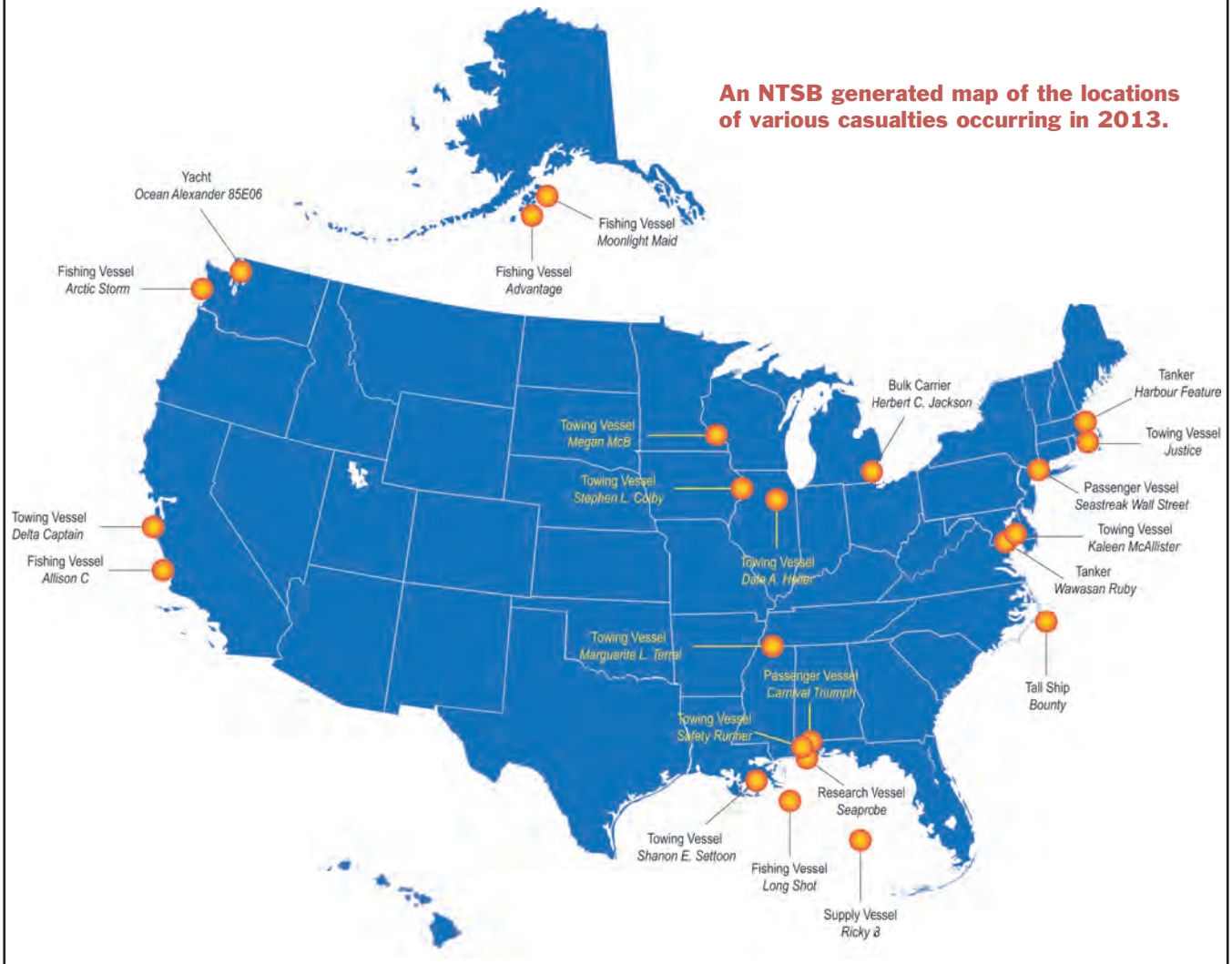
# NTSB's Safer Seas 2014: A Report of Marine Accident Investigations

The National Transportation Safety Board (NTSB) is an independent federal agency charged with investigating every domestic civil aviation accident and significant accidents in other modes – marine, railroad, highway and pipeline. The NTSB in April released its *"Safer Seas 2014: Lessons Learned From Marine Accident Investigations"* report. Safer Seas follows and builds upon the success of a similar effort that compiled 2013 marine accident data. This year's 43-page report lists the probable causes for 23 major marine accidents and features lessons learned from each in an easy-to-use summary. ***Safer Seas 2014*** focuses on issues such as vessel control systems, passenger safety during critical maneuvers, maintenance, and crew training. According to NTSB, their Safer Seas series is used in crew training and safety meetings both on board and shoreside.

Of the 23 reports completed in 2014, fishing vessels and towing vessels were the most common vessel types involved; with 5 fishing vessel and 9 towing vessel accident reports included. For the purposes of this article, we (naturally enough) concentrate on the towing vessel reports.

Safer Seas 2014 also includes a Summary of Lessons – key 'takeaways' learned from the accident investigations. These include such important issues as the need for thorough understanding of the vessel control systems in use, Passenger Safety during critical maneuvers such as docking and undocking, attention to proper maintenance and, of course, Crew Training. Safer Seas 2014 compiles accident investigations for the year just completed. It represents NTSB's continuing commitment to sharing lessons learned through investigations. It is the hope of NTSB that Safer Seas 2014 – and those reports which follow – continues to help those in the marine industry discuss and address safety issues of their own vessels and operations.




**An NTSB generated map of the locations of various casualties occurring in 2013.**

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| Accident | What Happened / Total Damages | Probable Cause |
|---|---|---|
| **Allision w/Dam** | Towing vessel was pushing a 14-barge tow on the Illinois River and attempting to enter a Canal adjacent to a Dam when it encountered a strong crosscurrent. Several barges broke away, struck and damaged the dam's gates, and sank. No one was injured. Damage to the barges and the dam totaled nearly $54 million. | Probable cause of the allision of tow with the Dam was the decision to proceed with the passage during a period of record high water and risk. Contributing to the accident was the failure of the Dam lockmaster and the Towing Vessel captain to communicate effectively. |
| **Sinking of Towing Vessel** | Towing vessel sank after uncontrolled flooding in its engine room. Four crewmembers abandoned the vessel after the flooding began and were rescued without injury by the Coast Guard. The $2.5 million vessel sank. | Probable cause of vessel sinking was uncontrolled flooding of steering gear and engine room from an undetermined source in steering gear space. |
| **Grounding** | Towing vessel was heading to Buzzards Bay, MA when it grounded on a rocky bottom southwest of Cape Cod Canal. The impact sheared the STBD stern drive from the vessel and resulted in the discharge of 232 gallons of gear oil. The vessel docked 15 minutes later without further incident. Cost of repairs was $1.2 million. | Probable cause of the grounding of the commercial towing vessel was the mate's ineffective use of the vessel's autopilot to maintain course within the navigable channel and his delay in taking manual control as the vessel approached hazards. |
| **Grounding & Sinking** | A harbor assist tug got under way to assist in docking a tow and barge entering the port. A few minutes later, the tug struck the charted edge of a collapsed pier and began flooding. No one was injured. The sinking resulted in 2,400 gallons of diesel fuel being discharged & vessel repair costs of $1.5 million. | Probable cause of the grounding and sinking of the harbor assist tug was the mate's practice of transiting near a submerged portion of a collapsed pier, a known and charted underwater hazard, which ultimately resulted in the vessel striking the obstruction. |
| **Engine Room Fire** | Towing vessel was pushing 12 empty barges on the Mississippi River when the port engine caught fire. The crew tried unsuccessfully to extinguish the fire before evacuating onto a barge. There were no injuries or pollution. Vessel damage was $2.6 million. | NTSB could not determine the origin of the fire. Contributing to the fire damage was the crew's failure to set fire boundaries, shut down the ventilation, and use fire suppression equipment effectively. |
| **Capsized Towing Vessel** | Towing vessel lost engine throttle control while trying to maneuver into the main lock of a Lock and Dam on the Mississippi River. The strong current swept the vessel into gate of the dam, where the vessel capsized. One crewmember died and damage to the vessel was $500,000. | Probable cause of the capsizing was the replacement pilot's unfamiliarity with the electronic engine control throttles. Contributing to the capsizing was the failure to ensure that the pilot was familiar with a vessel unique to the fleet. |
| **Fire & Explosions** | Towing vessel docked alongside two barges engaged in tank cleaning. Flammable vapors being vented from the barges' open tank hatches entered the vessel's engine room and ignited. The fire spread to the barges, causing explosions. Three persons sustained serious burns. Total damages were $5.7 million. | Probable cause of the fire and explosions involving towing vessel and barges was the failure of the facility to isolate tank cleaning operations from sources of ignition. Contributing to the accident was inadequate tank cleaning and safety training. |
| **Fire on Towing Vessel** | Towing vessel struck & ruptured submerged gas pipeline while approaching a terminal. An explosion & fire ensued. Vessel was destroyed. The captain died a month later from burns suffered in the accident. | Probable cause of the casualty was the introduction of petroleum gas into main engines due to incomplete navigational information provided to captain by company. |
| **Grounding & Sinking** | Uninspected towing vessel struck hard bottom and partially sank off the riverbank. Six of nine crew made it to safety on their own, and a nearby towing vessel recovered the others. No one was injured. | Probable cause of the grounding and sinking was the failure of the master and mate to ensure sufficient underkeel clearance for the intended transit through the accident area. |

*Source: NTSB Safer Seas 2014*

Safer Seas 2014 is available on the NTSB website at: ***www.ntsb.gov***

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Poul Korsgaard

Manager Propulsion Systems,

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Those *MarineNews* readers who are not familiar with Bob Kunkel, probably should be. That's because Kunkel, President of Alternative Marine Technologies, previously served as the Federal Chairman of the Short Sea Shipping Cooperative Program under the Maritime Administration and Department of Transportation from 2003 until 2008. A past Vice President of the Connecticut Maritime Association, he is a contributing writer for ***Maritime Professional*** Magazine and of course, ***MarineNews***. A graduate of the Massachusetts Maritime Academy, Kunkel sailed as a licensed engineer and eventually continued his career in ship construction at National Steel and Shipbuilding, San Diego, Hyundai Heavy Industries, South Korea, Chengxi Shipyard and Dalian New Shipyard in Mainland China. He is a senior member of the Special Committee on Ship Operation with ABS and an elected member of the National Cargo Bureau.

AMTech Partner Poul Korsgaard received a Bachelor of Science degree in Mechanical Engineering in 1978 from the Technical University of Denmark. He joined MAN B&W Diesel A/S in 1980, in the Operation Department. In 1994, he was promoted to the position of Manager, Technical Service Department and in 1995 was made Senior Manager responsible for managing and directing the operations of the department engaged in servicing diesel engines. This included directing the activities of service engineers and technicians as well as providing technical advice to ship owners and their engineering and technical staff. Mr. Korsgaard joined the MAN B&W Diesel Group in the US in July of 2001 as President and managed Diesel activities until 2013. What both Kunkel and Korsgaard have to say about today's challenges in the Engine Room provides the ultimate propulsion primer in this month's **INSIGHTS** focus.

**What's the number one driver for engine selection today for workboat operators? Would it be emissions control, fuel consumption, or both?**

The majority of customers have commercial interests and as a result, fuel consumption and costs are still paramount. Emission control is a factor of regulations and the historical trend shows that the majority of owners/operators wait out those regulation dates and compliance periods until it is absolutely necessary to make the change and comply. Look at the rush to lay keels before January 1, 2016 in order to fit into the existing engine Tiers as an example. That said,

environmental sustainability is an important part of a company's mission statement and the list of owner/operators looking to meet that sustainability in their logistics change is growing every day. Future decisions will take emissions into account regardless of regulation.

**Where are we today in terms of the workboat market for engines – Tier levels, present and future? What's required and what is coming? Who is exempt and who is not?**

Every manufacturer is providing new technology to meet these requirements. No one is looking for the way out, only the way forward. We don't see any project that discusses being "exempt" regardless of any size, power or KW engine that may fall below regulatory requirement.

**Has the crash in the price of crude oil and subsequently, traditional bunker fuel stalled LNG-as-a-fuel for now?**

The drop in crude value may have stalled some U.S. building projects in the short term but most of the industry believes those crude values will rise back to historical levels. In our experience, it has not stalled LNG.

**Talk about the cost premiums for installing a dual fuel and / or LNG engine over that of a conventional engine burning distillates. Is it worth it?**

The cost is a long-term investment and payback. It is not fair to make the comparison at this point as the first companies that elected to make the installation are paving the regulatory and infrastructure paths at costs well above a normal construction model. In the long run, and once the country understands how safe LNG can be, the costs will level.

**Give us some viable alternatives to LNG for the operator who wants to comply, do that cheaply and achieve fuel economy along the way.**

The fuel side provides different options; none of them are mature at this point, but they are moving into the market. Depending on your operating profile, diesel-electric hybrid drive looks to offer some good solutions. Combine that propulsion arrangement with low sulfur fuels and you have a good chance of meeting your regulatory requirements efficiently.

**Subchapter M is coming this Fall – so they promise. What does that mean from a standpoint of power plants for the 4,000+ vessels that are currently uninspected which will then fall under an inspection regime? Are we looking at a large volume of repowering jobs or perhaps wholesale fleet replacements?**

Subchapter M (Sub M) began as a simple statement in the Coast Guard Act of 2004, which mandated the regulation of towing vessels. The Coast Guard began to develop a federal set of rules for the inspection of those vessels. A concentrated effort has gone into providing a complete inspection process designed for the towing industry. There are two main components of the proposed set of rules; the first being a decision of whether your vessel meets certain standards of seaworthiness. The second relates to the development of an audited safety management system. The Department of Homeland Security's Semi Regulatory Agenda indicates the final rule date has been set for 2015. We don't see the Sub M rules targeting power plants or propulsion engines beyond safety issues of fuel leakage, shutdowns and operation. Emissions targeting may identify a new group of uninspected vessel engines that will need to address the regulatory issues. That said; it won't lead the list of inspection requirements.

**Workboat operators have a number of options – questions, really – available to them as they seek emissions compliance. After-treatment, LNG, low sulphur diesel coupled with other measures, to name just a few. Which ones will reign supreme for this market and why?**

To list them in an economically viable order – Low Sulfur fuel leads the list followed by after-treatment with SCR and EGR, and Hybrid configurations. LNG requires new construction and/or a large investment during conversion.

**An engineering firm is now marketing Selective Catalytic Reduction (SCR) plus a Diesel Particulate Filter (DPF) as a means to bring workboats into EPA Tier IV compliance. Is it feasible, can it fit onto the standard workboat platform where space is at a premium, is it affordable and more importantly, are there more practical options?**

There are many firms and systems providing after-combustion treatment(s) that work. In the workboat market – real estate is the problem stalling many of the installations. Overboard discharge, open loops versus closed loops and the cost of the actual operation will also affect decisions.

**A more complete burn is a more efficient, cleaner burn. That said; has the emissions regime of tiered phase-in deadlines, ECA's and all the rest of it made for a more efficient, cleaner marine workboat engine. In other words, are operators getting more ton-miles out of less fuel today?**

In most applications the addition of after combustion equipment or natural gas and methane burn results in in-

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creased fuel consumption. That is the trend, whether the emission control is internal or external. This can, to some extent, be compensated by improvements to the hull and propeller. If it does not, then question whether that actual increase in fuel consumption meets the goal of reaching environmental sustainability.

**What's the number one mistake today's marine operators make when making repower solutions for their fleet?**

We don't believe the operators are making mistakes. The information available to them to make the right decision is readily available – whether it is through a quick read of ***Insights***, the employment of a qualified consulting group and designer or an extended meeting with your engine manufacturer. There is no reason to make a mistake; just listen. And, they are listening.

**Diesel electric drives are once again (arguably) hot. For what reasons and under what circumstances would you advise a client to go that route?**

We have seen many projects now accepting the upfront higher construction costs associated with diesel-electric designs in order to assist them in meeting future emission regulations. The engines run and set speeds which make it easier to meet the TIER requirements and this configuration also lends itself easily to Hybrid battery applications.

**LNG is now a mainstream option for workboat operators. Bunkering barges, LNG pushboats abound on the drawing boards. Infrastructure to support LNG, LNG tugs, and bunkering is ramping up. LNG supply, in theory, is abundant. If that's really the case, what's the number one obstacle to more vessels going this route?**

Regulatory issues are still unclear and problematic not just for the workboat operator but also for the infrastructure. In Blue Water applications there are OEM refit kits available from all major manufacturers. In the workboat and towing sector, that does not seem to be the case. There are some non-OEM kits available for land-based power plant and gas installations but they cannot easily be converted to marine use. Consequently, we are talking engine replacement and/or Newbuild resulting in high prices to meet the requirements. LNG is one of the long-term solutions, it's time has come and the first companies working towards meeting their environmentally sustainable are feeling that pain. The industry should thank them for taking the initiative and working towards solving the problems. Beyond this, the U.S. Coast Guard has been one of the single shining beacons in helping these projects get up and running. Their assistance has been stellar in the projects we are involved with.

**You've been quoted as saying that methanol will overtake LNG as the new fuel of choice in the future. Why, how and when?**

When you are looking to convert your diesel engine workboat or ship you must remember that LNG is gas injection and Methanol is liquid injection into your combustion space. We see Methanol as an easier solution as many configurations will allow the use of existing fuel tanks and the delivery system is simpler than a gas distribution system. Larger two stroke engines are on the test bed and we know of one project where the methanol engine has been written into the specification.

**Retrofit (re-power) or rebuild: that is the question. What should today's workboat operators do and why?**

We don't think Today's workboat operator is forced into a different answer than Yesterday's workboat operator. You run your equipment until it is no longer efficient or economically viable. When that time comes, look to the most efficient new technology and build. Consider the way the industry dealt with double hull barges – it's a similar analogy.

**What do you think the repower market looks like in the near term for Workboats? If operators decide not to repower, will there be a rush for replacement tonnage?**

The workboat sector is smarter than that. There will be no rush to repower or build due to regulations. The rush comes only with profitable commercial markets, charter and daily rates. We have recently seen more difficulty in finding funds and bank support to step into and solve construction problems to rebuild your fleet. The problem of speed is not related to regulatory issues.

**You advise a myriad of clients on all sorts of power plant decisions. What's new and what do you tell your clients when they ask about power options?**

We have jumped in with both feet to Hybrid applications and LNG in the U.S. ECA markets. In our foreign new construction programs we are still building historical heavy fuel designs with larger MGO tank space to change fuels and operate in the ECAs for extended periods. We advise our customers that it is dependent on your operation tempo, location and daily requirements. Once those operational requirements are visited and defined, it is then easier to decide to follow the crowd or step out on your own and build to the alternative technologies.

# Best Bunkering Practices

*Vessel operators have an additional tool in their arsenal for preventing oil spills during bunkering operations.*

*"Bunkering Best Practices: Protecting People and the Environment"* is a free, 14-minute training video that demonstrates bunkering best practices applicable to the North American West Coast. That said; any marine operator – located anywhere on the globe – can glean valuable 'takeaways' from this video. The states of Alaska, California, Hawaii, Oregon and Washington, and the province of British Columbia collaborated on the project with support from the Pacific States/British Columbia Oil Spill Task Force (Task Force). *An additional section addresses state-specific regulations for Washington and California.*

The idea for this training tool first emerged following a bunkering accident that occurred in California in 2009. The oil tanker *Dubai Star* released 400 gallons of Heavy Fuel Oil during bunkering while anchored in San Francisco and Alameda. After remaining offshore temporarily, the oil moved east and washed up on the shorelines of Alameda and Bay Farms Islands, contaminating more than 200 acres of rocky intertidal, sandy beach, saltmarsh/tidal flats, and eelgrass habitat. An estimated 186 birds died during the incident and closures at Crown Beach lasted 25 days. Portions of Alameda and Bay Farm Islands were closed to fishing for nearly a month. Vessel operations were also affected in the area during the cleanup operation.

As a result of this spill, the California's Office of Oil Spill Prevention and Response engaged its five Harbor Safety Committees to develop best practices for bunkering operations. The project evolved into "Bunkering Best Practices: Protecting People and the Environment" which can be viewed online or downloaded – FREE – at: **http://oilspilltaskforce.org/ourwork/bunkering-video/**

"This video along with our current oil transport tracking project, are some examples of the important work that the Task Force states collaborate on to ensure oil spill policies and best practices are consistent throughout the Pacific Coast states and British Columbia. The benefit of the Task Force is to share resources so not to duplicate or reinvent efforts," said Sarah Brace, Executive Coordinator of the Task Force.

Through a memorandum signed by the governors of Alaska, Washington, Oregon, and California, and the premier of British Columbia, the Task Force was formed in 1989. Hawaii joined in 2001. The non-profit organization focuses on working with member jurisdictions and stakeholders in planning, policy and outreach in spill prevention, preparedness and response. To learn more about the Pacific States/British Columbia Oil Spill Task Force, please visit **http://oilspilltaskforce.org/**

# Safety and the Law Collide on the Water

*Making sure that your Safety Bonus Program provides the right incentives can make all the difference.*

**By Larry DeMarcay**

We all can agree that the safety of our employees is critical; if not the most important concern of each of our companies. Our marine-based employees face day-to-day perils that are not encountered by the average American office worker. It is our duty to do everything that we can to ensure that each of our employees returns safely to his or her family once their hitch is over. Our industry has made great strides in improving safety over the years by utilizing improved training programs, safety policies and safety programs. All of these initiatives combine to create a maritime culture that embraces safety, and one that is unquestionably better today than it was just a few decades past.

Many safety programs utilize a safety bonus/incentive system to reward employees who operate in a safe manner. Although each plan is slightly different, virtually all plans provide some sort of bonus to the members of a vessel crew when a certain period of time elapses without a reportable lost time accident. Incentivizing safety is a great idea: it goes a long way towards keeping the crew members focused on safety, moves safety away from being purely an individual concern and passes responsibility to the entire crew. No one can disagree with the aspirations of such a program.

## Safety with Caveats

Although safety bonus/incentive programs go a long way to motivate employees to operate in a safe manner, there are several concerns you should consider while designing or modifying such a program. These concerns include the potential for incentivizing the repression of incident reporting, the potential that employees could intimidate an injured employee from reporting an accident, or having the crew misclassify potential accidents in the hope of preserving safety bonuses.

You do not want to discourage employees from reporting an incident or give them any discretion in determining whether or not to report an incident. It is very important that crew members timely report all injuries, illnesses, incidents, and near misses to their supervisors. Not only does this allow management to properly monitor risks for the purposes of making operations safer, it is also important that employees receive proper medical attention quickly, before their injuries become worse due to continuing to work aboard the vessel.

Although it may not make sense, employees may decide not to report their accidents in an effort to preserve the safety bonus record. No one wants to be the employee who took his focus off the job and suffered an injury, much less the employee who costs the entire crew a safety award. Based upon this incentive, employees may not be motivated to timely report injuries.

This is exactly the type of behavior that the safety program does not want to encourage. Thus, any safety bonus/incentive program must take into account incident reporting as a required component and should provide some leeway where a minor reportable incident or illness may not cause the crew to lose a bonus. Thus, encouraging the reporting of incidents, illnesses or near misses for all events can create a culture of reporting that will make incident reporting second nature and not something that can be balanced against the desire to receive a bonus.

Employee intimidation is a potential problem when other employees could persuade an injured crew member from reporting the incident. Unfortunately, it is possible that other crew members will remind the injured crew member that reporting the incident will cost all of them the bonus. Essentially, they could try to shame the injured employee from reporting the incident to management.

This pressure can keep employees from timely reporting incidents and receiving appropriate medical care. Additionally, lack of timely reporting also prevents the company from conducting a proper investigation to determine what occurred. Again, any safety bonus program should attempt to minimize this pressure.

Another area of potential abuse is the improper classification of incidents. It is possible that an employee may suffer an injury while working aboard the vessel and report that he sustained an injury that was not "work related" when in fact the accident certainly was. The employee will allege that this non-work related injury manifested itself while he was in the service of the ship and request maintenance and cure. At the same time, the vessel's safety record

remains intact. Although the crew member will usually receive the required medical care under this scenario, the company loses the opportunity to conduct an investigation and determine the cause of the incident, thus, losing the opportunity to make its operation safer. Furthermore, after the bonus is paid and the injured employee retains an attorney, he could change his story, report that the injury is work related and blame the whole lie on the pressure caused by the safety bonus system.

Although it is impossible to prevent all of these problems, tweaking your program may help alleviate some of this pressure. As each company's safety incentive program is different, it is impossible to discuss all potential modifications. However, the following are some ideas that you may be able to use to fine tune your program.

### Incentivizing Safety

You may want to consider incentivizing the reporting of incidents, near misses, illnesses and injuries. This creates a culture where all incidents must be reported, regardless of whether they are a serious concern or not. You want your crew to be in the habit of reporting anything from a headache, toothache or hangnail to a serious injury, without worrying about a safety bonus program. You can encourage the culture of reporting by creating a "quota" and reward system mandating that employees submit a certain number of safety suggestions, near miss reports, incident reports, etc.

Although it possibly sounds counterproductive, providing employees with a bonus to report incidents may actually save the company money in the long run. The more incidents that are reported, the sooner the risk department can identify tasks or jobs that are potentially unsafe and adopt policies that minimize the risk. This will provide a long term savings to the company.

In the short term, although you may have additional incidents reported that you may not have heard of otherwise, the immediate notification of an incident allows your risk management team, and your attorneys, to timely conduct an investigation and determine what caused the incident and evaluate any potential liability for this particular claim. Although this type of investigation could be conducted later, it is always more effective to take witness statements and conduct the investigation while employees are still employed by the company and the incident is fresh in their minds. Thus, it may make sense to incentivize both the reporting of incidents as well as time without an accident.

The peer pressure that can be exerted against an injured employee by his co-workers is a bit more difficult to catch. We suggest that an incentive program include penal measures that seriously punish any employees who try to convince or intimidate an employee not to report an incident. Although no one wants to lose a good hand, an employee involved with such an infraction should be immediately terminated. As the potential loss of a job trumps any small incentive bonus, such a penal provision should eliminate such intimidation.

The improper classification of incidents can be resolved through proper training. Employees may attempt to manipulate the employee's medical treatment or misclassify an injury to avoid having it considered as a lost time incident. Often, this behavior is based upon a misunderstanding of the program's rules and is unnecessary. As such, it is very important that all employees are trained and educated on the specifics of the system and the company's requirements for the reporting of all incidents.

All in all, safety incentive/bonus programs are a great tool that you can use to encourage your employees to be safe. If a crew can make it one year, two years, or ten years without a lost time accident, they should be rewarded. However, as you create your program, it is important to look at these efforts from the perspective of the employees and try to avoid incentivizing unwanted behaviors. Spending a little time tweaking your program now may save you significant (legal) trouble down the road.

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# Money Laundering,
## It's not just for Drug Cartels Any More

*The dirty money can and does wash ashore on the waterfront.*

**By Richard J. Paine, Sr.**

Despite all the jokes about having a washing machine full of soapy hundred dollar bills, the U.S. Government takes money laundering very, very seriously. Anti-Money Laundering (AML) laws include substantial fines and possible prison time and places the onus for recognizing and reporting money laundering squarely on the shoulders of financial institutions. And yet, we don't necessarily associate 'dirty money' with the mundane world of moving cargo or people from point 'a' to point 'b.' If so, that's probably a mistake.

Money laundering, in its simplest form refers to financial transactions designed to hide the true source of money. Generally, the money involved is from an illegal or terrorist source. The end game is to take the "dirty money" and give the appearance of coming from a legitimate source. Tax evasion, health care fraud, drug trafficking, terrorism, and similar illegal activities are the usual well from which these funds are drawn. From the infamous, like Al Capone to the ruthless like Pablo Escobar, to the politically corrupt, money laundering and its consequent tax evasion has been around a long, long time.

Uncle Sam does not like to be cheated out of his tax revenue. The IRS sees to that. Indeed; money laundering is a method for evading taxes that carries high fines and penalties. In 2012, one bank was alone fined nearly two billion dollars for their part in aiding money laundering by Mexican Drug Cartels. Prior to the U.S. fine, the international arm of the same bank was fined over thirty million dollars for "operational deficiencies" in recognizing and reporting money laundering by its clients. Drop the ball and pay the penalty.

### What are we doing to combat money laundering?

The U.S. Government has over the past few decades directly addressed the processes by which money from illegal sources is laundered ... with varying levels of success.

The Bank Secrecy Act of 1970 (BSA) or otherwise known as the Currency and Foreign Transaction Reporting Act requires U.S. financial institutions to assist U.S Government agencies to detect and prevent money laundering. It eliminates all anonymous banking in the United States. A financial institution is required to keep records of cash or negotiable instrument transactions in excess of $10,000.00 per day. If an institution is suspicious that money laundering may be occurring, they must both report it in a Suspicious Activity Report (SAR) and take active steps to stop it.

The reporting requirements are quite onerous. The U.S. Department of the Treasury has a bureau known as the Financial Crimes Enforcement Network (FinCEN) that collects and analyzes these reports to combat illegal financial transactions. Banks are required to file a Currency Transaction Report (CTR) within 15 days on all daily transactions which aggregate to $10,000.00 from one source.

The 1986 Money Laundering Control Act made money laundering a crime in and of itself. Beyond this, the 1994 Money Laundering Suppression Act requires banks to es-

tablish their own internal task force and plans to thwart suspicious activities.

The 2001 USA Patriot Act (Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001), Title III, strengthened banking rules. Internationally, it expanded bank record keeping and reporting requirements and increased the penalty for currency smuggling and counterfeiting.

The Treasury Department's Office of Foreign Assets Control (OFAC) lists the names of sanctioned individuals, organizations and countries engaged in international narcotics trafficking, threats to national security, foreign policy or economy of the United States. Not surprisingly, U.S. banks are prohibited from dealing with those named on the list.

As has been proven out by recent headlines, no matter the strength and intent of the law, money laundering remains an international problem exacerbated by domestic and world affairs.

## Money Laundering 101

The basic money laundering process has three steps: Placement, Layering and Integration:

**Placement –** Money from illegitimate sources is deposited into a bank in an attempt to legitimize the funds. Banks are required to report all transactions which total $10,000 per account per day. To avoid this red flag, money launderers may raise another red flag by "structuring" their deposits and/or withdrawals to total just under the $10,000 trigger. Structuring is illegal.

**Layering –** Using various financial transactions to hide the source of money is another tool of the trade. Moving funds from onshore to offshore or bank to bank, continual withdrawals and deposits, purchases of high-value items like cars, boats, jewels, and precious metals ae designed to change the "form" of money and again hide its source.

**Integration –** Legitimized money through one or more of the previous steps introduces the laundered money back into the mainstream economy. This may be from the sale of the high-value items, or capital "investments" in legitimate businesses or more insidiously, sponsoring terrorism.

## On the Waterfront

You may be thinking that the marine industry is immune to creating illegal funds in need of washing, but you might be wrong:

- *Purchasing and chartering non-documented vessels with illegal funds may be construed as money laundering;*
- *Increasing profit by subverting USCG regulations by under- manning may be money laundering;*
- *Failure to comply with load line requirements may be money laundering;*
- *Accepting capital or investment from illegal sources may be money laundering; and*
- *Attempting to deposit undeclared dinner or excursion boat revenue by structuring may be money laundering.*

As no case is ever the same, determine your best practices regarding money laundering with your legal or bank compliance professional. Be conscientious and careful in your financial and tax related business dealings and reporting and finally, if you want to avoid money laundering completely, remember to take your wallet out of your pants pocket before you wash them.

SIGNATURE FINANCIAL

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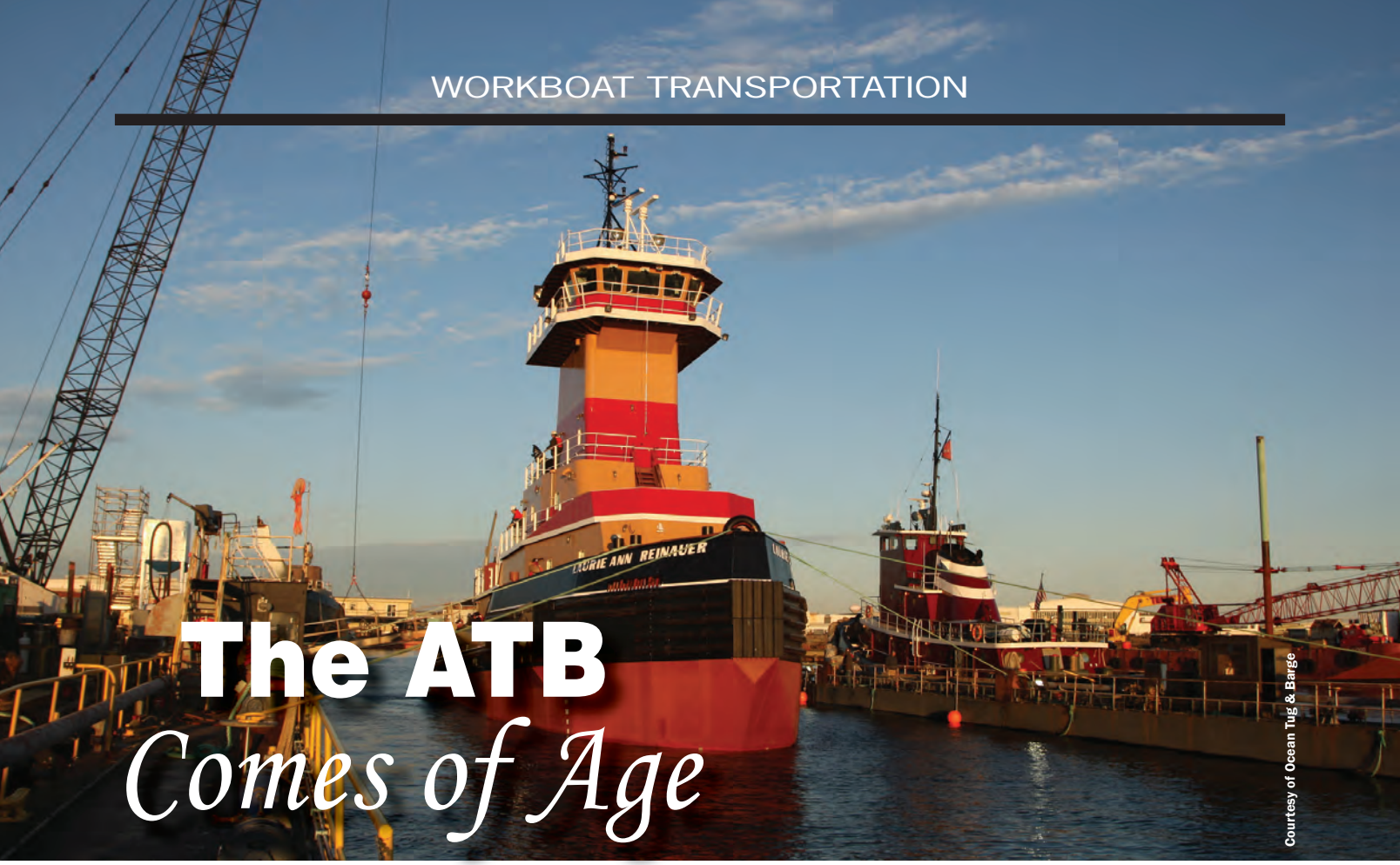



Courtesy of Ocean Tug & Barge

# The ATB *Comes of Age*

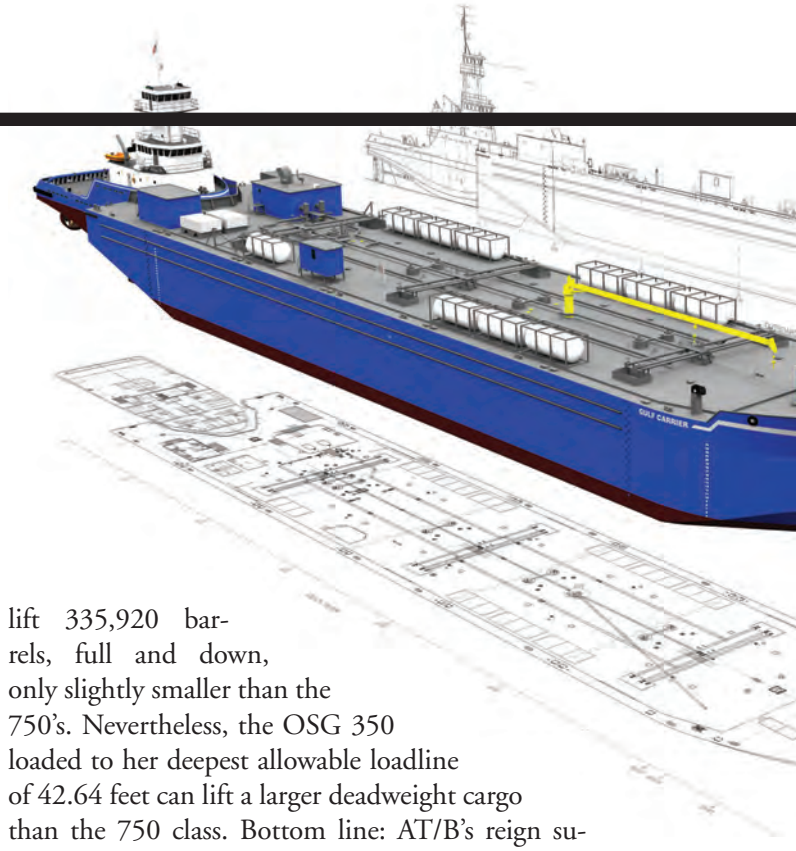
***Today's Articulated Tug and Barge systems are rapidly evolving to serve expanded missions, changing service routes in greater numbers than ever before.***

**By Joseph Keefe**

According to Ocean Tug & Barge President Bob Hill, the early "notched" barge, followed by the ITB (Integrated Tug/Barge), and the now familiar AT/B, all grew out of the demand for low cost, safe, reliable, and more rapid marine transportation. That's because conventional towed barges, although less expensive than traditional ships, were also extremely weather dependent and unreliable in some conditions. They were – and are – much slower than the ships they often replaced. And, that reality is a big part of the reason that ATB's are here to stay.

Early concerns with the viability of the ATB concept in terms of regulatory compliance, safety and other variables were eventually addressed by the U.S. Coast Guard in 1981 in the document known simply as Coast Guard NVIC 2-81, in which a new official policy on this type of construction evolved. As long as a true tug was created, meeting all stability requirements as a towing vessel, the tug would be treated as an independent towing vessel for both regulatory and crewing requirements. Bob Hill insists, "This NVIC, was and remains, the single most important and influential event in the continued development and deployment of the AT/B in America."

In the end, explains Hill, "What the AT/B did, was to solve most of the technical impediments to being ship-competitive, while maintaining the crew and capital cost advantage of the tug and barge. What you have, is weather reliability, in a REAL tug and barge. An AT/B is not a rule beater. So for many types of services, the AT/B shines, as compared to a ship." And, Hill ought to know: his firm has been involved in the directly design, or been a fully participating engineering partner, for as many as 50 operational AT/B's in the US market over the span of over a quarter century. This means the firm will have had a hand in over 70% of the operational AT/B's in service in America – including, nearly 80% of those built or converted since 1994. Hill's experience encompasses connection systems of all kinds, including Intercon, of which the firm's principal is co-inventor; Bludworth, Hydraconn and Articouple.

**"What the AT/B did, was to solve most of the technical impediments to being ship-competitive, while maintaining the crew and capital cost advantage of the tug and barge. What you have, is weather reliability, in a REAL tug and barge. An AT/B is not a rule beater. So for many types of services, the AT/B shines, as compared to a ship."**

**– Robert P. Hill, President, Ocean Tug & Barge**

## Strength in Numbers: Supported by Robust Design

About 137 AT/B combinations, according to a U.S. Maritime Administration count, are in use under American flag as of January 2015. OTB's Hill explains, "Sheer numbers are the biggest change. The reliability of the connection systems are a big part of the 'why' as these boats have more than proven that well-designed AT/B's are every bit as schedule-reliable and seaworthy as a ship." He adds, "If a ship can get there, so can an AT/B."

And, then, there is size. It does matter. Crowley's 750 class AT/B's are the largest US flag units by a small margin. The OSG 350 and her sister have a nominal LOA of 655', with a 104.96' beam and 54.77' depth at side. They can lift 335,920 barrels, full and down, only slightly smaller than the 750's. Nevertheless, the OSG 350 loaded to her deepest allowable loadline of 42.64 feet can lift a larger deadweight cargo than the 750 class. Bottom line: AT/B's reign supreme in the coastwise, bulk carriage of bulk petroleum when it comes to both economy of scale and cost efficiency.

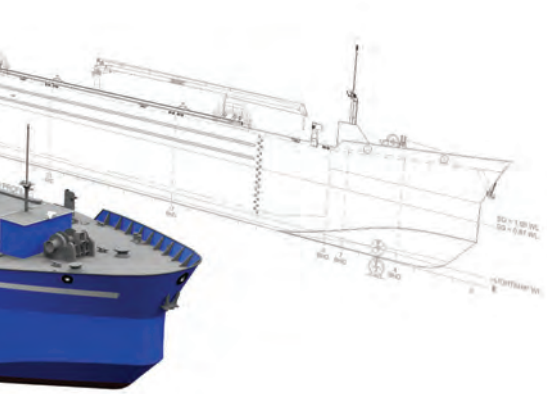
By now, the AT/B is a familiar standard in the U.S. flag fleet for coastal, Jones Act and some inland applications. Although Hill and his firm haven't yet built anything overseas, there are over 200 Articouple-equipped AT/B's in service; the vast majority in international service. Articouple's supply list boasts worldwide distribution, with a large number in Japan. Hill adds, "The prospect for more overseas, if our inquiry levels mean anything, is fairly good."

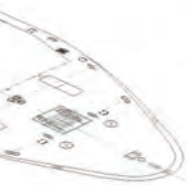
The safety record of the AT/B design, says Hill, is excellent. "Accidental disconnections at sea are extremely rare and are mostly the result of improper handling or operation of the connection system. In the 1970's, there were a few losses of ATB's and ITB's that occurred due to unintended disconnection, or disconnection of an unseaworthy ITB "tug" in bad weather," says Hill, continuing, "We design them now to try to mitigate any possibility of accidental separation and if it does occur, the tug is seaworthy on its own. Separations in the past were virtually always on units equipped with one type of system which was designed to automatically disconnect if relative pitch between the tug and barge exceeded a certain value – and that system is seldom used any more in newbuild, state-of-the-art AT/B's."

**The Domestic AT/B: By the Numbers**

| | | | |
|---|---|---|---|
| Total U.S. Flag: 137 | Largest Fleet: 44 (Kirby) | Number U.S. Operators: 15 | Biggest Unit: 353,048 BBL (OSG) |
| Total BBLS: 15,282,105 | Smallest Unit: 8,000 BBL | Service: Tanker & Freight | Largest Capacity: Kirby (3,874,724 BBL) |

*Source: Marad*





## Evolving Designs & Demands

When it comes to design changes in the AT/B, "pinned" type systems have made all the difference. Hill told *MarineNews* in June, "My own creation of what became the 'Intercon' system was based on the highly successful "Articouple" system from Japan. We all owe a lot to Ed Fletcher, who created the first truly pinned system, and the vast improvement made when Mr. T. Yamaguchi of Taisei Engineering in Japan, set out to improve it in both design and functionality, coming up as he did with the "Articouple" series." Today OTB designs vessels with both of those systems – Intercon and Articouple – and they represent 90% of Hill's output. That said; Hill also uses a third pinned design – the JAK system from Beacon Engineering in Finland.

Over time, the introduction of CAD and affordable FEA and FEM programs allow designers to better analyze the structures, and builders use such tools extensively to analyze the systems themselves. For example, says Hill, "We've gotten a lot better at designing the AT/B tugs and barges, to the point where we now have a class we designed in concert with

**"This design represents an advance in natural gas fuel transfer technology and demonstrates EBDG's and Moran's commitment to the emerging maritime LNG (Liquefied Natural Gas) transport industry. It also brings to realization the concept of using natural gas as fuel between a tug and a barge."**

**– Curt Leffers, EBDG's project manager**

Taisei Engineering, which can make the same speed at the same power, as a ship of the same deadweight. We can now see 15 and 16 knot AT/B's as a reality and not wishful thinking." Beyond this, that technology is now being employed in container AT/B designs and the marked improvement in connection systems allowed this leap in technology for the vessels.

A key change being seen in today's AT/B's involves high quality living spaces and working environments. Hill says, "It is hard enough to find crews today, and it becomes even harder if you are asking them to live as though it was the 1950's. We place a lot of emphasis on sound attenuation, vibration control, the provision

Photo by Brian Gauvin and courtesy of Nautican

of decent sized public spaces and exercise rooms, plus larger staterooms with more amenities." To this end, most of Hill's designs now feature single-person staterooms and private toilet spaces.

## The Next Big Thing

According to Hill, high speed AT/B's are on the horizon. "We are also going more with gas carriers of different types and working with Argent Marine, we are looking to provide a better mouse trap for dealing with LNG-fueled AT/B's. There are also the challenges of dealing with Tier IV engines and aftertreatment, and how do you fit all of that into a tugboat envelope. We have ideas and will pursue them with our clients," says Hill.

A great deal of effort has gone into getting LNG or warm gas over to the tug, but no one has yet gotten full regulatory approval to do it. Hill hopes to design a tug that can carry the gas right on board. He explains, "We've set out to do just that. We know it can be done for short trips but we want to make it practical for a 1,000 mile trip, as well." He adds, "Moving gas between a tug and a barge can be done successfully and safely as long as it is done simply without lots of moving parts. The railroads are doing it now, running both EMD and GE gas-fueled locomotives attached to a fuel tender that feeds warm gas to the locomotives. Certainly the fuel hoses there are far more exposed to on-track debris and other hazards. So, I am convinced it will eventually be done."

Separately, in late May, Elliott Bay Design Group (EBDG) announced that its partner Moran Towing Corporation had been granted a U.S. Patent for "Articulated conduit systems and uses thereof for fuel gas transfer between a tug and barge." The patent, in general terms, describes arrangements and methods for transferring boil off gas between a liquefied natural gas barge and its tug, while taking into account the relative motion between the two vessels.

In a prepared statement, Curt Leffers, EBDG's project manager, said, "This design represents an advance in natural gas fuel transfer technology and demonstrates EBDG's and Moran's commitment to the emerging maritime LNG (Liquefied Natural Gas) transport industry." Leffers, one of the named inventors listed on the patent, added, "It also brings to realization the concept of using natural gas as fuel between a tug and a barge." EBDG declined further comment on the device.

For its part, Ocean Tug & Barge recently finished a short sea design with the U.S. Maritime Administration, McAllister and Maine Ports. Today, it is working on a high speed innovative container carrier for Minyan Marine. Hill continues, "We are also working on the carriage of LNG containers, so I'd say that the expansion of the AT/B into the container market is the next big horizon for us. Everyone dreams of building an AT/B that can go from River to ocean and back and we have designed and model-tested a few of these for the bulk trades. We've also designed a large railcar carrier AT/B to move railcars out of a shallow US port to Mexico." All of these are conceptual in nature so far – with the exception of the Minyan unit, which is moving toward building. Like EBDG, Minyan declined to elaborate on the project further. Beyond this, however, Hill also recently designed an ammonia carrier that will move from the Mississippi River out across the Gulf. He insists, "Re-

***The BHGI AT/B at a glance ...***

| Gulf Venture ATB Tug: | Gulf Carrier ATB Double Hull Oil Barge: |
|---|---|
| Dimensions: 120'x 40'x 18.5' | Thruster: Thrustmaster retractable azimuthing, 750HP |
| ATB Coupler System: INTERCON C Series | Capacity: 80,000 BBL |
| Engines: (2) CAT 3516C, 2,575 HP each | Dimensions: 399'x 74'x 30' |
| Main Generators: (3) John Deere 150kW | Main Generators: (2) John Deere 99kW |
| Classification: ABS | Classification: ABS |

ally, there is no cargo we cannot move with this type of unit."

## In the Works

Another ongoing project is taking place at Bristol Harbor Group (BHGI), where the detail design phase of a large double hull oil tank barge and twin screw ocean service tug has been completed, and the cutting of steel begun. Both vessels are currently being built under ABS survey at Conrad Shipyard, LLC in Amelia, LA with delivery dates for the barge slated for August 2015, with the tug to follow in February of next year. The new ATB – Gulf Venture and Gulf Carrier – will be operated domestically and internationally by John W. Stone Oil Distributor.

Computational fluid dynamics (CFD) and finite element analysis (FEA) were used extensively by BHGI in the design effort. The purpose of the FEA study was to assess the stern scantlings of the barge in way of the INTERCON ladder interface. Similarly, FEA was performed on the tug structure to assess the maximum stress in way of the INTERCON load box. CFD analysis was performed to determine the calm water resistance of the combined unit and optimize the tug forebody and stern rake geometry of the barge.

And, like any naval architecture assignment, no two jobs are ever alike. That adage held especially true in this case. Because the customer wanted a barge that employed no ballast, the 20 foot swing in draft created challenges for the design team in terms of making sure the connection system was "just right." Beyond this, this unique AT/B combination has incorporated into its design an overbuilt bow, and other tweaks to accommodate the unusual arrangement. But the absence of ballast comes with its own advantages, as well. These include obviating the need for a ballast water treatment system, the elimination of surface preparation and coatings to accommodate corrosive salt water and the ultimate reduction in maintenance costs. In other words, the versatile AT/B concept adjusting yet again to another design twist. Try to do ***that*** with a conventional ship model.

## The AT/B: selling itself on safety & economics

At the end of the day, AT/B's are sold based on three metrics. First, the more efficient, so-called 'second-tier' specialized shipyards can build them at lower cost. Secondly, the boats are run by crews who are boat-handlers and often have pilotage for the routes they travel, making scheduling and/or operations more efficient (and cheaper). Finally, the reduced manning levels – in comparison to ships of similar sizes on similar routes – provide a distinct financial advantage for operators.

For Bob Hill, just three things dictate his designs: "Safety, safety, and safety. It is our focus; it is the regulatory focus." And, while he might argue with class about a point of design, he insists, "We never argue safety – ever." Perhaps that's why the enduring design has survived, prospered and today, looks to an arguably brighter and even more multi-mission future. Hence, when and if that future arrives at 15 KT, propelled by LNG and carrying specialized containers, no one should be surprised.

**Image to the left: Nautican high-efficiency nozzles and tripple rudders being installed on the first of two new Bouchard/Halter ATBs. The speed of ATB's is today evolving rapidly, approaching that of conventional ships. High efficiency nozzles are one reason why.**

# Successful Pilot Drives ESRG Purchase

***Caterpillar's year-long test of data analytics software "exceeded expectations."***

**By Patricia Keefe**

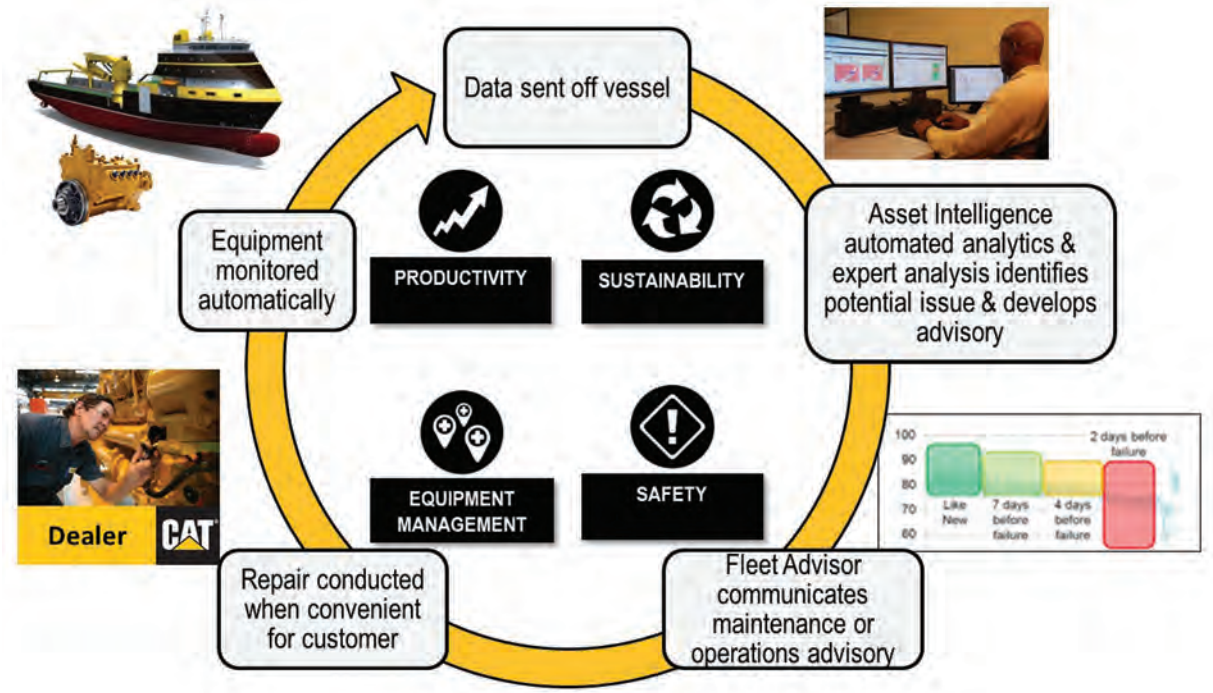
When a Caterpillar employee published a talk on current and future needs of data monitoring in 2012 for the Royal Navy, he soon got a call from ESRG founder Ken Krooner announcing that the future was here. Analytical functionality that author P. Jaime Tetrault, Director, Product Support, Caterpillar Marine, thought would take 10 years of testing and piloting to reach had been in use by ESRG and its prime customer, the U.S. Navy, for 15 years.

Caterpillar was more than a little intrigued, but cautious. To test ESRG's claims, the marine subsidiary of the machinery and engine manufacturer conducted a year-long pilot test on two separate vessels, one a large inland river tug and barge operator who has both Cat and Non-Cat engines running in a 1970's-era boat, and the other a large harbor tug operator – tested on a new vessel with CAT C175 engines and C9 generators.

In the case of the inland river tug, ESRG's data analytics was able to ferret out two issues: long idle times at dock creating unnecessary wear and fuel consumption, and the discovery of a failing fuel pump, that had it caught the operator off guard, could have cost an estimated $30,000 to $45,000 in unexpected delays ($20,000/day in estimated revenue loss) and $15,000 or more in offsite repair costs. In the former case, eliminating one 6-hour idle period a week came to a $15,000 per year savings for one vessel, and $2.2 million per year for the 150-vessel fleet. Then, there is the savings in wear and tear on the engines, which in turn leads to fewer maintenance issues and more uptime. All by simply stopping an action no one had given any thought to.

The large harbor operator was seeking in part, to improve its fuel efficiency. Data analytics uncovered higher than needed transit speeds out to the sea buoy. Optimal

**Image above: The left view shows the granular level of detail that is available to the Caterpillar Marine Asset Intelligence experts to provide actionable advisory recommendations to the customer. The middle view shows a configurable dashboard that can be customized based on a customer's situation, KPIs, vessel type, etc. The right view is a summary of major systems and their condition and performance over time**




transit speed was 600- to 800 rpm at 3 gallons a mile. The crew was racing out at 1250 rpm because it "sounded good." More change management resulted in $110,000 annual savings, just from slowing the transits to and from operations. That translated to $4 million in savings across the 40-vessel fleet.

In the case of the tug, data analytics also uncovered undetected sensor issues that could have led to failures, decreased fuel efficiency, engine stalls, and other problems. According to Caterpillar, none of these issues would have been readily apparent to onboard crew, nor likely to have been discovered before equipment failure.

The application can also be used to proactively compare the operation of different but similar vessels operating similar equipment under similar conditions, to, for example, understand variables affecting engine performance or fuel conditions, enabling benchmarking across the fleet.

## Wrap It Up

The pilot so "exceeded" Caterpillar's expectations that it snapped up ESRG, finalizing the purchase in April. ESRG is now a wholly owned Caterpillar company under Caterpillar Marine. Its product line has been renamed Caterpillar Marine Asset Intelligence (CMAI). Existing ESRG customers won't be affected, according to Rob Bradenham, formerly of ESRG and now Global Sales & Business Development Manager, CMAI, beyond having access to Cat-

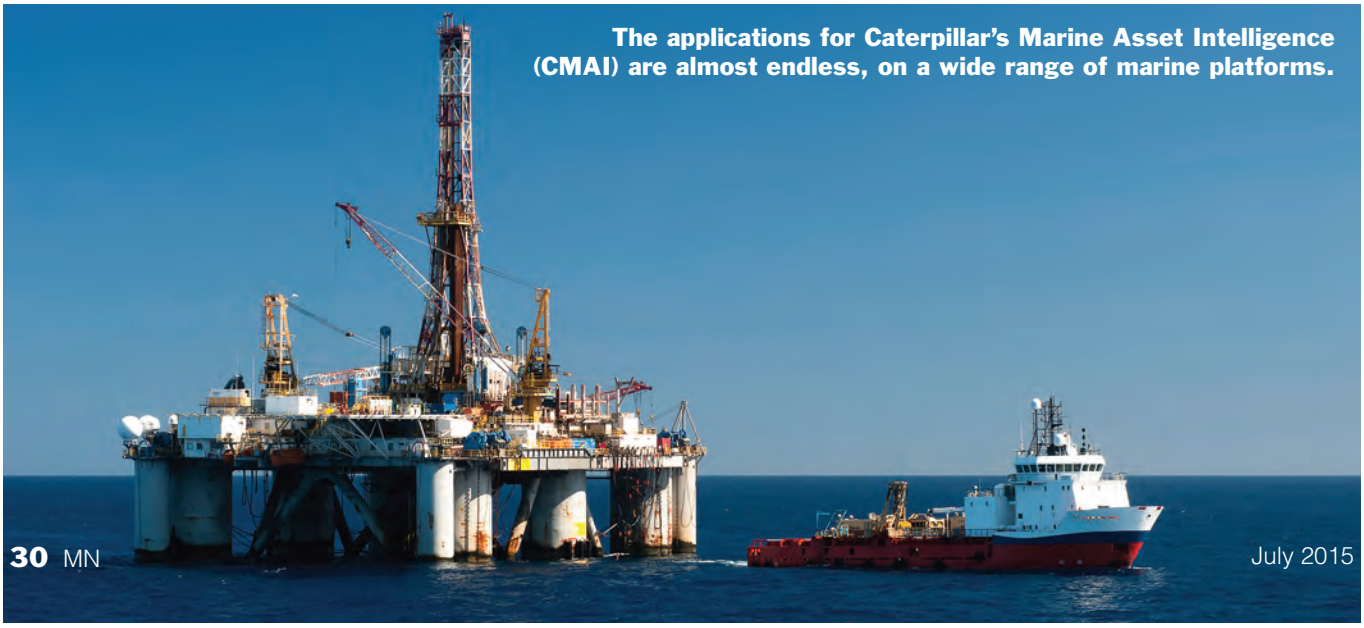
"The next frontier of creating value or saving costs is optimizing operations. It's being able to get the next level of performance out of an asset."
– Rob Bradenham, Global Sales & Business Development Manager, Caterpillar Marine Asset Intelligence

"Engineering technology has gotten to a certain level where you might be able to squeeze out 1% in fuel consumption by changing this or altering that. But we're talking about 15%-20% opportunity in cost savings by productivity optimization"
– P. Jaime Tetrault, Director, Product Support, Caterpillar Marine Asset Intelligence

erpillar's worldwide network of dealers and support.

That doesn't mean Caterpillar isn't already looking ahead. One of the biggest hurdles for this type of software has been the trust factor, something marine companies were reluctant to give to a small company like ESRG, even with ties to the U.S. Navy. Having the Caterpillar name behind it has already opened doors, claim Tetrault and Bradenham. But that's just one level of trust.

Rob Bradenham told *MarineNews* in June, "The next frontier of creating value or saving costs is optimizing operations. It's being able to get the next level of performance out of an asset." And, he says, the goal of CMAI's data analytics package "is to put the right information in front of the right shareholders so they can determine what the cost benefit is of a certain action." At the same time, he lamented, "We've talked to owners and operators who were so overwhelmed by data such that it was paralyzing, [resulting in] a zero value coming out of it." CMAI aims to change all of that.



**The applications for Caterpillar's Marine Asset Intelligence (CMAI) are almost endless, on a wide range of marine platforms.**

iStock

Looking ahead, Caterpillar is hoping to get together with the classification societies to earn their stamp of approval so that when a CMAI fleet advisor issues a recommendation, it will come with a classification society stamp of approval.

For example, CMAI's data analytics can enable clients to move from scheduled, pre-programmed maintenance to predictive maintenance, ensuring that equipment gets attention only when it needs it – not at some artificial interval. The benefits are clear - less down time, potentially fewer (or timelier) overall repairs, fewer emergency repairs, etc. But that doesn't mean the classification society will support it.

Tetrault expects it could take five years to bring the classification societies on board – in the meantime – the company will be working to build up its customer base and collection of success stories.

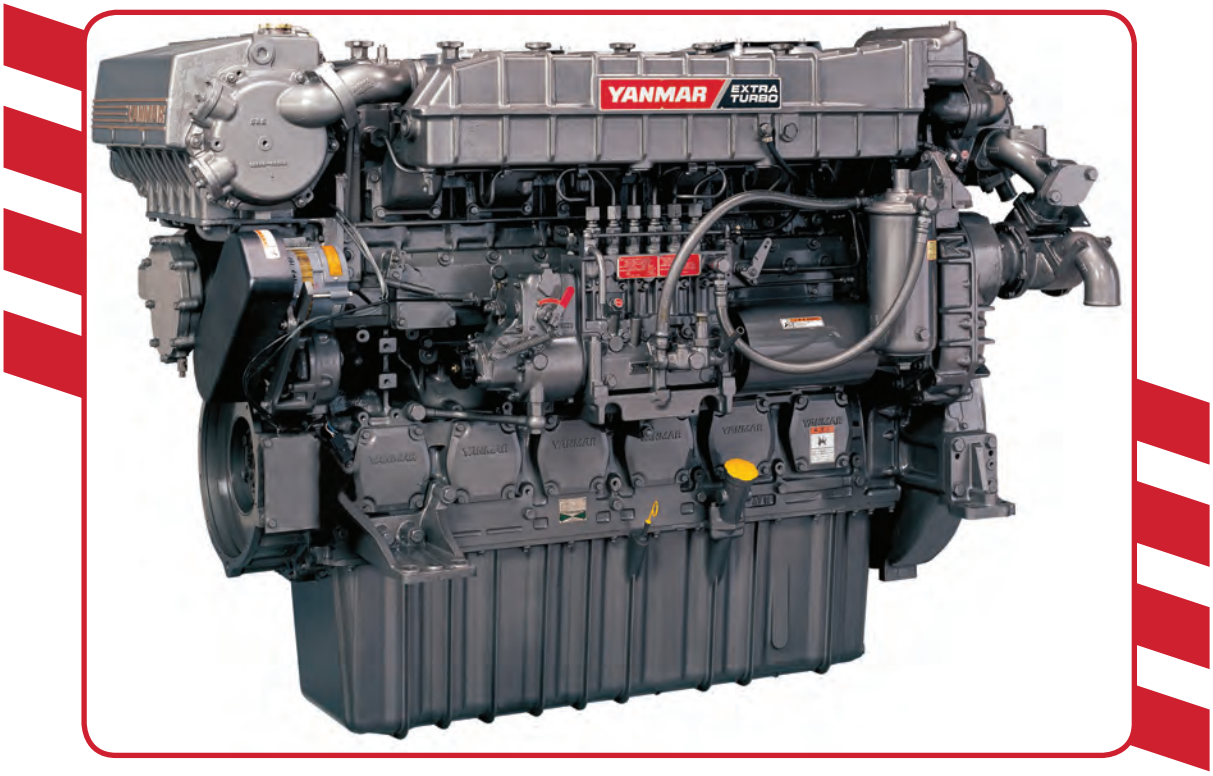
Yet a third level of trust involves data storage. "When you are a small company, data storage suddenly becomes one of your biggest problems," says Tetrault. Outsourcing storage is an expensive option. "Caterpillar already monitors over 300,000 assets. We are one of the largest monitoring and data collectors beyond automotive and the airlines, and we are growing at an exponential rate between new equipment with sensors and retrofitting thousands of older engines," he adds, noting, "We invest heavily in data management and security."

He also wants to automate regulatory compliance to enable customers to take corrective action prior to exceeding tolerance limits, and to build interfaces to customer systems, OEMs and classification societies.

Over time, Caterpillar Marine says it will introduce a "full suite of analytic solutions" targeting what it sees as the four top customer priorities: Increasing reliability of machinery operations, optimizing vessel productivity, ensuring safety; and operating more sustainably.

*Patricia Keefe is a veteran journalist, editor and commentator who writes about technology, business and maritime topics.*

# YANMAR's NEW EPA Compliant Commercial Engine




***Installed and on the water, Yanmar's 6AYA-ET engines are already providing value on the U.S. Gulf Coast. This fully mechanical engine is anything but low-tech.***

Edited by Joseph Keefe

More than 60 years of worldwide experience plus an engine designed specifically for the United States market has made a winning combination for YANMAR's new EPA compliant commercial engine application. The Push boat Sherry L, owned by E Squared Marine Services, LLC from Texas and repowered by Laborde Products, now operates even more quietly and with better fuel consumption thanks to its new 6AYAM-ET engines. That's only part of the story, however.

With a need for 24 hours of continuous operation each day pushing inland barges from Channelview to Galveston and on Gulf intercoastal waterways, the Sherry L can't afford to take a day off. Thanks to its new 755 mhp engine equipped with SmartAssist, it won't have to. YANMAR's unique SmartAssist (SA-R) technology allows the engine to be monitored remotely to ensure ideal operating conditions. And, when it's time for maintenance, the system will send out a reminder, so that maintenance can be completed on the boat's schedule to make sure it stays in operation the maximum amount of time possible.

**Image above: The YANMAR EPA compliant, fully mechanical workboat engine.**

The 61' Sherry L is a twin screw steel Push Boat of 152 DWT built by A&B Industries of Morgan City. The installation of the 6AYAM-ET engines was an easy repower reset with a propulsion package that kept the existing set of TwinDisc marine gears MG517DC ratio 5.03, as well as existing shafts and propellers.

**"These engines perform better than expected, while also offering quieter operation than the units they replaced and over any other engine I have ever installed in a tug. The fuel consumption is also exceeding expectations, especially for the engine's horsepower range."**

**– Tommy Echols, co-owner of E Squared**

While the engine is still in its first trial year, the pushboat, according to Yanmar and its customer, has been performing remarkably. Tommy Echols, co-owner of E Squared, told *MarineNews*, "These engines perform better than expected, while also offering quieter operation than the units they replaced and over any other engine I have ever installed in a tug. The fuel consumption is also exceeding expectations, especially for the engine's horsepower range."

The repower job took place in September 2014 and the boat has since recorded hundreds of running hours, with no problems. Beyond this, and just as importantly, the twin 6AYA-ET engines, representing Yanmar's new EPA Tier 3 entry, are mechanical engines that are now available for purchase, with the help of Yanmar distributor Laborde Products. As *MarineNews* went to print, Yanmar was preparing for another 6AYA-ET installation on a tugboat in the port of Savannah, GA. So far; so good.

## Tracking Performance & Parameters

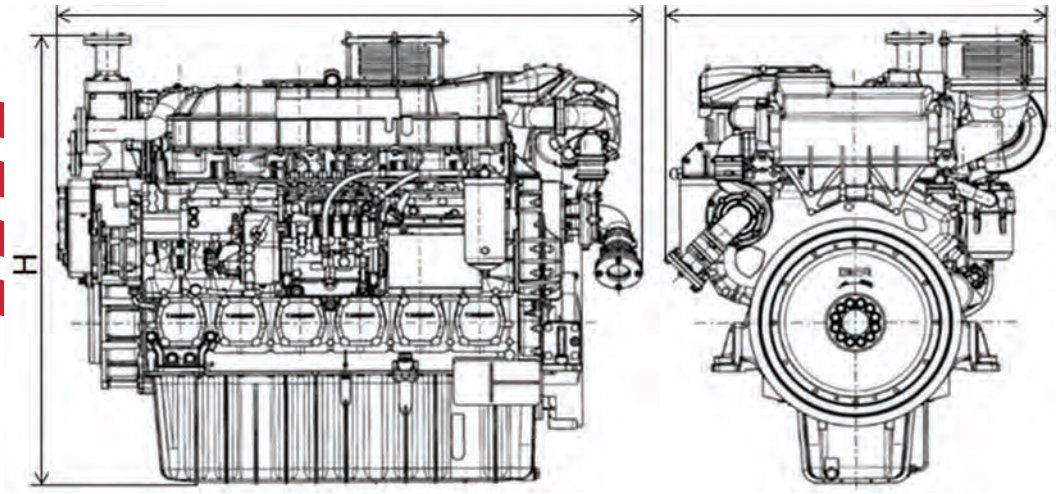
Since installation, YANMAR has been tracking the engine's operating condition using SA-R, as well as visiting the vessel periodically to confirm the engine and SA-R are working correctly. During the last visit in May, the engine was performing at or in excess of design parameters. SA-R can track Location (GPS), Engine Speed, Boost Pressure, Exhaust Temperature, Cooling Water Temperature, and Lubrication Oil Temperature/Pressure. And, although SA-R is designed for electronic engines and machines, the 6AYA doesn't have an ECU. Therefore, YANMAR installed a special interface vox to generate a CAN signal converted from the conventional gauge signal.

The prototype arrangement consists of a conventional harness with instrument panel, and an optional M200C system that converts conventional engine data into CAN bus protocol. The engines installed work with a dual circuit (HT-LT) cooling water system, and are equipped with factory installed air starters.

Yamar's SA-R collects data based on the parameters every .01 seconds and sends the average for a two minute time period via cellular service to the YANMAR Remote Monitoring Center in Japan. YANMAR Japan analyzes the data, and if a defect or warning is found, YANMAR America is then alerted.

## The 6AYAM-ET

The 6AYAM-ET is YANMAR'S newest EPA regulated commercially rated engine. With an operating performance of 755 mhp at 1,900 rpm and 20.38 liters of displacement, this 6 in-line cylinder mechanical engine is well positioned to become a familiar workhorse on the United States waterways for years to come. Key features of this engine include a 500-hour service interval, torque characteristics for stable cruising, a purpose built marine




design and an internal exhaust gas recirculation system that doesn't require any external control devices.

Yanmar hopes to fully penetrate the North American market for tugs, trawlers, pushboats and other similar workboats with the engine. Today, this EPA Compliant Tier III Commercial Engine produces environmental savings that include reduced NOx, particulate matter (PM) and Total Hydrocarbon (THC) emissions. Its lower fuel consumption also creates less CO2.

## Mechanical, by Design

The fully mechanical 6AYAM-ET is additionally touted by Yanmar as the next workhorse on United States waterways for years to come. That's because many of the existing pushboats in the US waterways have older 750 or 950 mhp mechanical engines. The 6AYA is arguably the perfect mechanical replacement for the 750 mhp range engines because no other competitor has a 750 mhp mechanical engine – the rest are all electrical. And many owners and crews – E Squared among them – dislike electronic engines because of the specialized knowledge and repair costs associated with them.

On the Yanmar 6AYAM-ET, the control system is simple and easy to use (unlike electronic remote control systems), and in many cases, the previous control system can be used when the engine is replaced. Yanmar says that this translates into lower maintenance costs and easier troubleshooting and repair. The need for a mechanic or engineer with


specialized knowledge is lessened and if for some reason an issue arises, the crew can repair the engine themselves. This, says Yanmar, adds up to increased security on the water.

The Yanmar 'fully mechanical' engine also allows maintenance tasks to be performed by the vessel's engineer with no need to wait for factory personal with electronic diagnostic tools to solve a problem. There's no need to buy expensive fuel injectors 'ex factory' – simply rebuild an injector on board within a short time period and with minimal cost. Installation is equally simple.

## Bottom Line Satisfaction

E Squared, a company offering all types of marine transportation in the Gulf Coast, chose Laborde Products, YANMAR's local distributor, and this particular YANMAR engine not only because it met the stringent EPA Tier III requirements and fit their size and horsepower requirements, but also due to previous good experience working with Laborde. When asked if he would recommend these new engines to others, Echols replied, "Definitely; when these engines are available for mass distribution I will highly recommend them to any company that needs the power these engines produce. They are a great addition to the commercial diesel market since there is no other manufacturer that has this 750-800 mhp rating."

# Standardized Demurrage – Just in Time

***Haugen Consulting's software solution for claims and demurrage simplifies data management and documentation headaches for inland barge operations.***

By Joseph Keefe

At this very moment, your opposite number in the back-and-forth dance of a complex demurrage claim is hoping that you can't quite find that spreadsheet that contains the informal calculations to support your case. Or, in the event that you do find it, enough time will have passed that your expensive organizational mistake will be "time-barred." And, at that point, that sum will be safely entered into his accounting sheet as "found money." It happens more often than most trading partners – no matter what side of the equation that they reside – would like to admit.

It is a fact that the demurrage and claims process at some commodity trading houses amounts to a very lucrative profit center. At these firms, claims personnel spend 20 years or even an entire career honing those skills. They rarely make a mistake, and if they do, it won't be in your favor. Nevertheless, even the smallest of inland operators can protect themselves by standardizing the way they do business. The right technology and software is a good place to start.

## Demurrage 101

Kathleen Haugen and Jake Amonette cofounded Haugen Software as an independent sister company of Haugen Consulting. Haugen Consulting has served as a marine logistics consultancy for over 20 years, and offers additional concierge support to Haugen Software clients with complex needs that cannot be met by software alone.

Haugen Consulting's core business is demurrage. Clients most commonly retain Haugen Consulting to manage demurrage claims from beginning to end. When representing vessel owners, Haugen generates demurrage calculations and files the claim (together with the proper supporting documents) to the Charterer and then follows up until resolution. Conversely, when representing Charterers or Trading Partners, they typically analyze and negotiate demurrage payables while simultaneously filing claims with the counterparty and facilitating resolution.

Haugen Software is specifically designed to end the countless hours wasted on the management of demurrage, protracted negotiations and the pain of missed performance issues. According to Kathleen Haugen, Haugen's products, Voyager and Insight, act as a lever that enables anyone in the industry to streamline their claims management. Haugen told MarineNews, "We want to see an industry where demurrage is handled efficiently, quickly, and fairly, and we've designed Voyager to be the platform that enables this."

Gathering the data and documentation for creating a claim is a tedious process that requires tracking down information from multiple sources that support a claim. Calculating the demurrage that emanates from this documentation, once obtained, is a data-entry intensive, error prone, and time consuming process, that gets duplicated (data entry included) by every party to the claim. And then, managing claim volume can be a nightmare. Claims and calculations are scattered all over analysts' inboxes, with maybe a few spreadsheets for tracking.

It's shockingly easy and common to drop the ball and miss a timebar on six figure claims. And, even if you don't miss that timebar, negotiation with counterparties and rebilling can be a mess. Haugen Software President Jake Amonette adds, "A single demurrage claim can pass through a lot of hands: owners, brokers, charterers, and trading partners. This generates an enormous amount of noise, with all of these parties communicating and negotiating with each other via endless emails, containing manually summarized data (often erroneous), from numerous spreadsheets all in different formats."

## Software Solutions

In a perfect world, everyone would be working from the same platform. But, that's rarely the case, especially in inland waters. Amonette explains, "Industry needs a cohesive platform allows everyone to work in a single system, that eliminates errors, manual summarization of data, and duplicated work. That's what Voyager does." Voyager encourages, but does not force, counterparties to adopt the system and workflow. For example, when presenting a claim to a counterparty via Voyager, the receiver has the option to log into the system to view and respond to the claim, but they also receive a simple email with all of the relevant claim information attached.

**"A single demurrage claim can pass through a lot of hands: owners, brokers, charterers, and trading partners. This generates an enormous amount of noise, with all of these parties communicating and negotiating with each other via endless emails, containing manually summarized data (often erroneous), from numerous spreadsheets all in different formats."**

**– Jake Amonette, President of Haugen Software**

Haugen's Voyager platform gives analysts the tools to organize documentation into a standardized, yet flexible format, making it easy to hand off claims between analysts within a group. All claim information is presented cohesively, in one place. Duplicate data entry is eliminated by, when possible, importing data from voyage management systems or vendors such as surveyors.

Moreover, Voyager is a shared platform. If an owner originates a claim in Voyager and sends it to a charterer or broker, the receiver of the claim can revise it and respond with a single click. Likewise, that receiver can rebill a claim to a trading partner with no additional effort. And, says Amonette, since the data is now standardized and readable by Voyager, it can automatically generate summary data, alert analysts to important events such as timebars, and facilitate using demurrage information for business intelligence and decision support.

Optional add-ons can include commercial off-the-shelf AIS devices and services to verify time stamps on particular voyage events. That's because, verifying that vessel 'A' was where it was supposed to be, when the operator said it would be there can be an important part of the claims process. Amonette adds, "Several of these services, such as MarineTraffic, provide machine-readable interfaces to their vessel position data, which Voyager (as an optional add-on) can use to verify vessel positions. This technique has been hugely useful internally at Haugen Consulting in verifying claims and promoting transparency in claims management."

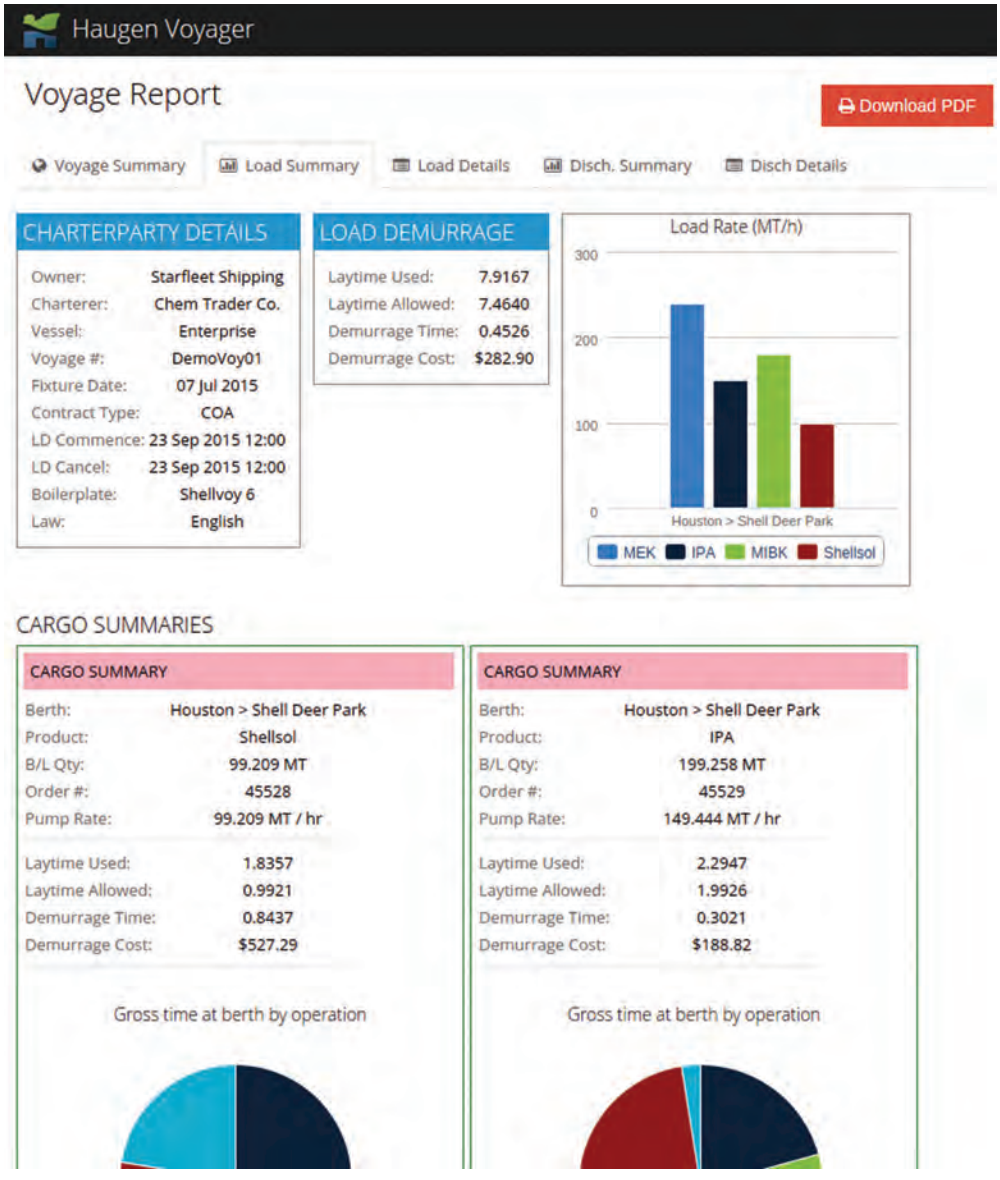
**Kathleen Haugen, Managing Director, Haugen Consulting**

HAUGEN SOFTWARE
Demurrage & Maritime Logistics Solutions

## On the Waterfront

Voyager has been engineered to be flexible enough, incorporating complicated (and obscure) terms, so that customization isn't typically necessary. Customers report that the system is both user-friendly and can be mastered in a very short period of time, with minimal training. John Kennelly, Manager of Chartering and Operations at Enjet, told *MarineNews*, "The system was originally meant for chemical tankers and other blue water commerce, but it adapts well for our purposes. Data entry is simple and the tracking capacity saves us a lot of time."

For Enjet, the software has meant faster invoicing and instantaneously logging of data into the accounting system. For Kennelly, it also means knowing exactly who owes him money and how much at any one time in the trading day – a huge advantage when negotiating that next deal. That's because Insight, the Haugen analytics package, allows the user to create arbitrary reports on any information tracked by Voyager, including demurrage time and cost, cargo performance, historical and outstanding claim summaries, timebar management, and other metrics.




The streamlined process also means that fewer personnel are needed to manage the workload. That said, it isn't always possible to support extremely unusual contract anomalies. In those case, Kennelly takes advantage of the manual overrides built into the system that make handling these situations possible without customization.

## The Inland Markets & Demurrage

In many ways, tanker demurrage and barge demurrage are the same. Barge demurrage in the U.S. market can be complex when multiple barges form a tow, with

individual barges being delivered to separate points. Depending on the configuration, activity will have different demurrage implications.

On the other hand, chemical tanker demurrage involves any number of cargoes and terminals worked in a port, making this trade much more complex than the barge trade. Widely thought to be the most complex trade from a demurrage perspective, Voyager's foundation is based on this complicated sector and therefore handles others quite well.

From Haugen's viewpoint, the inland market follows the "80/20" rule. That is to say that 80% of an analyst's time is spent calculating a plethora of barge demurrage claims due to the nature of the short voyages as compared to sea going vessels. This also translates into multiple rebill claims that are filed and negotiated with the terminals. But barge demurrage represents only 20% of the barge demurrage liability and/or revenue stream due to the low demurrage rates of the barge equipment as compared to the much higher demurrage rates of sea going vessels.

Amonette says that Voyager's streamlined workflow is the value driver for managing high-volume claims experienced in the inland markets. He adds, "Voyager's value is in the efficient claims handling workflow that saves analysts' time in calculating claims as well as staying on top of outstanding payables and receivables. When using the Claims Sharing feature with counterparties the settlement process is faster resulting in improved cash flow."

## The Case for Software-based Streamlined Demurrage Management

A demurrage calculation includes fine grained, time-stamped information about the operations of a vessel in a port. This data, when aggregated over the course of many voyages, contains insight into all aspects of marine operations, demurrage included. This data can be used for a wide range of purposes, limited only by the needs and imagination of a logistics manager or business analyst. Keeping track of that via hand or in a spreadsheet can be daunting, if not impossible. But, that's where Haugen's Voyager comes in.







# KZ100 Synthetic Hoist Line: Converting Critics One Lift at a Time

***While the technology is new to the crane industry, it is not new to high risk, demanding applications.***

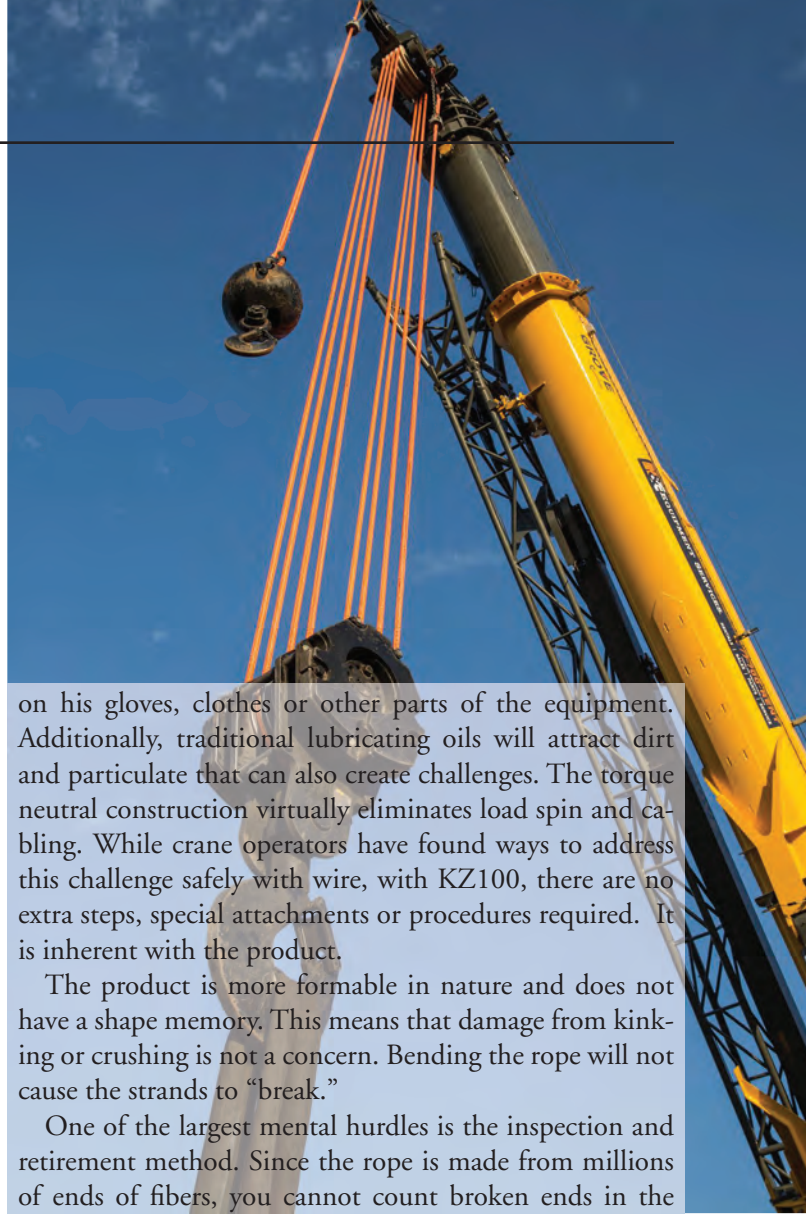
By Michael Quinn

In March of 2014, Samson debuted KZ-100, the first synthetic hoist line designed specifically for mobile cranes. KZ100 is a product of joint application development between Samson and Manitowoc, supported by fiber supplier DSM Dyneema. Leveraging the experience and technical expertise of Samson's and Manitowoc's Research and Development teams, they brought the market something that is completely new and offers numerous benefits to the end user.

## Many Benefits – Fully Validated

In an industry where safety is Job ONE, KZ100 is a lightweight alternative to traditional steel wire rope; providing multiple benefits for safe and easy handling. In addition to safety, KZ-100 offers a host of other benefits. With the same load pull and load chart as wire, KZ100 can be used with a 5:1 safety factor. It is 80% lighter than the wire it replaces, making for easy handling, reeving and installation. Synthetic KZ100 does not rust and requires no lubing. The unique construction eliminates kinking, bird caging, and damage caused by diving on the winch drum. Because of its torque-neutral construction, KZ100 eliminates load spin and cabling, making it a favorite among crane operators who have lifted loads with the rope.

Manitowoc and Samson conducted an extensive lab testing and field trial program to prove the viability of using synthetic rope as a crane hoist line. KZ100 was tested in the lab to characterize tensile strength, tension fatigue, bend fatigue, and the effects of temperature on the rope's performance. These tests were performed at four different testing labs—two Samson labs and two third-party labs. The testing plan required more than 4,000 hours of machine and sample preparation time to complete. The total length of rope manufactured for testing and field trials pursued over the course of this project came to 24,500 feet, or more than 4.6 miles of rope. In addition to Samson's tests, Manitowoc conducted reliability tests over more than 280 hours and 14,000 cycles.



Testing has revealed that the most significant damage comes from abrasion of the rope when under load and transverse pressure. This specifically translates to damage of the rope over time where it contacts the flanges of the hoist drum at layer transitions. The combination of line pull and transverse pressure from the stored rope create a "scrubbing" that will eventually wear the rope. This can be mitigated with improvements to drum surface conditions and also by changes the position of the rope on the drum periodically. By knowing the mechanism and being able to visually inspect the rope, the damage can be addressed before it becomes an operational issue.

## Critics Converted with Measurable Differences

Since its introduction, KZ100 has the attention of the industry. While it's an industry that is vested deeply in wire rope usage as a standard, even the most skeptical critics are recognizing the benefits. When most people think of synthetic rope, the image that comes to mind is the traditional nylon or polyester ropes. The foundation of KZ-100 is very different. It is made from high performance fibers that have very high strength, low weight, and low elongation. This provides a rope that is comparable to wire in strength, size and elongation. For example, KZ100 at a 22mm (7/8") diameter has a breaking strength of 84,000 lbs (38.1t). When used at a 5:1 safety factor, the maximum elongation seen will be 1.3%.

When some stakeholders first hear of synthetic rope technology, they picture a fragile product that is easily damaged. However, with today's fiber, coatings, and rope construction technology, Samson's similar rope products are used for tanker ship mooring, tug boat applications, mining applications, offshore heavy lift slings, and military applications. The fiber technology is used for bullet proof vests, vehicle armoring, and cut resistant gloves for glass handling operations.

Beyond the base technology, the skeptics are learning that the assumptions and accepted practices with wire rope are not the same with synthetics. There are few areas where the differences are immediately noticeable. First, the handling and reeving is much easier. Due to the significant weight reduction, the effort expended by the operator to handle the rope is much lower. Also, given the more flexible nature of the product, the force needed to manipulate the rope is less. This equates to more time lifting and a reduced risk of hand or back injury.

One of the other immediate differences is the lack of lubricant on the rope. This means less maintenance cost in time to apply lubricant and cost of the materials. However, it also means the operator is not getting grease/oil on his gloves, clothes or other parts of the equipment. Additionally, traditional lubricating oils will attract dirt and particulate that can also create challenges. The torque neutral construction virtually eliminates load spin and cabling. While crane operators have found ways to address this challenge safely with wire, with KZ100, there are no extra steps, special attachments or procedures required. It is inherent with the product.

The product is more formable in nature and does not have a shape memory. This means that damage from kinking or crushing is not a concern. Bending the rope will not cause the strands to "break."

One of the largest mental hurdles is the inspection and retirement method. Since the rope is made from millions of ends of fibers, you cannot count broken ends in the same fashion as is done with wire. Samson has developed a visual inspection tool that provides the user with various levels of wear that are considered acceptable and those that require retirement. This work is supported by a continuing robust residual strength testing program.

## It's Not New, Just New To You

While the technology is new to the crane industry, it is not new to high risk, demanding applications. In each industry serviced by Samson, project timelines are critical, safety is paramount, and the investment is extensive. It won't be long, and the idea won't seem foreign at all. Instead you'll be saying, I can't believe we didn't do this sooner.

***Michael Quinn** is the Director of New Business Development for Samson Rope Technologies in Ferndale, WA and has worked for Samson for 7 years. Michael has a background in Metallurgical and Materials Engineering, operations management and sales/marketing.*

# Inland Navigation: Strength and Loading Issues

With roads becoming ever more congested and pollution a major issue, transporting large or bulky items of cargo by barge is now a viable option in Europe. However, a spate of casualties during the last few years raised concerns about the fitness for purpose of some inland navigation barges. In response, BMT Surveys has been tasked with investigating incidents related to structural failure of inland barges. These effort led to definitive conclusions about the root causes of these problems.

## Across the Pond

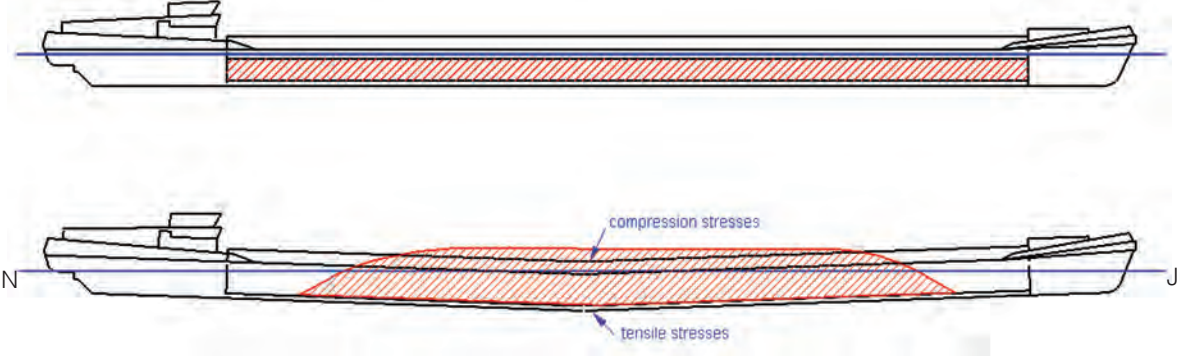
The extent and variety of ships using the world's major rivers is vast. For example, the Rhine is Europe's busiest inland waterway, with an estimated 7,000 vessels using the river, representing a capacity of over 10 million tons. This includes 4,500 motor cargo vessels, 1,300 tankers, 1,200 pushed barges and tugs and hundreds of passenger ferries. Some 600 vessels cross the Dutch/German border daily, carrying over 200 million tons of cargo annually. A significant part of this cargo has originated or has been transshipped from the port of Rotterdam, where 133,000 inland vessels called last year. By using the Rhine-Maine-Danube-Black Sea Canal, cargoes from Central and Northern Europe can be transported directly to the Black Sea.

With a growing tendency in Europe to use inland barges for transporting many different types of cargo including bulky, heavy, expensive items such as transformers or other industrial machinery, there is also a considerable increase in risk. If the barge is lost for any reason, the insurers' liability will extend beyond the value of the barge and the cost the salvage operation, to include some potentially very expensive cargo. Recently, BMT was consulted in a number of cases/casualties involving the breaking and subsequent salvage of inland navigation barges. As part of the background research it became clear that dramatic barge failures – at least in Europe – are still a regular occurrence.

## Casualties

The incidents in question all occurred during loading operations. On one occasion, a 280 ton transformer was lowered straight onto a barge amidships and as the load came off the crane and onto the barge, the vessel just folded up underneath. In another example, the push barge *'Thor'* suddenly collapsed and sank ten minutes after leaving its berth with a cargo of steel plate. Since old barges were involved, questions immediately arose about the cause of the incident. And, because of the nature of brown water shipping (fresh water), it is not unusual to find working barges that are 30 or 40 years old and still fit for purpose. Did the barge give way due to poor construction, or was the collapse caused by faulty loading or something else? Some older barges may indeed suffer from degraded sections in their construction but after making ultrasonic measurements, BMT's surveyors generally found the steel to be within acceptable limits. As intrinsic design issues and structural failure were ruled out, BMT's surveyors shifted their attention to how the vessels were loaded.

In these kinds of incidents, reconstruction of the loading procedures is important as these represent the last actions prior to the barge's collapse. Reconstruction can be based on witness statements, available photographs, videos from security cams, diving inspections before salvage, etc. Subsequently, strength calculations of the still water bending



moments and the section modulus were carried by BMT to understand the mode of failure and the factors involved.

## Cause & Effect

During BMT's investigation it became clear that there was a lack of understanding amongst stevedores and even some barge crew that inland navigation barges are very different to seagoing vessels. In fact, the design, construction and use of an inland navigation barge cannot be compared to that of a seagoing vessel. Inland barges are open-top vessels with unusually large length-to-beam and length-to-height ratios, shallow draught and an extremely long cargo hold. Therefore, they have low bending and torsional rigidity. Moreover, the state of the ship structure changes appreciably in course of service due to minor collisions, groundings in shallow water, corrosion and fatigue. Such imperfections reduce the stability and strength of the structure. The safety against collapse decreases.

While sea-going vessels are designed to withstand heavy weather, rough seas, waves, etc., an inland navigation barge is designed to sail in sheltered waters. The depth of the hold of a seagoing vessel tends to be higher to create more freeboard which also gives more resistance against bending. Conversely, barges are of a far lighter construction and are far more sensitive to applied loading from cargo. Historically, barges are designed to carry cargo in bulk or in bags which should be equally spread over the entire tank top of the cargo hold and while there are some newer vessels entering the market that may be more robust, the greater proportion of waterway barges are still of traditional construction.

What became clear during BMT's investigation was that barges were being loaded in a way never envisaged at design stage some 30-40 years prior. When the principle of equal spreading is not respected, for instance if the load is concentrated in the center, the barge tends to bend in the middle, a condition which is also known as "sagging." This condition generates high compression stresses in the hatch coaming, and high tensile stresses in the bottom plating. Once these stresses exceed the buckling resistance of the hatch coaming construction, it then buckles inward. At the same time, equally disastrous tensile stresses are being created on the underside of the hull, leading to the bottom plates giving way under the strain.

Furthermore, a proper athwartships distribution of the cargo load should be respected. If cargo is loaded any other way, the bottom tends to bend in transverse direction, the effect of which is increased by the hydrostatic water pressure in the ships' sides which can lead to failure. In the case of the push barge, the heavy steel plate stacks did not cover the entire length of the cargo hold; moreover, the cargo weight is concentrated near the barge's centerline rather than having been spread sideways. After salvage of the wreck, the typical failure mechanism as described above could be clearly noted: the barge's bottom was bent downwards in transverse direction, its sides were pushed inward and its hatch coaming was heavily buckled.

Barges remain an excellent way of transporting cargo on inland waterways and the longevity of these vessels do credit to their designers and builders. However, it is important to ensure that cargo is positioned appropriately. If it is not possible to spread the load around the entire surface, then it is imperative to do the calculations utilizing the services of a naval architect or other professional engineer as required and put the right amount of compensation ballast at the end and the sides of the vessel to prevent it from deforming and collapsing.

***Carlos Maenhout*** *MSc of BMT Surveys is an experienced surveyor and Naval Architect. He has conducted numerous casualty and technical liability investigations.*

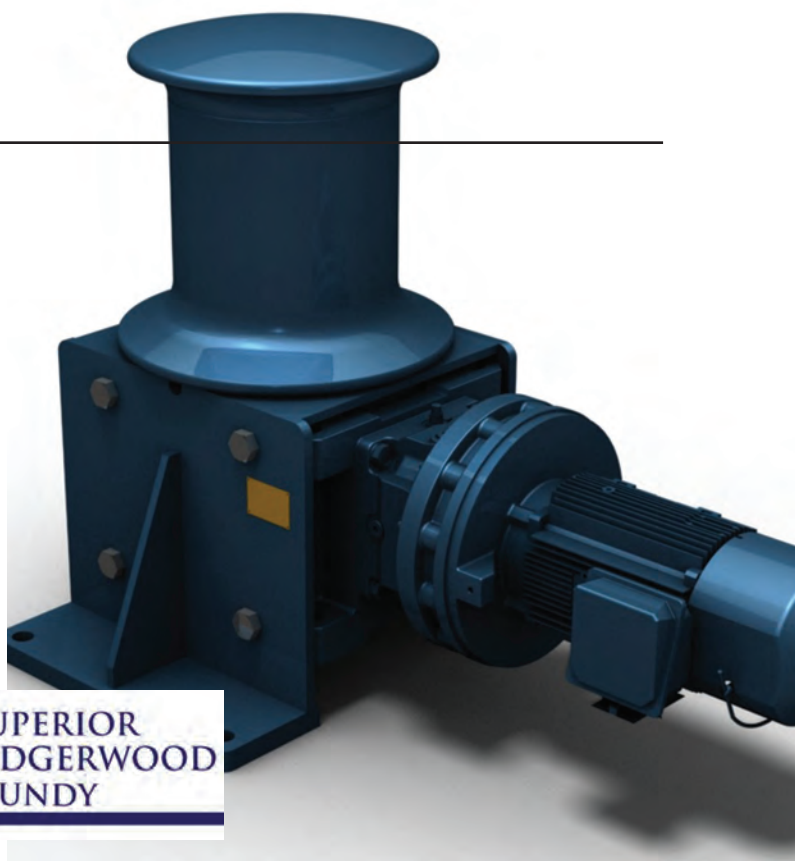
# Variable Frequency
## Drives on Marine Deck Equipment

***The modern variable frequency drive provides safety and efficiency with a quick payback for a slightly higher initial cost.***

By David Hughes

In the past decade, many advances have been made in both the function and economy of variable frequency drives (VFDs). VFDs can have many advantages when applied to marine deck equipment such as winches, capstans, and hoists. Typically, this equipment is started by standard across-the-line motor starters. While these starters are low cost and their use widespread they have inherent drawbacks when used on marine deck equipment. Many of these drawbacks can be mitigated by upgrading from a standard motor starter to a modern variable frequency drive.

When starting an electric motor across-the-line the motor will start abruptly and with full voltage. This voltage subjects the motor to a high starting current of approximately 600% of full load current until the motor reaches its rated speed. A VFD will ramp the motor to full speed over a programmable period of time. This eliminates the current spike associated with starting an electric motor and allows for a slow, controlled acceleration. The maximum torque produced by the motor can also be limited easily through VFD configuration. This limits the operator from overloading or stalling a motor. If equipment is frequently



SUPERIOR LIDGERWOOD MUNDY

run to stall, the motor life will be significantly shortened.

The ability of the VFD to slowly ramp the motor during starting and stopping also adds a level of safety to capstan operation. Capstans can be inherently dangerous because the operator must control the loose end of rope that is spooling off the capstan head. If the capstan starts or stops abruptly, it can lead to a loss of balance by the operator. Ramping functions can eliminate this safety concern from operating capstans.

Another specific side effect on vessels occurs when starting an across-the-line electric motor, the generator and other electrical systems can be affected by the high inrush current during starting or stalling. If the generator is already running near capacity, the high current can cause unacceptable voltage sag. This can lead to brownouts and also cause other sensitive equipment to fault or malfunction during motor starting. This effect is easily removed with the ramped start and torque limiting of a VFD.

The slightly more obvious advantage of utilizing a variable frequency drive is the ability to vary the speed to suit the conditions required. With deck equipment, it may be advantageous to be able to slowly haul in line when finesse is required. If the motor is rated to handle operating at a speed higher than 60 Hz, a drive can also operate in a constant horsepower fashion often to 90 or 120 Hz depending on the drive; meaning that as the speed increases above 60 Hz, the torque is reduced proportionately. This allows for hauling in slack line faster than possible with an across the line starter.

Lastly, the flexibility with which you can configure a VFD system compared to an across-the-line starter can make customizing the system to match operations much easier. A variety of operators can easily be added such as footswitches, handheld pendants with multi-speed operation, or radio remote control. Many drives have outputs with the ability to monitor the status of the drive from a remote location. Also, configurations are password protected to add another layer of security to the system from unauthorized personnel attempting to change limits in the VFD.

If you have an application where adding flexibility and equipment protection is necessary then a variable frequency drive may be the right solution. While a more costly initial purchase than an across-the-line starter, the payback period will be brief with the increase in equipment life, safety, and efficiency.

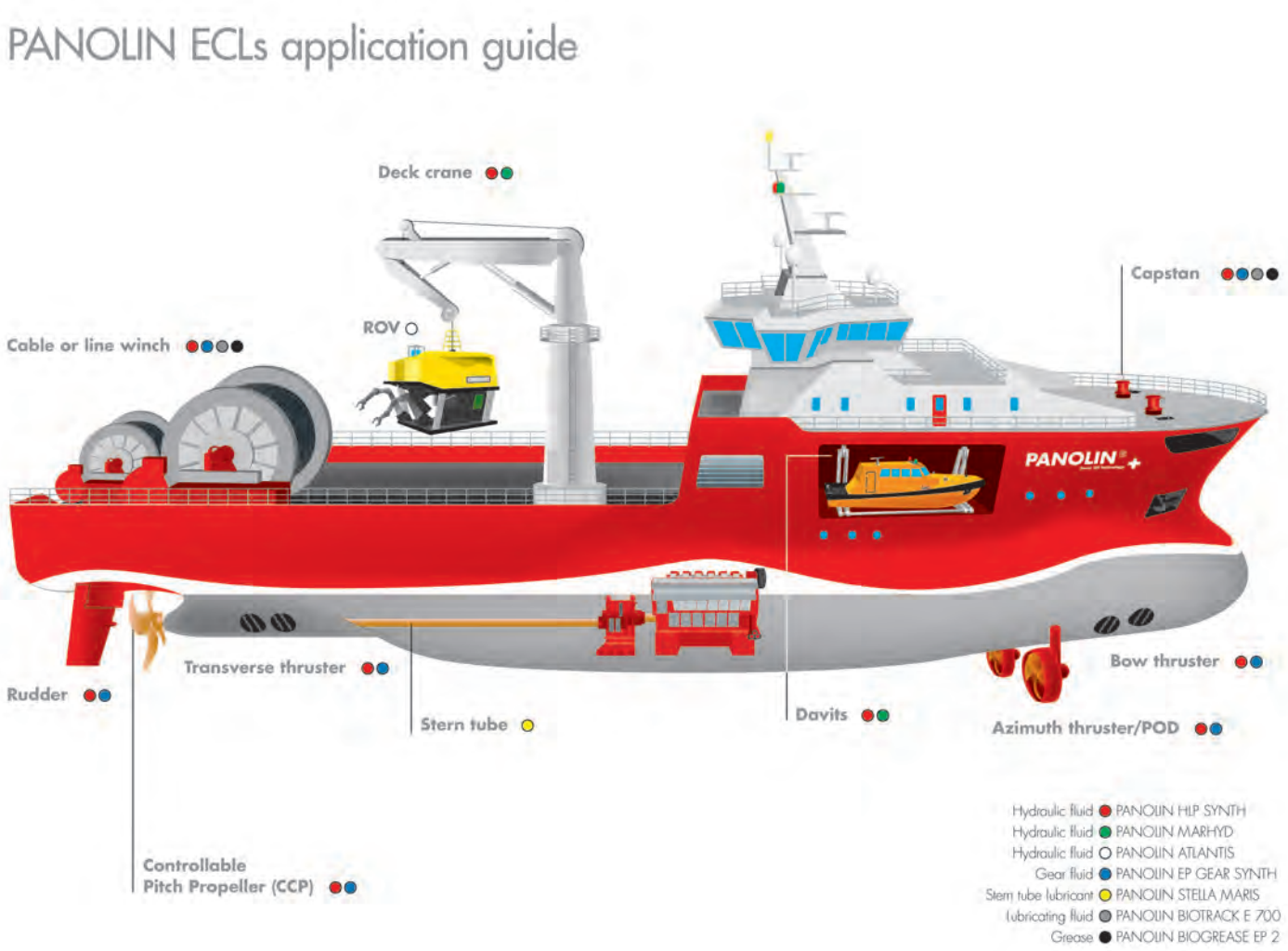
***David Hughes*** *has worked as a design engineer in the commercial marine industry since 2011 at Superior Lidgerwood Mundy. Here he has worked to apply modern controls technology to proven capstan, winch, and hoist designs to improve efficiency, safety, and user friendliness.*

# The ABC's of EAL's

## Navigating the new normal for marine lubricants

With a new global push for environmentally considerate lubricants or, as the Environmental Protection Agency (EPA) states, Environmentally Acceptable Lubricants (EAL), end users face tough questions. These include: What lubricant is correct for each application? Does the lubricant comply with current regulations? What EAL base oil is best for my equipment and will the system perform at its peak? Is the lubricant approved for compatibility? Can we afford the changeover to EAL's? The list of questions is endless, and it can be overwhelming.

Partnering with a lubrication provider can help guide the end user through all of these concerns. For example, Panolin has a full line of GREENMARINE lubricants and an application guide to help. The vessel lubricants that are covered in the application guide are HLP SYNTH hydraulic fluid, MARHYD hydraulic fluid, EP GEAR SYNTH, STELLA MARIS stern tube fluid, BIOTRACK E liquid



grease and BIOGREASE EP 2. These lubricants are all EPA Vessel General Permit (VGP) compliant and Panolin has chosen a saturated ester base oil technology.

According to Panolin, lubrication solutions should be about performance first and then regulations as a supporting aspect. Vessel operators lubricate to prevent wear (save our equipment), reduce friction (better performance), remove heat, prevent rust and corrosion, remove contaminants and, most of all, operate at peak performance. Compliance is crucial but focusing on performance will help drive users to the best EAL.

When looking at the EPA's VGP, EAL manufacturers all try to reach the same standards. These standard are biodegradable or readily biodegradable, minimally-toxic and not bioaccumulative or no bioaccumulation. The criteria for these standards are spelled out in the VGP. With the "technically infeasible" aspect of the VGP under great scrutiny, it is clear that, eventually, end users are going to have to make EAL lubricant choices; sooner rather than later. Based on ISO 15380 for environmentally acceptable lubricants, there are four base oil categories; HEPR, HETG, HEPG and HEES. There are pros and cons to each base oil choice. Working with your provider will enable you to navigate these points.

Base oil is a critical choice but don't dismiss the formulation. Additives are 5-20% of the lubricant. One can select the type of base oil but additives or the formulation is the most proprietary portion of the fluid and experience and trial and error can play a large part in formulations working or not working. Additives – consisting of modifiers, oil protectors and surface protectors – need to work well with each other and support the base oil. Modifiers are used to improve the natural performance of the base oil. Oil protectors are used in lubricants to inhibit undesirable changes in lubricants. Surface protectors are used to add new performance characteristics. Users will be well served to depend on experience and a successful history when choosing a lubricant. The Panolin vessel application and lubricant guide is a great place to start. **www.panolin.com**

# *An Investment in* Innovation

*Colombian COTECMAR develops new designs for Colombian Navy with AVEVA Marine.*

By Karla Moises

**COTECMAR** is a non-profit organization formed by a group of Colombian universities to provide their country's navy with industry-leading, innovative designs for a variety of maritime applications. In 2012, COTECMAR began migrating from Tribon to AVEVA Marine. Three years on, COTECMAR's progress and the achievements that AVEVA Marine has enabled both represent impressive milestones.

## Use of AVEVA Marine

COTECMAR had been using Tribon M3 since 2003. Nine years later, the organization chose to make the migration, also adding *AVEVA Review* to its new AVEVA Marine deployment. Today, it uses AVEVA Marine across all the disciplines and from the early phases, using AVEVA Initial Design for surface handling, hydrodynamic and hydrostatic calculations, through to the development of the 3D model using AVEVA Hull Detailed Design and AVEVA Outfitting. AVEVA Review provides a powerful facility for multi-discipline 3D model design review.

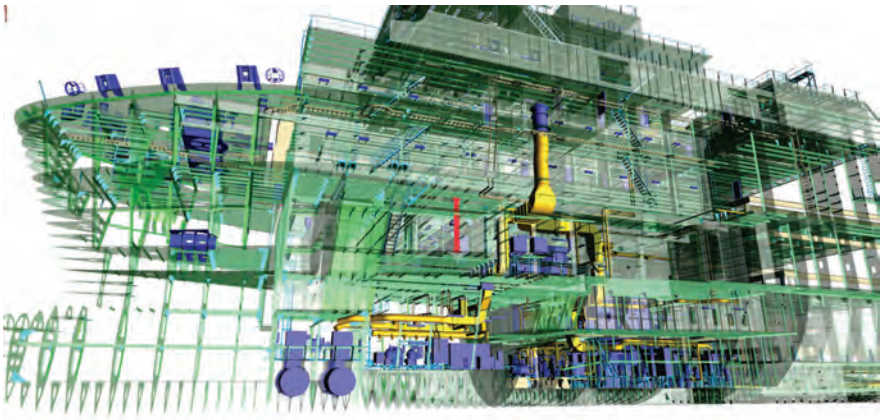
## Migration and Beyond

Once the decision to migrate had been made, COTECMAR began developing 28 training courses in different modules, for a multi-disciplinary group of 51 designers, drafters, modellers and administrators. Once this basic training had been completed, the migration process began. Over a period of eight months, five projects – an offshore patrol vessel, two award-winning river patrol boats, a multi-purpose tug and a barge – that had been developed in Tribon M3 were successfully migrated into the AVEVA Marine environment. After migration made by AVEVA team, COTECMAR team began the post-migration process to improve and correct the model of Offshore Patrol Vessel (OPV) during four months. Using the migrated model of OPV was begun the 3D model and construction of third OPV built by COTECMAR.

With the migration now complete and the team fully familiarized with the new capabilities, COTECMAR's first AVEVA Marine project was a landing craft, the ARC Golfo de Tribugá. Work started on its design in August 2012. In April 2013, the 3D model was delivered for construction in COTECMAR's shipyard at Mamonal in Cartagena, Colombia, where advance information from the project

model had enabled the yard to begin preparation three months earlier. Construction, and quayside and sea trials were completed in March 2014 and the vessel was delivered in April 2014 to the Colombian Navy.

An advanced vessel in its class, the new landing craft provides logistical support to the Navy and Marine Corps by transporting equipment and personnel. In emergencies, it can also perform evacuation operations. It can accommodate a crew of 48 for eight days of autonomous operation, or a crew of 12 for 33 days, and has a maximum speed of nine knots. This project was a pilot to apply the knowledge gained in the trainings of AVEVA Marine.



**Ship Hull detail screenshot taken in AVEVA Review and built in AVEVA Outfitting.**

## Second project: Coastal Patrol Vessel, CPV

COTECMAR's second AVEVA Marine project, coastal patrol vessel ARC Punta Espada, began its contract design in April 2012 and its 3D modelling in May 2013. 9 months later, the full 3D model of the ship – including Hull and Outfitting – was completed allowing the delivery of the CPV to the Colombian Navy on December 2014. The vessel undertakes patrol and surveillance of Colombian territorial waters, detecting, intercepting and, if necessary, inspecting vessels to combat terrorism and piracy. Its range of 2,000 nautical miles at its maximum speed of 20 knots, and a crew of 23, make it a formidable crime-fighting asset that can also undertake search and rescue for distressed vessels.

With five design migrations and two all-new projects completed, COTECMAR reports team satisfaction with its new AVEVA software. "For this second project we used AVEVA Marine in both the design and construction phases," said CDR Fredy Zarate, Manager of Design and Engineering, COTECMAR. He adds, "We used AVEVA Hull Detailed Design and AVEVA Outfitting for designing the whole vessel, and generated all the arrangement and construction drawings from the 3D model. Compared with the pilot project, this project took approximately two months less to model, despite its added complexity. Our users had very quickly adapted to the new tools."

"The outfitting design of a vessel is much quicker with AVEVA Marine than with Tribon because the interface is more user-friendly," explained Carlos Manuel Rodríguez Jaraba, AVEVA Marine Outfitting Administrator, COTECMAR. "The way it offers the user only relevant options for the task in hand makes it much quicker and easier to do the modelling work."

"Automatic generation of isometrics represents a time saving of up to 70% when producing drawings for the fabrication and installation of piping systems," added CDR Zarate. "This is a valuable direct saving, but it also means that we can deliver fabrication deliverables on demand, so we reduce the risk of design changes being made after production drawings have been issued."

## Coming Up Next

COTECMAR uses the 3D models generated in AVEVA Marine for quality control in the different stages of the construction process. Currently, they are exploring the options for enhancing their use of the tool within the production team. "We have seen that the capacity for all disciplines to examine and review the 3D model of a vessel prior to construction improves design quality, by allowing adjustments to be made to the designed model in order to optimise the fabrication processes," said Carlos Mario Cano Restrepo, Department Head of Production Engineering (Construction Management), COTECMAR. "In this way, our production engineers can contribute their expertise directly to the design, helping to design out errors. This means we can create a higher quality vessel in less time and at lower cost. We see many opportunities for using the 3D model to directly support efficient working at every stage of a project."

***Karla Moises** has a Marketing Degree and an MBA, with 15 years of experience in the engineering software. She is the Marketing Coordinator for Latin America at AVEVA, a FTSE 250 UK-based software engineering company.*

# Gladding-Hearn Delivers Hull Number 400


Cape Fear Pilots Association, Southport, N.C., has taken delivery of its second St. John's Class pilot boat from Gladding-Hearn Shipbuilding, Duclos Corporation. This vessel has special meaning as it marks the Somerset, Mass., shipyard's 400th boat built since its founding 1955. The new all-aluminum launch, an updated version of the pilot's first St. John's Class delivered in 2001, features a deep-V hull designed by C. Raymond Hunt Associates. The launch features wide side decks and is equipped with heated, exterior handrails to prevent ice formation and a boarding platform on the roof. At the transom is a winch-operated, rotating davit over the water-level, recessed platform for pilot rescue operations.

***Cape Fear Pilot III: at a Glance ...***

| | | |
|---|---|---|
| Vessel length: 52 feet | Gensets: 9 kW Northern Lights | Hull Type: Monohull (pilot boat) |
| Vessel beam: 17 feet | Radar: Furuno | Engines: (2) Caterpillar C-18, EPA Tier 2 |
| Vessel depth: 7.6 feet | Speed (loaded): 23 knots | Gears: (2) Twin Disc MG 5114A, EC-300 Quick Shift |
| Vessel draft: 4.8 feet | Fuel: 690 U.S. gallons | Propellers: ZF class S, 33" x 5-bladed wheels |

# Blount Boats Inks Deal for First U.S. Built Wind Farm Supply Vessels

Blount Boats has signed a contract with Rhode Island Fast Ferry for the construction of a 21 meter crew transfer vessel (CTV) that will operate for Deepwater Wind Block Island. The 21 meter aluminum vessel was designed by South Boats IOW (Isle of Wight), who has designed and built approximately 85 CTV's for the European Offshore Wind Sector and by threefold has the largest market share, largest product range and greatest experience with their vessels working on all of the European and UK wind farm projects. In 2011, Blount Boats signed a licensing agreement with South Boats to become the exclusive shipyard to manufacture U.S. Flagged aluminum catamarans of South Boats IOW designs for the U.S. wind farm industry. The South Boats' designed stock 21m wind farm vessel is a twin hulled, all aluminum catamaran. It will be dual certified to USCG Subchapter T (Small Passenger) to carry up to 49 passengers and subchapter L (Offshore Supply Vessel) to carry up to 16 offshore

workers. The propulsion system consists of two (2) MAN V12-1400 hp engines, ZF Marine 3050 Gears, and Hamilton Jet HM571 waterjets. The vessel is predicted to reach sprint speeds in excess of 28 knots, with the ability to cruise (80% power) at 27 knots when in a light condition and 23 knots in loaded condition. Delivery is scheduled for April 1, 2016 with vessel entering service by May of that year.

# U.S. Navy Orders Additional 11 Meter RIBS From Willard Marine

The U.S. Navy has exercised an option on their contract for 11-meter rigid inflatable boats (RIBs) with Willard Marine, Inc., requesting five more RIBs in addition to the 10 that the Navy had previously ordered in 2014. Willard Marine will provide three 11-meter Open Center Console (OCC) boats that will be equipped with twin Cummins QSB6.7 380-hp engines, and two Visit, Board, Search and Seizure (VBSS) boats equipped with twin Cummins QSB6.7 480-hp engines, both versions of which will be paired with Hamilton Jet HJ292 water jets. For 37 years, the U.S. Navy has purchased a variety of boats from Willard Marine including nearly 700 11-meter and 7-meter RIBs that are primarily stored aboard and launched at sea from large naval ships deployed around the world. Many 11-meter RIBs have been procured by the U.S. Navy and Coast Guard in support of their Foreign Military Sales (FMS) divisions.

## VT Halter Launches B. No. 270 for Bouchard

Bouchard Transportation Co. has announced the launch of Barge B. No. 270 at the Pascagoula Shipyard Operations in Pascagoula, Mississippi, on May 1st. The barge is the first of two Articulated Tug Barge (ATB) units constructed by VT Halter Marine, Inc. The tug, Kim M. Bouchard, part of the ATB unit, was launched at the Moss Point Marine facility in Escatawpa, Mississippi, on February 26, 2015. Barge B. No. 270 measures 625 feet by 91 feet by 47 feet, has a 250,000 barrel capacity, and is ABS and

USCG certified for Jones Act service. The Kim M. Bouchard is a 10,000hp twin screw ATB tug and is classed by ABS as an A1 Towing Vessel, Dual Mode ATB, USCG Subchapter M, and is equipped with an Intercon Coupler System. When paired with Barge B. No. 270, the unit will be used to transport liquid petroleum for Bouchard Transportation Co., Inc. (Bouchard). The sister unit, M/V Donna J. Bouchard and B. No. 272 is also currently under construction at VTHM. Once launched, the pair will be Bouchard's eighteenth ATB unit and the safest and most technologically advanced unit of its kind.

## Hybrid Rotortug RT Evolution

On May 18th, 2015, the Damen-built ART 80-32 Hybrid Rotortug RT Evolution was named at the Greenwich Ship Tier in London. KOTUG nowadays operate three hybrid Rotortugs. RT Adriaan and RT Evolution are operating in the Port of Rotterdam and RT Emotion commenced her towage activities in the German port of Bremerhaven recently. RT Evolution and RT Emotion, both 32- meter hybrid next-generation ART80-32 Rotortugs are new Damen-built tugs and designed by an alliance of Rotortug B.V. in the Netherlands and Robert Allan Ltd in Canada. The Rotortug's hybrid capacity is generated by three electric motors, complemented by a battery pack and managed by an intelligent XeroPoint Hybrid Propulsion System.

## Incat Crowther to Design Passenger Ferries for San Francisco

Incat Crowther is designing a pair of 41m catamaran passenger ferries for WETA of San Francisco. The design of the vessels, which will be built by Kvichak Marine Industries, showcase Incat Crowther's ability to analyze, dissect and meet a set of requirements. The vessel features an isolated cabin, to be built under subcontract by Nichols Brothers Boat Builders, and carries 400 passengers. The layout of the cabin responds to stringent requirements for seating configuration, with a mix of forward facing and booth seats, with and without tables. The elevated wheelhouse offers excellent visibility, meeting operational requirements. An extra-wide internal staircase leads from here to the upper deck, further aiding passenger flow. Incat Crowther has previously collaborated with both Kvichak Marine Industries and Nichol Brothers Boat Builders to successfully produce a quartet of ferries for WETA. Gemini, Taurus, Scorpio and Pisces remain among the world's most environmentally-friendly ferries, and the new vessels will build on this with greater efficiency from their improved hull form and the use of the latest in Selective Catalytic Reduction technology. Fitted with a pair of MTU 12V4000 main engines producing 1453kW each, the vessel will have a service speed of 27 knots.

***41m Catamaran Passenger Vessel at a glance ...***

| | | |
|---|---|---|
| Length Overall: 135 feet | Length Waterline: 133 feet – 10 inches | Passengers (internal): 325 |
| Beam Overall: 37 feet | Construction: Marine grade aluminum | Passengers (external): 75 |
| Draft (hull): 5 feet – 4 inches | Fuel Oil: 3000 gallons / 11 356 liters | Speed (Service): 27 knots |
| Draft (prop): 6 feet - 6 inches | Fresh Water: 750 gallons / 2 840 liters | Speed (Max): 29 knots |
| Depth: 11 feet – 8 inches | Main Engines: 2 x MTU 12V4000 M64 | Flag: USCG Subchapter K |


Bollinger


Bel Miller


Neven


McDonald


Bouchard


Theriot

### Eric Bollinger Named VP Sales at Bollinger Shipyards

Bollinger Shipyards announces the promotion of **Eric Bollinger** to Vice President of Sales. Bollinger has 10 shipyards located between New Orleans and Houston with direct access to the Gulf of Mexico, Mississippi River and the Intracoastal Waterway. Bollinger is the largest vessel repair company in the Gulf of Mexico region with a total of 30 dry-docks in Louisiana and Texas.

### Miller Named VP at NOIA

**Megan Bel Miller** has been promoted to Vice President for Government and Political Affairs by the National Ocean Industries Association (NOIA). She will lead NOIA's Congressional relations and Political Action Committee. Megan joined the NOIA staff in May 2013 as Senior Director, Government & Political Affairs. Before joining NOIA, Megan was a Legislative Director for several Congressmen. Megan earned a Master of Public Administration and a Bachelor of Science in Business Administration from Louisiana State University.

### Freeman Marine Taps White as Operations Manager

**Peter White** has joined the operations management team at Freeman Marine's Gold Beach manufacturing plant. White will be responsible for cast and fabricated products among other projects in this role. A graduate in mechanical engineering, White has worked in managerial/leadership positions at Austal, Palmer Johnson Yachts, Derecktor Shipyards and Broward Marine.

### Imtech Marine Canada Appoints Neven as VP

**Gerry Neven** has been appointed as Vice-President of Industrial and Governmental Affairs at Imtech Marine Canada. Previously CEO/Managing Director of Imtech's subsidiary Techsol Marine, Gerry will join the Imtech Marine Canada team with a focus on building a solid relationship with government and industry and also support the development of our maritime business.

### McDonald Confirmed as Mass. Maritime President

**Francis X. McDonald** has been confirmed by a vote of the Massachusetts Board of Higher Education (BHE) as the 38th president of the Massachusetts Maritime Academy. McDonald, a 1985 graduate of the school, has worked on campus since 1994. Most recently, he served as Executive Vice President of the nation's oldest continuously operating maritime academy and has earned degrees from Rensselaer Polytechnic Institute and Northeastern University.

### Brendan Bouchard Named VP Sales & Operations

**Brendan J. Bouchard** has been named VP of Sales and Operations at Bouchard Transportation Co. Brendan has worked in various capacities throughout the years at Bouchard Transportation. Most recently, he served within the Operations and Vetting department. Bouchard has a BS in Business Management & Economics from Ohio Wesleyan University.

### Conrad Industries Announces Addition to Management Team

**Scott J. Theriot** is the new Executive Vice President and Chief Operating Officer at Conrad Industries. **Terry T. Frickey**, Chief Operating Officer since February 2005, will assume the new position of Executive Vice President – Business and Product Development and will remain a member of the executive team.

### Port Canaveral Welcomes Summer Interns

Three college students will spend this summer working with Canaveral Port Authority as interns. The students will support the day-to-day activities of operating Port Canaveral. The interns are **Kaitlin Badgett**, a Biology major at the University of North Florida, **Danielle Leahy**, an International Transportation and Trade major at SUNY Maritime College, and **Alexis Miller**, a recent graduate of Florida Institute of Technology.

### Two Named to Gibbs & Cox Executive Team

Gibbs & Cox announced the appointment of **Matthew Hans** as Vice President of the Platform Solutions Group. **Ray Sheldon** was named as the company's Chief Operating Officer (COO). Mr. Sheldon brings many years of marine industry engineering and program leadership experience to


Frickey


Canaveral Summer Interns


Hans


Sheldon


Broadhurst

his new position within Gibbs & Cox. Hans joined Gibbs & Cox in 2008. He began his career as a commercial engineering officer on board tankers and containerships. He holds a master's degree in Business Administration from Georgia State University as well as a bachelor's degree in Marine Engineering and Shipyard Management from the U.S. Merchant Marine Academy.

### Broadhurst to Lead Global's SoCal Office

Global Diving & Salvage announced the expansion of its California Regional operations with the addition of a new office in Southern California. The Signal Hill office supports Global's core service lines; Marine Construction, Casualty Response and Offshore Support. **Danny Broadhurst**, Global's California Operations Manager, will lead the new facility.

### Ingalls Shipbuilding Adds to Executive Team

**George Jones** has been appointed vice president of operations, and **Tim Farrell** has been appointed vice president of new Navy programs at Huntington Ingalls Shipbuilding division. Jones will be responsible for all facets of ship construction. He began his career with Ingalls in 1984 as an apprentice and holds a bachelor's degree in business management from Capella University. Farrell, most recently vice president of operations, brings 33 years of defense contracting expertise into his new. He graduated from the State University of New York at Stony

## Chiarello, Cox and McKenna Win 2015 AOTOS Awards

Chiarello

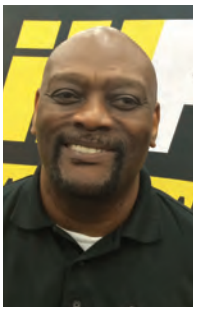
McKenna

Cox

The United Seamen's Service (USS) 2015 Admiral of the Ocean Sea Awards (AOTOS) will be presented to **Anthony Chiarello**, President and CEO of TOTE; **Matthew Cox**, President/CEO of Matson Inc.; and **James McKenna**, President and CEO of Pacific Maritime Association. The awards will be presented at the 46th annual gala industry dinner in November. Recognition will also be given to American seafarers for acts of bravery and heroism while at sea. Chiarello, with 35 years in transportation and logistics, joined TOTE in 2010, and was previously COO and EVP of NYK Logistics (Americas). Cox became Matson CEO in 2012, and has been president since 2008. McKenna oversees all operations, including administration of payroll and benefits, pension and training to the ILWU workforce and PMA staff. Prior to joining PMA, McKenna was COO at Horizon Lines.

Jones

Farrell



McDaniel

Eriksen

Brook in 1982 with a bachelor's degree in electrical engineering. He also holds an MBA from Webster University.

### American Green Adventures Adds McDaniel as Sales Manager

American Green Ventures has hired **Donnie McDaniel** as its new southwest territory sales manager for the SpillFix Industrial Organic Absorbent. McDaniel has more than 20 years of experience managing sales for a variety of industrial accounts. Most recently, McDaniel was sales manager of government and national accounts for D&G Supplies. He graduated from the University of South Carolina with a Bachelor's of Arts degree in business administration.

### Eriksen Appointed Group CEO at DNV GL

DNV GL Group has appointed **Remi Eriksen** as the company's new Group President & CEO. He is succeeding Henrik O. Madsen, who is retiring on 1 August.

### Seaspan Marine Names Reynolds as President

**Bart Reynolds** has joined Seaspan Marine as President. Bart joins Seaspan with over 20 years experience in positions of leadership and senior management in the offshore supply boat business, most recently serving as Vice President, Americas at GulfMark Offshore. He is holds an MBA from the University of Texas at Austin and a Bachelor of Business Administration from the University of New Mexico.

### DELTA "T" Hires DeAngelo

**Michael DeAngelo** has joined Delta "T" Systems as an outside sales representative. A 26-year veteran of the marine industry, DeAngelo will lead the international sales group. Previously, he was the technical sales and applications engineer with Marine Exhaust Systems, and VP/CTO for DeAngelo Marine Exhaust.

### Cicala Joins Clyde & Co in San Francisco

**Conte Cicala** has joined Clyde & Co as a partner in its maritime group. Conte will be based in the firm's San Francisco office. Conte's practice focuses on litigating transportation, commercial and insurance disputes and providing corporate and business legal advice to companies. He routinely represents P&I Club members and other companies in high-stakes litigation and investigations, in arbitration and in administrative hearings.

### KPI Bridge Oil Names Chin as Trader

**Daniel Chin** has been named Bunker & Lubricant Trader at KPI Bridge Oil's Seattle Office. Prior to joining KPI Bridge Oil Seattle, Daniel was a Junior Trader and Manager with Daewoo Shipbuilding and Marine Engineering (DSME).

### Construction Begins on Crowley's Second LNG-Powered ConRo

VT Halter Marine has begun construction on Taíno, the second of two liquefied natural gas (LNG)-powered,


Reynolds


DeAngelo


Cicala


Chin

Crowley MMS

combination container – Roll-On/Roll-Off (ConRo) ships for Crowley's liner services group. The Jones Act ships will replace Crowley's towed triple-deck barge fleet, which has served the trade continuously and with distinction since the early 1970's. The ships will offer faster ocean transit times, setting a new standard for environmentally responsible shipping.

### Crowley Accord Acquires MMS to Provide Offshore Oil & Gas Crew Management Services

Crowley Maritime Corp. has announced the acquisition of Maritime Management Services, Inc. (MMS), a Seattle-based company with more than a decade's worth of experience in crew management for offshore oil and gas vessels primarily in the U.S. Gulf, Singapore and Gulf of Mexico.

### ODAPC Revises "What Employers Need to Know about DOT Drug and Alcohol Testing" Handbook

The U.S. Department of Transportation's Office of Drug and Alcohol Policy and Compliance (ODAPC) has updated the "What Employers Need to Know About DOT Drug and Alcohol Testing" guidelines, also known as the "Employer Handbook." Last revised in October 2010, this new version can be viewed at http://www.dot.gov/odapc/employer_handbook. A summary of changes made to the "Employer Handbook" can be found on the last page of the booklet.

Crowley Piney Point

HMS Ferry


NOAA

### 88 Crowley, 75 Foss Vessels Honored with Jones F. Devlin Awards

A total of 88 Crowley Maritime Corporation vessels and 75 Foss Maritime vessels received the Chamber of Shipping of America (CSA)'s annual Jones F. Devlin Award in recognition of their outstanding safety records, during a luncheon held last month in New Orleans. Each year, the CSA honors merchant vessels that have operated for two or more years without a Lost Time Injury (LTI). Crowley's vessels together have achieved an impressive total of 565 years of service without an LTI. Altogether, the Foss vessels achieved the equivalent of 529 years of incident-free operation.

### SIU Piney Point Building Dedicated in Honor of the Late Thomas B. Crowley Sr.

The Seafarers International Union (SIU) recently honored the late Thomas Crowley Sr. during a dedication ceremony that named a new administration building in his memory. The new Thomas Crowley Sr. Center for Maritime Services, located at the Paul Hall Center for Maritime Training and Education in Piney Point, MD, commemorates the legacy of Crowley, who owned and operated Crowley Maritime Corp. until his death in 1994. Crowley's current Chairman and CEO Tom Crowley Jr. had the opportunity to address the crowd. He emphasized his appreciation and the productive partnership that exists between the company, union and school. The Thomas Crowley Sr. Center for Maritime Services is now a modern space that will be used to train U.S. merchant mariners.

### HMS Ferries Awarded Metrolink Contract Serving Quad Cities

HMS Ferries has been contracted by the Rock Island County Metropolitan Mass Transit District (MetroLINK) for the operation of the Channel Cat water taxi service. The agreement provides for the management and operation of MetroLINK's 3-vessel passenger ferry operation which connects landings in Bettendorf, IA, Davenport, IA and two locations in Moline, IL. The water taxi ridership is approximately 34,000 comprised of visitors and locals seeking a travel alternative between Illinois and Iowa.

### ABS Issues LNG Bunkering Advisory

ABS has published a new Advisory about LNG Bunkering in response to the industry's growing interest in gas propulsion. The LNG Bunkering: Technical and Operational Advisory explores the benefits, challenges, and solutions associated with fuelling vessels equipped with LNG power systems. The Advisory offers an extensive overview of potential solutions and current practices associated with LNG bunkering from the perspectives of an LNG fuel provider and gas fueled vessel operator. The report is available to the public through the ABS website, **www.eagle.org**.

### NOAA deploys survey ships for Arctic charting projects

NOAA officially launched its 2015 Arctic hydrographic survey season last month in Kodiak, Alaska, in a World Ocean Day ceremony which showcased the deployment of the NOAA ships Rainier and Fairweather. In anticipation of growing vessel traffic in the Arctic, NOAA is increasing its charting activities in the region to help ensure navigation safety. This week, Rainier and Fairweather will depart Kodiak to begin a summer of hydrographic surveying projects in the Arctic. NOAA will use the surveys, which will measure ocean depths and search for dangers to navigation, to update nautical charts for Alaska's waters.

### Heavy April Ice Weighs on U.S.-Flag Lakers

U.S.-flag Great Lakes freighters moved 6.7 million tons of dry-bulk cargo on the Great Lakes in April, a decrease of nearly 6 percent when compared to the month's 5-year average. Another brutal winter again spawned heavy ice formations that slowed the vessels that were put into service and delayed others' sail date. With five of the six U.S. iron ore loading ports on Lake Superior, the iron ore trade was most affected by the ice fields. Shipments totaled 3.4 million tons, a decrease of 10 percent compared to the month's 5-year average. The ice in Whitefish Bay at the eastern end of Lake Superior was particularly daunting and many vessels bound for Duluth/Superior, Two Harbors, Silver Bay and Marquette had to wait until U.S. and Canadian icebreakers could lead them through the ice field.

## GMI – Protecting Vessels and Crew

Gas Measurement Instruments (GMI), a member of Tyco Life Safety Products, offers the GMI PS200 MED certified personal safety devices and Shipsurveyor tank atmosphere monitors. These ensure compliance with marine codes regardless of cargo. Simple operation enables crews to use equipment safely with minimal training. Internal sampling pumps provide safe entry to confined spaces, while electronic data logging offers auditable records of gas levels and alarms.

www.gmiuk.com


## Videotel's 500th CBT Course

Videotel has launched its 500th computer-based training (CBT) e-Learning course. Videotel's latest course, entitled "The Work of the Emergency Response and Rescue Vessel (ERRV)," covers key objectives and emergency procedures when operating these vessels in offshore oil and gas fields. The CBT course details the day-to-day operational function of the ERRV, produced in accordance with STCW regulations.

www.videotel-inc.com

## Silva Non Skid Solutions

Silvagrip holds a matrix of sharp ceramic abrasives, with hardness just under diamonds. Ductile and capable of being shaped, and at the same time giving a strong, hard non skid wear surface, the material is an aluminum/ceramic blend of molten metal and ceramic, applied to backing with adhesive and protective plastic liner. Silvagrip is used and approved by the U.S. Navy and workboats alike.

www.silvanonskidsolutions.com

## Caterpillar Propulsion's Azimuth Tug Thrusters

A new range of azimuth thrusters Caterpillar Propulsion targets the tug market, developed to match high performance with competitive cost. The 60 ton bollard pull Cat Propulsion Marine Thruster Azimuth (MTA) is the first model in what will become a new family of rotatable units optimized for tug operations, with an initial unit expected to be delivered into a commercial trial by the end of 2015.

www.MARINE.CAT.COM/pr

## Schoellhorn-Albrecht's 22300 Capstan

The 22300 Capstan model has been the most popular capstan for the workboat market for 50 years. It was developed as a space saving through the deck unit, with only minor changes over the last 60 years. The 10HP, 2 speed unit produces 12,000 pounds of pull at low speed (24FPM), 6,000 pounds of pull at the fast speed (48FPM) and 100,000 pounds of bollard (static) load.

www.schoellhorn-albrecht.com

## Alphatron, JRC Integrated Pushboat Bridge

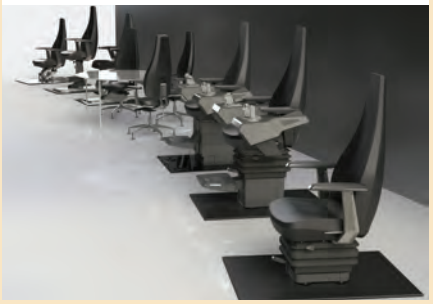
JRC and Alphatron Marine have introduced a pushboat bridge dedicated for American inland waterways. The bridge has two ergonomic and dynamically designed consoles with a central captain's chair mounted on rails. Controls and instruments are all within easy reach. Besides controlling the vessel from a single chair, the captains can now feel the power of the main and flanking rudders while holding the joystick.

www.alphatronmarine.com

### Alu Design's OP Chair Range

Norwegian maritime pilot chair and deck rail specialist Alu Design has launched its OP series; a flexible and functional range of six seats, offering a unique combination of build quality, comfort and value for money. The OP series is Alu Design's lightweight yet robust aluminum design, providing users with comfort and durability seat cushions and backs for the optimum working environment. Six varieties are available.

www.alu-design.no



### GE LM2500 Gas Turbine to Power United States Coast Guard's Eighth National Security Cutter

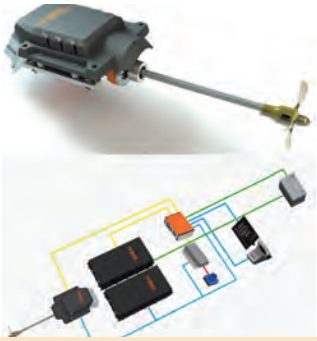
GE Marine's LM2500 gas turbine will power the United States Coast Guard's eighth National Security Cutter Midgett (WMSL 757). The ship will be powered by one GE LM2500 gas turbine and two diesel engines in a Combined Diesel And Gas turbine (CODAG) propulsion system. All the LM2500 gas turbines for the NSC program were manufactured at GE's Evendale, Ohio, facility.

www.ge.com/marine

### Torqeedo's Deep Blue Inboard

Torqeedo's shaft drive version of its 40 and 80 horsepower Deep Blue motor is designed for marine use from the ground up. It features a quiet, low-maintenance, fume-free and environmentally friendly ride. With a range of over 100 miles at slow speed and a maximum speed of 18 mph, charging is incredibly simple. The high-voltage lithium batteries are manufactured by Johnson Controls.

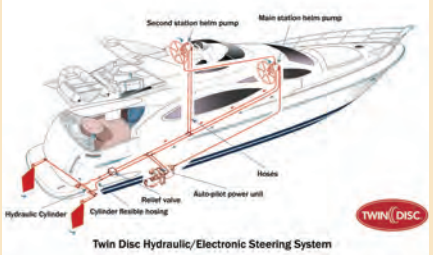
www.torqeedo.com



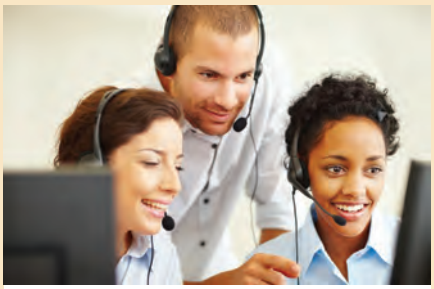
### Twin Disc's Exacting Helm Control

Twin Disc delivers complete, comprehensive power-assisted hydraulic and electronic steering systems for a wide range of boats and applications. Twin Disc utilizes fewer moving parts for a more balanced, responsive helm for displacement and planing mono- and multi-hulls. The modular, hydraulic configurations are well-matched to small and medium-sized commercial boats. These integrated, state-of-the-art systems are certified RINA, CE and NMMA.

www.twindisc.com



Twin Disc Hydraulic/Electronic Steering System



### Shell's Marine APP Availability, Lubricant Delivery

Shell Marine Products (SMP) has expanded the availability of its Shell Marine Products app to 40 markets, more than double its original footprint. The app is available to customers on both iOS and Android mobile platforms in many countries, including the U.S. SMP's global port network is now up to 532 ports in 40 countries. Customers are supported by a 24/7 Service Center.

www.shell.com

### Furuno's FE800 IMO Echo Sounder

Furuno's new FE800 echo sounder offers an 8.4-inch Color LCD display with built-in dual-frequency capability. It also features a new system design that provides immediate retrofit capability of older Furuno units, as well as easy installation on new build vessels. The new color display accommodates both full and split-screen options. Furuno also made the unit easier to interface with other electronics.

www.FurunoUSA.com

## Damen BWT Retrofit Solutions

Damen has launched two ballast water treatment solutions. The BalCon containerized ballast water treatment system covers a wide range of capacity requirements from 100 to 750m3/hour. Developed with Trojan Marinex, BalCon uses minimal space, with all equipment contained within one TEU. LoFlo, powered by BioSea, is a solution for vessels requiring lower capacity. LoFlo is available from 30 to 60m3 capacity, reducing footprint and energy usage.

www.damen.com


## Freedman Seating Solutions

Freedman Seating offers a wide array of seating solutions for the marine market. Freedman marine seats are light-weight, available in a variety of passenger configurations to meet specific vessel layouts and come with anodized aluminum bases and legs, deck track mounting, and optional under seat life jacket storage. All are designed in the US for style and comfort; engineered for safety and reliability.

www.freedmanseating.com

## Vestdavit Solutions for Workboats

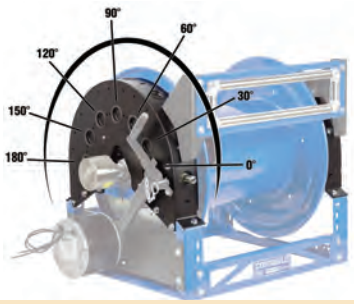
Vestdavit designs tailor-made solutions for launching and recovering boats in difficult conditions. These boat handling systems and davits are used by navies, coastguards, seismic survey operators, pilot authorities and offshore operators who operate small boats safely from larger vessels. Since 1975 Bergen-based Vestdavit has supplied 1,900 davits, side and stern launch systems for use in harsh environments. Self-tensioning and shock absorbing systems ensure crew safety.

www.vestdavit.no


## Coxreels Universal Bracket for 1600 Series

Coxreels 1600 Series features a versatile symmetric reel design. This feature-rich reel has a wide array of components and configurations, including the Universal Bracket Kit, made from 12 gauge, heavy-duty, powder-coated steel, and functions as a chain/gear guard and allows for four versatile payout degrees (0°, 30°, 60°, and 90°) for mounting rewind crank, three or four way roller guide, and a three-way pin.

www.coxreels.com




## JWC's ABS Approved Waste Grinders

JWC Environmental (JWC) industrial waste grinders have received ABS Type Approval certifying compliance with IMO MARPOL 73/78 Annex V regulations for food waste. This certification applies to the Monster Industrial 1, 3 and 4 Series SHRED and HYDRO grinder products, which include an in-line or feed hopper installation, auto-load sensing controls with safety interlocks and discharge piping in one unit, simplifying installation in compact galleys.

www.jwce.com

## PPG's PFP Coatings

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www.ppgpmc.com

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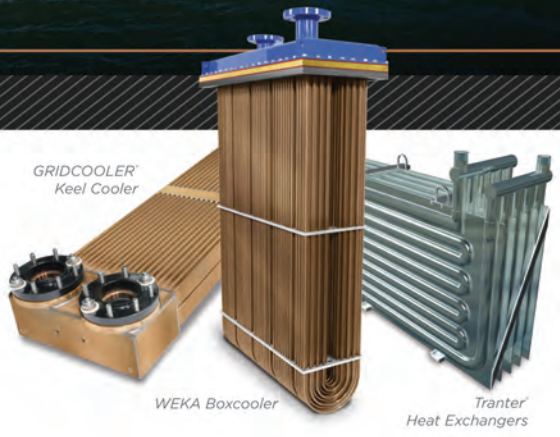


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