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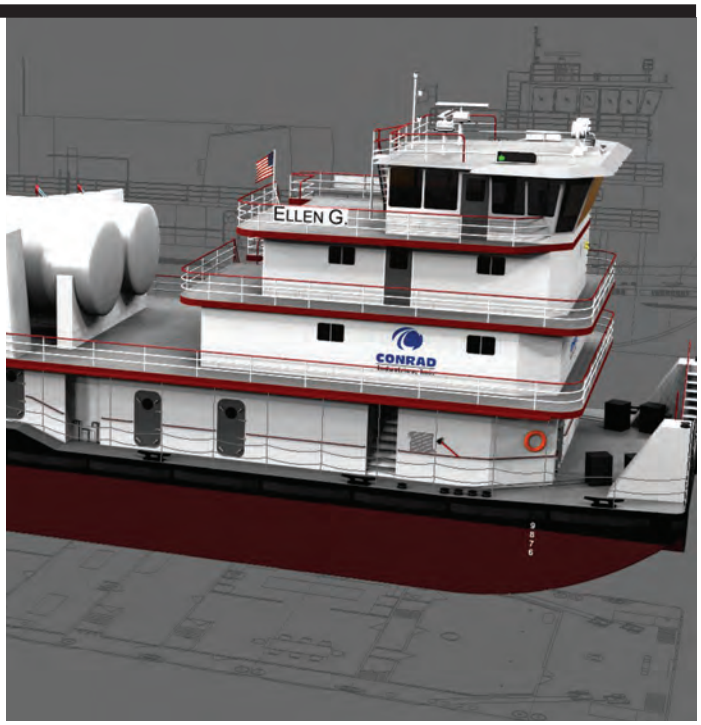
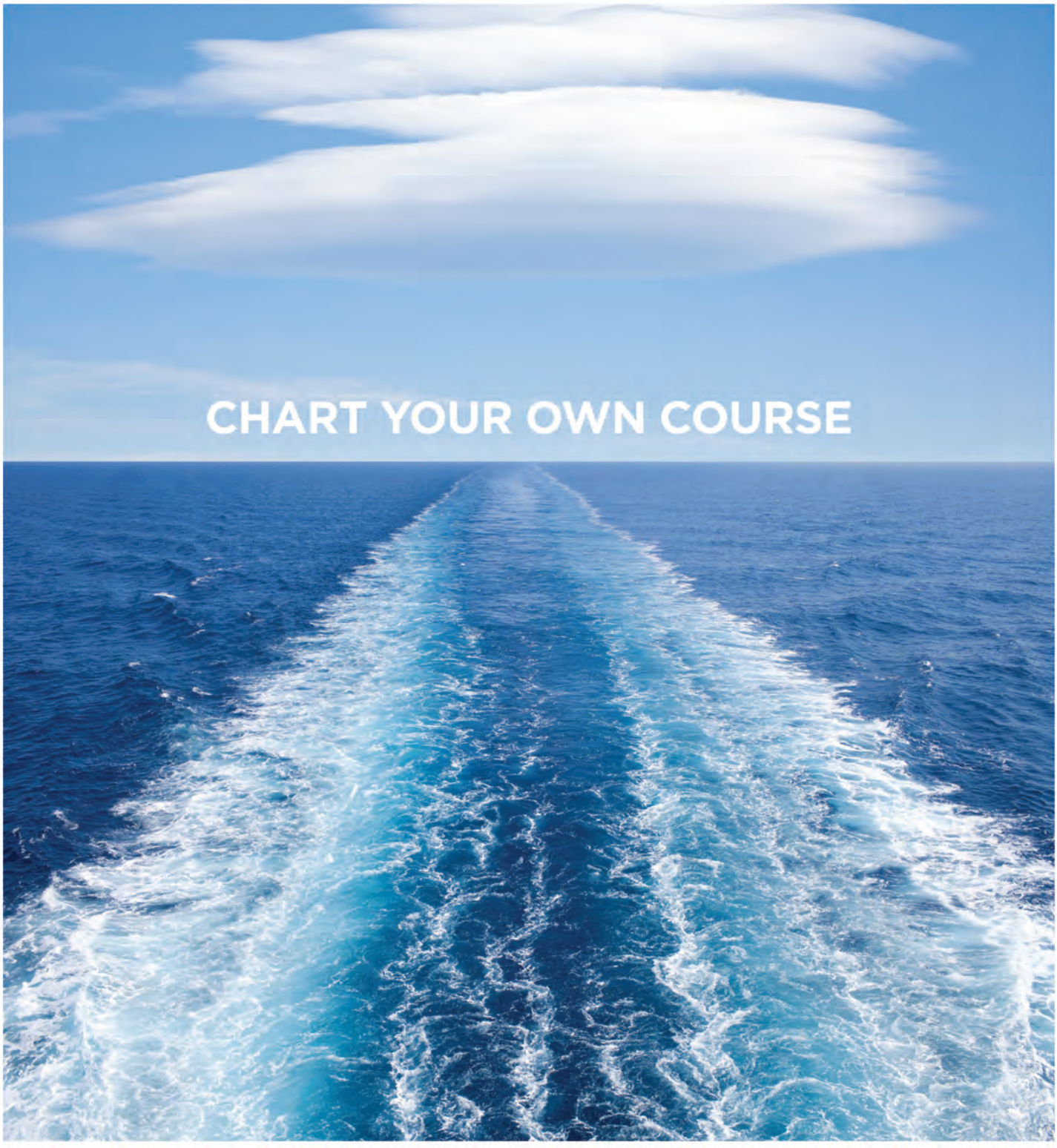


Features

ON THE COVER

Global dredging turnover has reached $13.6 billion in terms of annual spend. In the United States, the U.S. Army Corps of Engineers last fiscal year spent a little more than one-half billion US dollars. In this edition, *MarineNews* Contributor and St. Louis attorney James Kearns details the in and outs of infrastructure funding. His dredging primer begins on page 18.
(Photo: IADC)



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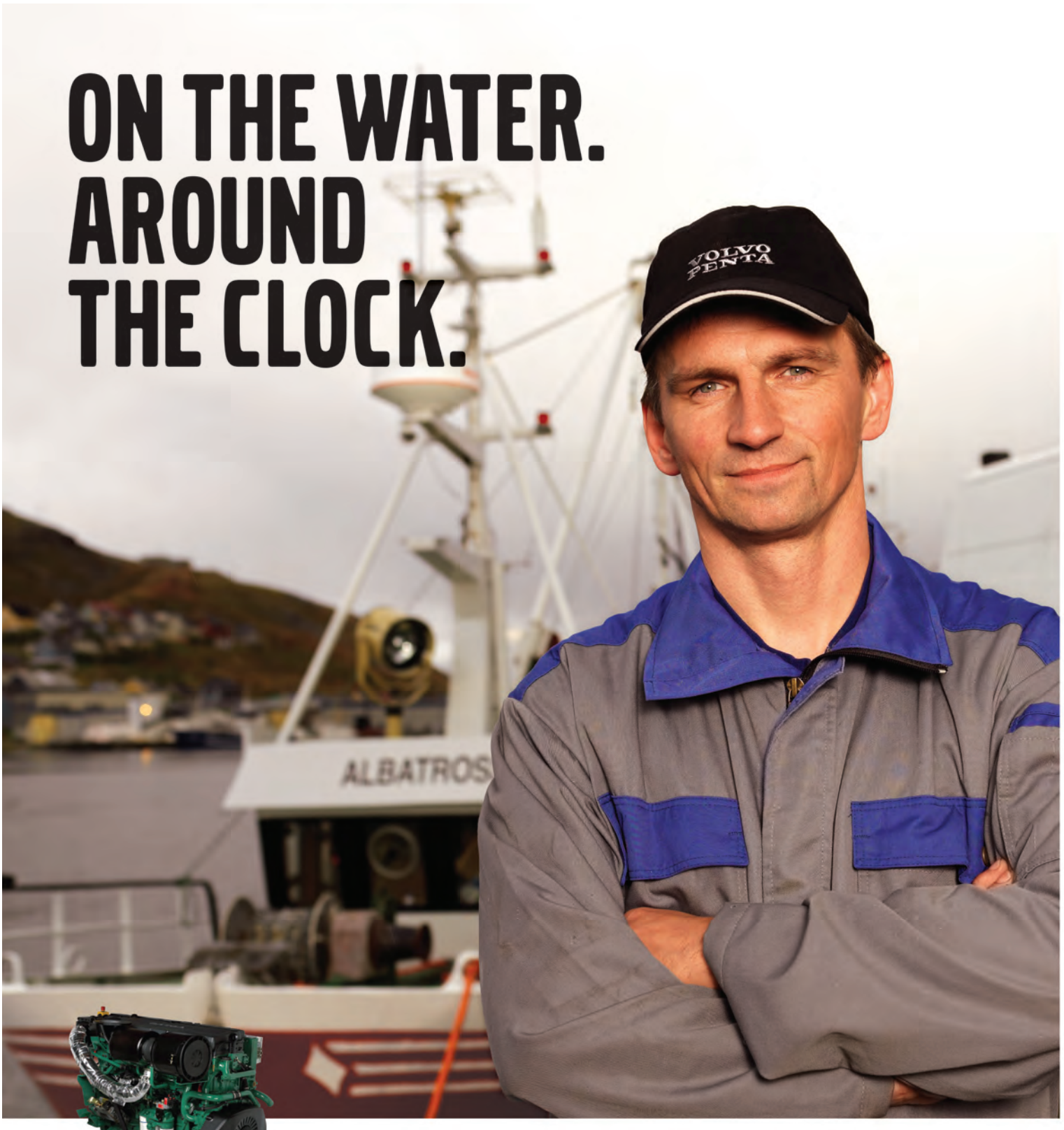
ON THE WATER. AROUND THE CLOCK.



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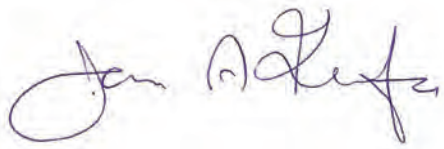
At the risk of dredging up (bad) memories, I find myself harkening back to 1985 when, as a young mariner, I lived in Houston, Texas. As the situation in the oil patch worsened, neighborhoods in and around the Bayou City emptied out as oil workers looked for other things to do. I had two roommates who had to do just that. Now, as then, these are challenging times. Today, merchant shipping – in particular the Jones Act subset of that sector – finds itself inextricably tied to the energy business, in one form or another.

MarineNews is a North American coastal, brown water, and workboat magazine. That means, for example, that we cover all but a few hundred of the approximate 40,000 hulls in the U.S. merchant fleet. Less than 90 blue water international vessels are left flying the U.S. flag. That also means that virtually everything that happens in the oil patch will impact what happens in our world. That said; as long as we understand these realities, we can prepare for what comes next. The price of oil will come back. I don't know when, but I know that it will happen. In the meantime, this is no time to take our collective feet off the gas, especially when it comes to improving the infrastructure that makes waterborne commerce of this island nation thrive.

It is therefore significant that this edition focuses tightly on dredging – not the kind of dredging mentioned in paragraph 1 of this note – but instead, the kind that will bring us to the *Promised Land* when it comes to making sure our vessels can work to the extent that they are designed, ply the waters that they are intended, and sail 'full and down' with the maximum amount of cargo in mind. We are nowhere near close to making that goal a reality. Nevertheless, and within these pages, you'll find no less than five dredging and infrastructure entries that can send us on our way. Dig in.

As we wait to find out what will happen in the oil markets, workboat operators everywhere are thankfully not sitting on their hands. And, the innovation emanating from design shops on the East, West and Gulf Coasts – and beyond – is nothing short of amazing. In this edition, we touch upon just a few of the variables that are today, shaping the vessels of tomorrow. Emissions, fuel economy, crew comfort, choice of fuel and yes, the regulatory sector all play a role. For the last reason, we listen this month as the U.S. Coast Guard's Chief Prevention Officer weighs in on a raft of different issues.

The market price of crude oil, today and tomorrow, is most certainly a double-edged sword. We enjoy filling up the SUV at $2.12 per gallon, and hope that bunker prices give us exactly the same kind of relief for our waterborne fleets. As for me, I'll enjoy it while it lasts, and hope that it goes away quick. Does that make any sense to you?



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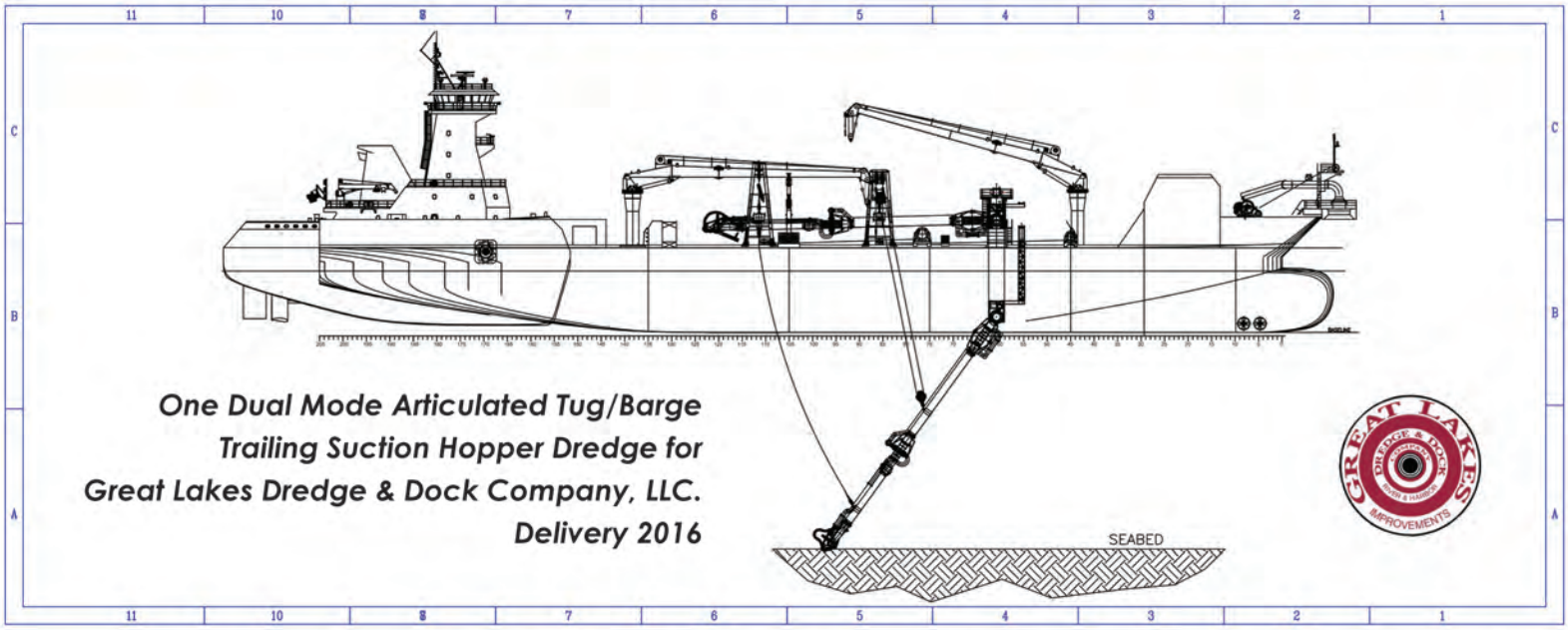

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Dredging: By the Numbers

During this month's statistical journey, we learned that dredged materials are no longer called "spoils." That's a dirty word in dredging circles. Dredging materials are "an environmental resource, not a waste material." Good to know. Separately, The International Association of Dredging Companies (IADC) publishes an annual review of the global dredging market. The numbers run one year behind (2013 vs. 2014), and following a period of economic downturn show worldwide dredging growth of nearly 3%. Even during the downturn (2008-13), global dredging – private and state driven – increased 13% to $13.6 bln. What drives dredging? The IADC says the drivers of global dredging include:

WORLD TRADE: Containerships are getting larger, demanding deeper draft ports. 16,000 TEU capacity ships have been eclipsed by new ships with of 18,000 TEU capacity.

POPULATION GROWTH: A substantial shortage of land is predicted and urbanized land will double by 2030 to accommodate another 1.5 billion people residing in vulnerable floodplains within 60 miles of the coast.

COASTAL PROTECTION: Climate change, extreme weather and sea-level rise drive losses due to flooding – as much as US$6 billion annually.

TOURISM: Since 2009, the tourism industry showed steady, but small growth (1%). International tourist arrivals worldwide are expected to reach 1.8 billion by 2030.

CLOSED MARKETS: Dredging closed to international tenders is substantial, with China as number 1 and (of particular interest to North American readers) the USA as number 2. The USA market is of course closed to foreign competition by the Jones Act. Globally, the market share of closed markets was a whopping 45% in 2013.

On this side of the pond, the U.S. Army Corps of Engineers (USACE) also keeps statistics. These include only federal dollars, but USACE is the primary source of dredging dollars so the numbers are telling. It isn't all good. Since FY 2009, federal dredging contracts have been halved and dollar spend is down 53 percent. The good news is that in 2009 it took $7.59 to move one cubic yard of dredge materials; in 2014 that volume required just $6.00. In 2009, much of what was spent was ARRA dollars intended to boost the economy. Today, that funding is largely gone. Many contracts are being consolidated into one bid for efficiency purposes, perhaps explaining the increase in dredge material moved per dollar spent.

The USACE is funded at $5.5 billion, an increase of $15 million above the fiscal year 2014 enacted level, as per the Cromnibus that was passed in December. In early February, the USACE "work plan" is due; coinciding with the President's pending budget. The spending bill prioritizes funding for navigation and flood control for public safety, boosting U.S. exports, creating jobs, and ensuring that waterways stay open for business. This includes $2.3 billion for navigation projects and studies; $1.1 billion from the Harbor Maintenance Trust Fund, for harbor maintenance, construction, and operations activities; $281 million including anticipated revenues into Inland Waterways Trust Fund for rehabilitation of inland waterways infrastructure; and $1.6 billion for public health and flood and storm damage reduction activities.

USACE dredging projects are prioritized based on low versus high use waterways. Waterways with higher tonnage numbers naturally receive more money. The Corps recognizes that the data is not entirely accurate, yet projects are based on tonnage. The Water Resources Reform and Development Act of 2014 (WRRDA) also has some good news for river users and dredgers alike. Harbor Maintenance Trust Fund (HMTF) language within the WRRDA bill does not force usage of funds, but it does provide the path for full usage of funds in 10 years. Flow charts provided by AAPA illustrate the allocation of funding of HMTF. Ports and harbors are categorized as high use (>10M tons), moderate use (1-10M tons) or emerging ports (<1M tons) in annual totals. Small ports (underserved) will be dismayed to find out that they will receive just $12.5 M in funds. The competition of these funds will be fierce, which is why tonnage reporting is important. WRRDA (Section 2106) also has an 'Equitable Distribution' category for emerging harbors. Equitable distribution factors include tonnage, but ALSO include national and regional significance, national security and military readiness. Section 2102 of WRRDA establishes a new distribution system for program funding.

Federal Dredging Dollars, Numbers of Contracts & cubic yards (FY 2009 – FY 2014) (Source: U.S.A.C.E)

	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Total Contracts	225	192	156	145	131	116
Total Cubic Yards	155,428,074	192,415,181	145,067,882	156,935,377	112,315,188	92,161,190
Total Dollar (Bids)	$1,179,935,027	$1,178,190,649	$1,033,807,724	$796,143,802	$1,064,237,931	$553,679,781

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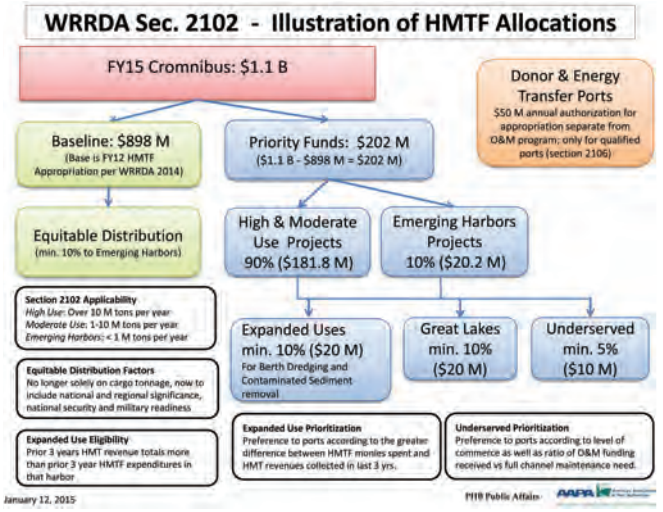
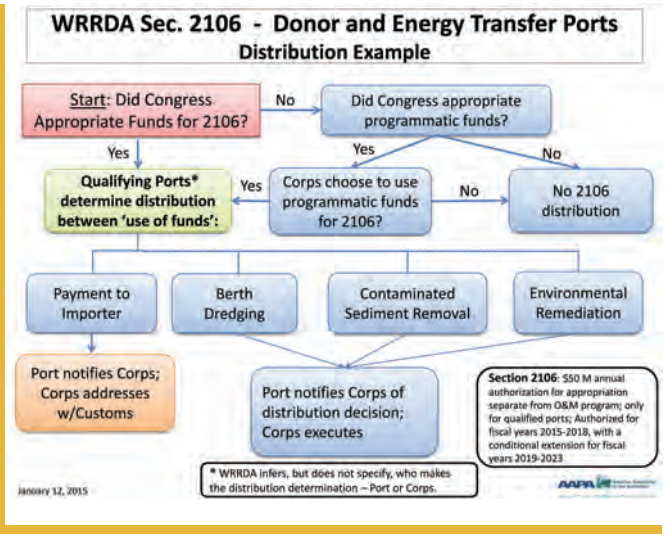
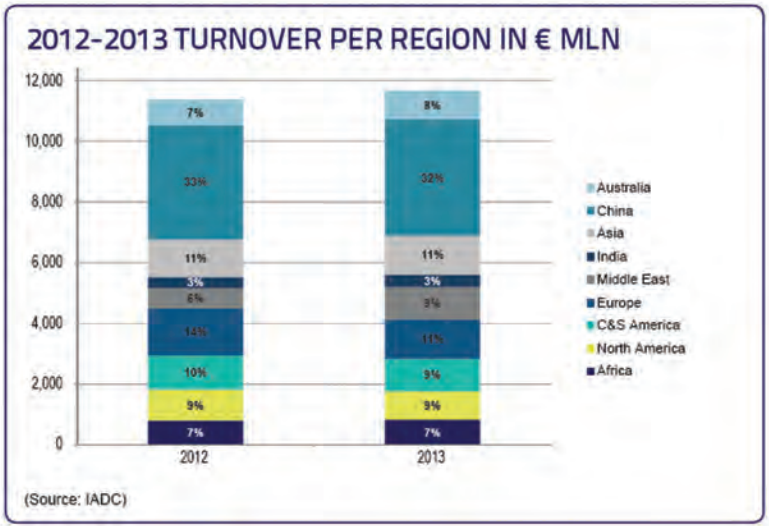
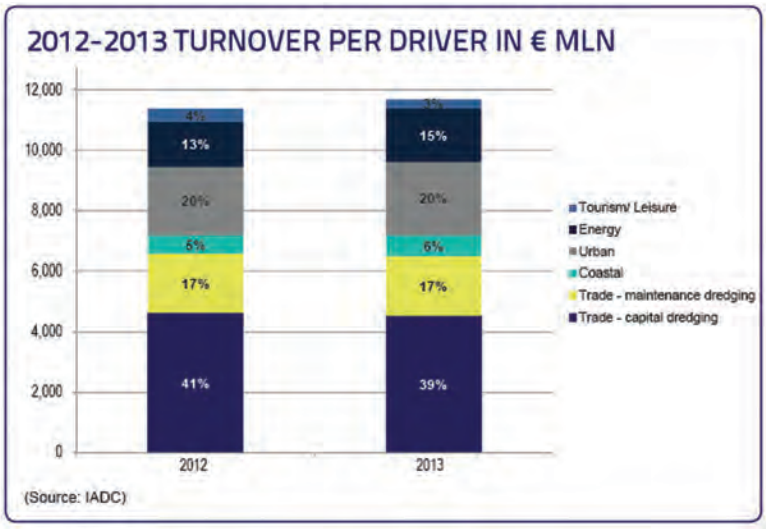






Global turnover per Region / source: IADC



Global turnover per Driver / source: IADC

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Rear Admiral Paul F. Thomas

Assistant Commandant for Prevention Policy, U.S. Coast Guard

Rear Admiral Paul Thomas is the Assistant Commandant for Prevention Policy overseeing three Coast Guard directorates: Inspections and Compliance, Marine Transportation Systems, and Commercial Regulations and Standards. The programs include waterways management, navigation and boating safety, ports and facilities, merchant mariner credentialing, vessel documentation, marine casualty investigation, commercial vessel inspections, and port state control. A longtime specialist in Marine Safety, Security and Environmental Protection, he has served in myriad safety billets, including Commanding Officer of Marine Safety Unit Galveston, TX, and as the Director of Inspections and Compliance at Coast Guard Headquarters. The U.S. Coast Guard Academy graduate has also spent time as Fifth Coast Guard District Chief of Staff, Executive Assistant to the Assistant Commandant for Marine Safety, Security and Stewardship, Military Assistant to the Director of Net Assessment in the Office of the Secretary of Defense, Commanding Officer in USCGC CAPE ROMAIN and Operations Officer in USCGC BLACKHAW. He rounded out his education with a degree from the Massachusetts Institute of Technology and in 2005, completed a National Security Fellowship at Harvard University's John F. Kennedy School of Government. Today, he leads one of the U.S. Coast Guard's most important, but probably least understood mission sets. As the Coast Guard attempts to keep pace with both the emerging technologies on the waterfront and the workload demands of this diverse department, RADM Thomas is the point man on whose desk the buck stops. This month, he weighs in on all that for *MarineNews* readers.

Give our readers a brief SITREP on the state of the coast Guard's present day Marine Safety, Credentialing and Prevention department(s).

The Coast Guard's Prevention program remains world class and we are taking every initiative to maintain and improve our service to the nation and to the maritime industry. The Coast Guard has one of the most robust staffs of engineers, economists, environmental specialists and technical writers in all of Federal government. This staff allows us to develop standards and regulations for maritime safety, security and environmental stewardship. We have a highly trained, geographically distributed work force to conduct inspections and examinations in the field that ensure compliance with those standards and provide industry a level playing field. And, we have professional investigators at our field units who engage when there are accidents or violations of law to ensure accountability as appropriate, but also, more important, to provide feedback that improves both our standards and compliance processes. We do all of this on the foundation of very healthy interagency, industry and international partnerships. This is a very unique and powerful combination of authorities and capabilities, and it allows the Coast Guard Prevention program to safeguard the entire Maritime Transportation System; including vessels, marine facilities, mariners, and the waterways themselves.

The U.S. Government's latest Unified Agenda (published on November 21, 2014) now indicates publication of the Subchapter "M" is planned for August 2015. Many industry stakeholders would characterize that timeline as overly optimistic. What would you tell them in response?

Yes, this is an aggressive timeline. Creating an entirely new inspection regime for over 5,500 previously uninspected vessels is a huge task. As you mention, there are many Government, industry, and public stakeholders for the final rule. We received more than 3,000 comments on the Notice of Proposed Rulemaking. Each of these comments represents stakeholder feedback that we must acknowledge, evaluate, and answer in the final rule. We are working hard to finish the rule and will publish it as soon as we can.

When the subchapter M towboat rules do come into force, will you have the manpower to handle the increased workload? More importantly, if the headcount is there, will the knowledge necessary to conduct this work accompany it to the waterfront?

Clearly, we have the knowledge base in our workforce to implement sub Chapter M. In the past 5-years under the Towing Vessel Bridging Program we have conducted over 7,100 exams on a current fleet of over 5,800 U.S. towing vessels nationally. The interactions we have had with every towing company in the U.S. have built a strong foundation for our CG examiners, who have gained familiarity with the vessels and their operations. In addition, the Towing Vessel National Center of Expertise brings a great deal of knowledge and experience to this fleet. The capacity of our work force is a different issue. We placed over 120 additional people in the field in preparation for Subchapter M. These people will conduct towing vessel inspections and oversee third party inspections and safety management systems. The unknown for us is how many operators will chose to go with a third party as a compliance option, and how many will chose the traditional Coast Guard inspection option. That number will drive our workload and determine if the workforce is adequate.

Staying with Sub M for a moment more, as many as 4,000 vessels and the requisite numbers of mariners will soon be added to your portfolio of responsibilities. What do you anticipate as being the main challenges that towboat operators will have to come up to speed on in order to comply?

The biggest challenges for the approximately 6,000 vessels that will come into inspected status will be to understand the new requirements and implementing truly effective Towing Safety Management Systems. This will also be the most important step to further enhance the safety of the towing fleet. As designed, this rule is "phased" in over time to give industry time to address development of safety management systems and implementation of the rules.

The ballast water rules are coming. The international IMO rules are close to getting enough stakeholder approvals. Where are we on ours and when will the Coast Guard start approving (beyond STEP &/or interim approvals) the technologies for installation?

Coast Guard implementation efforts for the Ballast Water Discharge Standard (BWDS) Final Rule are underway, including the establishment of a type approval program for ballast water management systems (BWMS) and the acceptance of Independent Laboratories (ILs) that will carry-out type approval testing in accordance with Final Rule requirements. As of December 23, 2014, the Coast Guard has accepted two ILs, consortia led by NSF International and DNV/GL, to carry out type approval testing of BWMS. No applications requesting Coast Guard type approval have been submitted to date, but the Coast Guard is aware of testing that is taking place at the ILs to support a future Coast Guard type approval application. The submission of type approval applications to the Coast Guard is the prerogative of the ballast water management system manufacturers. The Coast Guard will type approve a ballast water management system when the vendor, working with an IL, provides a completed test report and evaluation in accordance with the requirements found in 46 Code of Federal Regulations Subpart 162.060. The Coast Guard has also accepted 50 foreign-approved ballast water treatment systems as Alternate Management Systems (AMS), including 7 accepted for use in fresh water. Vessels may use AMS in lieu of ballast water exchange prior to the ballast water management compliance dates established in the final rule, and in lieu of meeting the ballast water discharge standard for up to five years after their compliance dates. Additional implementation activities underway include promulgation of Coast Guard policy that provides compliance and enforcement guidance for Coast Guard port State control officers and domestic vessel inspectors. The rule's implementation schedule phases-in the BWDS or other accepted ballast water management practices for new and existing vessels based on a vessel's ballast water capacity. Vessels that cannot meet the BWDS or employ one of the other practices by their compliance date can request an extension to their compliance date from the Coast Guard. Currently extensions are being granted to Jan 1, 2017 for those vessels that have a scheduled drydocking in 2015.

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The Vessel General Permit (VGP) and the (small) VGP are hot topics. These are primarily EPA mandates, but your responsibilities and those of the EPA overlap in places, to say the least. Look at ballast water management for example. Who enforces the EPA's VGP on the waterfront? And, once again, do you have the manpower to handle the sVGP responsibilities, when they come?

The Coast Guard includes VGP compliance checks during normally scheduled inspections and exams for certification on inspected domestic vessels and during port state control examinations on foreign vessels. Deficiencies are forwarded to EPA for possible enforcement and resolution. Currently, the sVGP has been deferred by the recent 'Howard Coble' Coast Guard and Maritime Transportation Act of 2014 until December 18, 2017; therefore, the Coast Guard has no responsibility to include sVGP compliance in our prevention program. If/when the sVGP becomes a requirement, we will work with the EPA to determine best use of our available resources, but the basic plan would be similar to our existing inspection/exam regime for the VGP; we would check for compliance in the course of our routine inspections or examinations.

Drug & alcohol testing works. Yet, today, commercial fishing vessels are subject to far less stringent testing regimens (with far more dismal results & post-incident 'positive' testing results) than their passenger vessel counterparts? Why the disparity and when, if ever will this be remedied?

Drug and alcohol testing requirements do apply to larger fishing vessels (200 GTs), fish processing vessels, and to all fishing vessels involved in a serious marine incident. Additionally, fishing vessels are subject to the same alcohol and drug testing equipment carriage requirements as other commercial vessels. The distinction comes in under 46 CFR Part 16, where testing only applies to those individuals who hold a merchant mariner document, license or credential, serves in a "safety sensitive position," or any person directly involved in a serious marine incident. There is no federal requirement for less than 200 GT fishing vessel operators to have pre-employment, random, periodic, and reasonable cause testing programs in place. The Coast Guard does not have authority to extend testing requirements on uninspected vessels to un-licensed/non-credentialed individuals, unless such an individual is directly involved in a serious marine incident. Owners/operators/employers may establish testing requirements as a condition of employment, but most do not take such action. Until we are given legal authority to extend the testing requirement to those not holding any type credential, the Coast Guard cannot require it.

The consolidation of Mariner credentialing functions in West Virginia was accomplished in an arguable choppy fashion, but is now more mature. Tell us about service to the mariner today as opposed to when the REC's were fully staffed. Give us metrics.

Centralization of the mariner credentialing process was a challenging endeavor to say the least. While I would agree that, at the outset setbacks were encountered, I would argue that centralization has proven to be the single most significant improvement to the mariner credentialing program. You asked specifically about credentialing, and I am always very pleased and proud to talk about our National Maritime Center – a truly world class organization that is bench marked by nations around the world. In the last year or so the National Maritime Center (NMC) has successfully implemented the mariner medical certificate regulations, which affects 218,000 mariners – and is currently issuing medical certificates to medically qualified mariners within eleven days of receipt of application. The Coast Guard is achieving the mutual CG-industry credential issuing goal of an average Net Processing Time (NPT) of less than 30 days with no backlog. As of December 2014, the average NPT for Merchant Mariner Credentials was 20.8 days with more than 80% issued in under 30 days. The Medical Certificate NPT was 10.1 days. We continue to make improvements to reduce that time including the introduction of Automated Credential Production Equipment which is currently undergoing IT approval and Operational Testing and Evaluation and should be implemented early this year. In FY14, the National Maritime Center (NMC) produced a record number of Merchant Mariner Credentials (MMC): 80,000+ (original, raise-in-grade, renewals, endorsements and documents of continuity) Customer Satisfaction Surveys indicate a 90% or higher satisfaction rate for the entire calendar year with nearly 30,000 monthly contacts received by our Customer Service Center. Prior to credentialing centralization, the maritime industry made clear to the Coast Guard that they valued consistency, timeliness and better customer service. In the legacy system, customers experienced lengthy delays, in some cases months, for credentials to be issued. Despite numerous program additions, Regional Examination Center (REC) staffing and functions had not changed since their creation in 1982 which contributed significantly to increased backlogs. Decentralized and independent REC operations led to inconsistent regulation and policy interpretations which created an environment ripe with 'REC shopping' where customers would seek out the most favorable interpretation. It also made it very difficult to keep up changes to the system including STCW, User Fees, Renewable MMDs, Safety & Suitability vetting

and medical screening. Flash forward to today, those same values of consistency, timeliness and improved customer service still apply and the Coast Guard's credentialing program has vastly improved service to our customers in these areas. Every facet of the application process is centrally managed which includes training, performance/process oversight and personnel accountability. REC's report directly to the NMC, as opposed to local Sector offices, which has greatly aided in the standardization of operations. This centrally managed and executed process, overlaid by our own Mission Management System (an ISO 9001:2008 based QMS), has greatly improved the quality and consistency of products we deliver to our customers. Today we have a goal to deliver merchant mariner credentials (MMCs) and medical certificates to our customers in less than 30 days (Net Processing Time). As of 12/31/2014 we are exceeding that goal with MMC's delivered in an average of 20.8 days to over 82% of mariners and medical certificates in an average of 10.7 days. I would invite you to review the National Maritime Center website, Performance and Analysis section for a complete breakdown of the performance metrics we maintain. While I am pleased with the performance of the credentialing program, there is always room for improvement. We will work to continually improve our performance and strive to maintain the highest levels of consistency and timeliness possible.

Mariner physical examinations have gone from 5-year intervals to 2-year intervals. How can you possibly keep up with the more than doubling of these intervals for a credentialed mariner set that now eclipses 200,000 seafarers?

Of the 209,000+ U.S. credentialed active mariners operating nationally and internationally, approximately 31% (64,000+) are subjected to the two-year physical examination and medical certificate process required of the STCW and Pilot communities. In the early stages of the NMC medical evaluation program, the NMC medical staff consisted of five individuals (one Medical Doctor, two Physician Assistants and two Health Service Specialists) performing mariner health assessment duties. Today, we enlarged the NMC medical staff to include 37 permanent team members (incorporating three Occupational Medicine Doctors, 13 Physician Assistants, 10 Certified Medical Assistants, six Medical Record Clerks, four Health Service Specialists, one Medical Administrator and support staff) to evaluate mariners to ensure all are medically fit to perform merchant mariner operations.

The Quest to Fund Inland Waterways

Infrastructure Projects: Perhaps Not So Quixotic After All?

By James A. Kearns

Over the course of 2014, significant steps forward were taken in the quest to find additional sources of funding for inland waterways infrastructure projects.

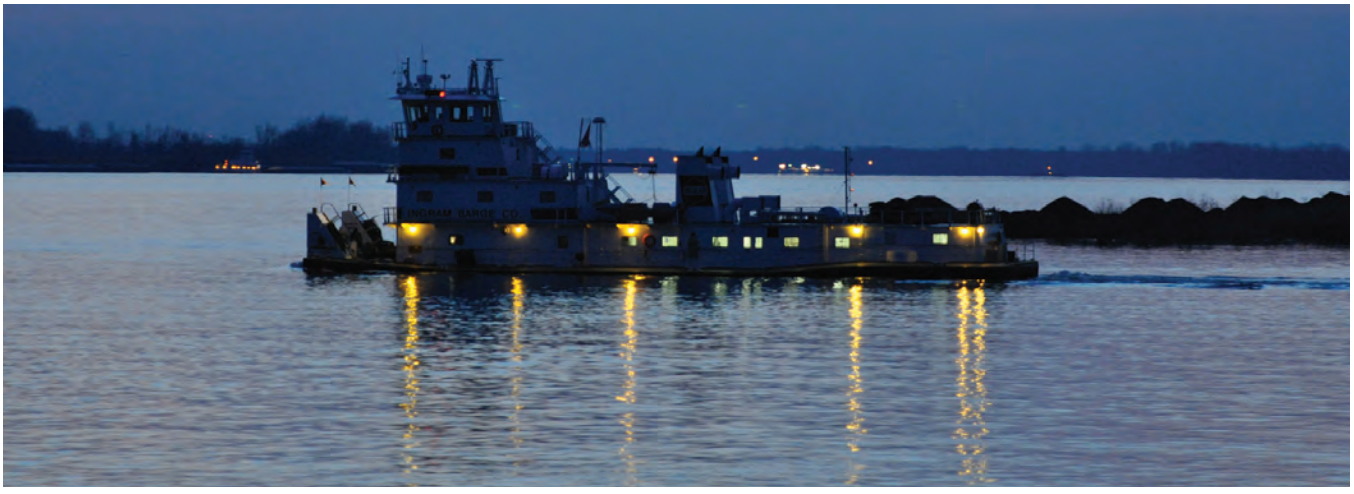
First came the long awaited and much-celebrated Water Resources, Reform and Development Act of 2014 (WRRDA) in June, which included several provisions to address the funding needs of the ever-worsening condition of the inland waterways infrastructure. WRRDA eased the burden of the Olmsted Locks and Dam on the Inland Waterways Trust Fund (IWTF) by reducing the IWTF's share of the costs for Olmsted from 50% to 15%. WRRDA also expedited the process by which the U.S. Army Corps of Engineers is to study and carry out new construction and rehabilitation projects for the inland waterways infrastructure.

WRRDA and more

WRRDA laid the groundwork for additional sources of funding in two other respects. First, Section 2004 of WRRDA, captioned *"Inland Waterways Revenue Studies,"* requires the Secretary of the Army to conduct two studies. One study is to examine the "potential benefits and implications of authorizing the issuance of federally tax-exempt bonds secured against the available proceeds, including projected annual receipts, in the Inland Waterways Trust Fund." A separate study is to explore the "potential revenue sources from which funds could be collected to generate additional revenues for the Inland Waterways Trust Fund."

A second provision, Section 5014, is captioned *"Water Infrastructure Public-Private Partnership Pilot Program,"* and requires that the Secretary establish a "pilot program to evaluate the cost effectiveness and project delivery efficiency of allowing non-Federal pilot applicants to carry out authorized water resources development projects for coastal harbor improvement, channel improvement, inland navigation, flood damage reduction, aquatic ecosystem restoration, and hurricane and storm damage reduction." More on this provision later.

A final development in increasing the funding for inland waterways infrastructure projects came at the very end of the year: the inclusion in the so-called "tax extenders" legislation of an increase in the tax assessed on diesel fuel used on the inland waterways from 20 cents per gallon to 29 cents per gallon, which takes effect on April 1, 2015. These fuel taxes go into the IWTF, and some industry sources have estimated that the fuel tax increase will generate approximately $40 million in additional revenues for the IWTF every year. If these additional revenues are applied directly to construction and rehabilitation projects, they will bring substantial benefits to the inland waterways infrastructure. Even further, such additional revenues could be leveraged through, say, bond financing to achieve even more dramatic results. A study prepared for the United Soybean Board by the Center for Ports and Waterways of the Texas Transportation Institute, titled *"New Approaches for U.S. Lock and Dam Maintenance and Funding,"* published in January 2013, explains and illustrates how this could be done. The study can be found at **www.soytransportation.org**.



Stakeholder Buy-In

This eleventh-hour increase in the fuel tax was almost as surprising as it was welcome. For the past several years, the inland waterways industry has been recommending this increase. This recommendation was included in the Capital Projects Business Model prepared by the Inland Marine Transportation System Capital Investment Strategy Team, which was unanimously approved and adopted by the Inland Waterways Users Board in 2010. In 2013, the Waterways Council and a coalition of nearly 40 stakeholders expressed their support for increasing the fuel tax to at least 26 cents per gallon in a letter to the House Ways and Means Committee.

Early in 2014, Congressman Dave Camp (R MI), chairman of the House Ways and Means Committee, included an increase of six cents in this tax in his draft of the Tax Reform Act of 2014, but his proposal to overhaul the tax code made little headway in the House of Representatives. Despite this discouraging track record in attempting to obtain the fuel tax increase over the past several years, the industry succeeded in getting the increase of nine cents included in the tax extender legislation, which arrived—even without help from FedEx or UPS—just in time for the holidays.

Toward the end of the year an initiative at the state level got under way as well. This is an effort to take advantage of public-private partnership provisions of WRRDA to preserve the authorization of the Navigation and Ecosystem Sustainability Program (NESP). NESP is a long-term program authorized by Congress in the 2007 Water Resources Development Act for navigation improvements and ecological restoration for the Upper Mississippi River System and the Illinois Waterway navigation system, following years of study by the U.S. Army Corps of Engineers, going back to 1989, and collaboration among Illinois and the other states in the Upper Mississippi River System. The primary goal of NESP is to implement an integrated, dual-purpose plan to ensure the economic and environmental sustainability of the Upper Mississippi River System and the Illinois Waterway navigation system by reducing commercial traffic delays while restoring, protecting, and enhancing the environment. Congress last appropriated funding for NESP in

2011. Under current law, NESP could be de-authorized if it does not receive funding in 2016, undoing years of study and multi-state collaboration.

Specifically identified as included within NESP are several locks and dams on the Illinois River, since this waterway connects the Great Lakes with the Upper Mississippi River and commodities shipped on the Illinois River can be transshipped via the St. Lawrence Seaway to Canada and Europe, or via the Mississippi to the Upper Midwest or to the Gulf of Mexico and beyond. Although the full scope of NESP encompasses all of the states within the Upper Mississippi River System, an appropriation by Congress of funds by 2016 for a construction project for one or more of the locks and dams on the Illinois River that are specifically identified in NESP would avoid the de-authorization of NESP for lack of funding.

Public-Private Initiatives

Enter WRRDA Section 5014 and the Water Infrastructure Public-Private Partnership Pilot Program. Section 5014 allows for the transfer of federally authorized projects to a non-federal sponsor for design, financing, construction, operations and maintenance. The State of Illinois, through its legislature and its Department of Natural Resources, which has responsibility for waterways within the State of Illinois, is evaluating whether to serve as the sponsor for a new public-private regional authority that would become the non-federal sponsor for this program under WRRDA Section 5014.

Then-Governor Pat Quinn of Illinois notified the U.S. Army Corps of Engineers in a letter that Illinois would begin to address the need for an innovative delivery model to upgrade the locks and dams on the Illinois River through the use of a public-private partnership as authorized in WRRDA.

Those working on this initiative have designated it as the *"Illinois and Middle Mississippi River Public-Private Partnership Pilot Program,"* or IMMR P5. The initial focus will be on the locks and dams within the State of Illinois as the first phase of the program, in order to save the time that would otherwise be required to establish interstate agreements with Iowa and Missouri for the locks and dams on the Mississippi River between Illinois and each of those other two states. If the first phase is successful, then the program would be expanded to a tri-state organization among Illinois, Iowa and Missouri as additional segments of the Upper Mississippi River System are added to the program.

The first practical step would be the formation of an Inland Rivers and Waterways Working Group, under the auspices of the Illinois Department of Natural Resources, with the expectation that it would transition into an Inland Rivers and Waterways Authority that would serve as the non-federal and local sponsor of the program under WRRDA Section 5014.

Failure is Not an Option

Legislative support for this initiative is being led by both Illinois State Senator David Koehler, Chair of the Agriculture Conservation Committee of the Illinois State Senate, and Illinois State Senator Martin Sandoval, Chair of the Transportation Committee of the Illinois State Senate. On December 2, 2014, a subject matter hearing was held before the combined committees on the issues currently needing to be addressed for the locks and dams on the Illinois River and on the feasibility of the IMMR P5 approach. Representatives of the Illinois Department of Natural Resources, of the U.S. Army Corps of Engineers, of the Illinois Soybean Association, of the environmental and engineering consulting firm CH2M Hill, of the Nature Conservancy, and of several environmental advocacy organizations presented testimony. Senator Koehler chaired the hearing.

In his opening remarks, Senator Koehler summarized the importance of the inland waterways to the economic health of Illinois and the nation, and the need to address the continuing deterioration of the inland waterways infrastructure. Following the testimony of certain environmental advocacy organizations who expressed opposition to facilitating commercial navigate on the inland waterways, Senator Koehler asked, "Is anyone here suggesting that we do nothing?" When no one responded in the affirmative, he said, "Good – because that is not one of the options."

BRYAN CAVE

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Moving Ahead With the Harbor Maintenance Trust Fund

By Barry Holliday, Executive Director for the Dredging Contractors of America

"How can we have a 21st century economy with a 20th century infrastructure?" Vice President Joe Biden recently posed this question to an audience at the American Association of Port Authorities (AAPA) annual meeting in Houston, Texas. He went on to say, "the greatest economic power in the world needs the most dynamic port system in the world." I happen to agree with this statement. We must find a better way to manage the funding needs of our marine transportation infrastructure. In fact, you will find many politicians, business leaders, economists, and transportation specialists that are quite outspoken on this matter. It seems everybody talks infrastructure, and how deteriorated our roads, rails, highways, bridges, and ports have become. But all these fundamental transportation systems are still continuing to deteriorate.

We were all encouraged by the passage of the Water Resources and Reform Development Act of 2014 (WRRDA), and the acknowledgement by substantial votes in both the House and Senate that our ports and waterways need additional investment and more resources to maintain the channels, harbors and waterways. A lot of effort went into educating the large number of House members that had never experienced or even heard of a WRRDA bill.

The WRRDA bill authorized improvements to several deep-draft ports, and authorized a phased-in funding approach of the Harbor Maintenance Trust Fund for maintenance dredging of ports and harbor infrastructure. But this has not solved the problem, and we still have 20th century infrastructure, not able to support our 21st century economy.

How can this be, you might ask? WRRDA authorizes Congress to implement these funding approaches, but it does not mandate this investment strategy. The Appropriations Committees must actually make the decisions on how these navigation infrastructure projects will be funded. What makes the lack of funds for maintenance of the ports and harbors even more frustrating is the fact that Congress, back in the 20th century, 1986 to be exact, passed a WRDA that established the Harbor Maintenance Trust Fund. The Harbor Maintenance Trust Fund and its Harbor Maintenance Tax were authorized in the Water Resources Development Act of 1986, P.L. 99-662. The purpose of the Tax, a 0.125% ad valorem tax levied on cargo imported or domestically moved through federally maintained channels and harbors, is to pay for Army Corps of Engineers operations and maintenance dredging.

The Tax is collected by the Bureau of Customs and Border Protection and directed to the Trust Fund. However, the monies are not immediately eligible for dredging activities. Those monies can only be spent if the funding is actually appropriated by Congress. The Trust Fund has continued to increase and now has a surplus in excess of $8 billion dollars. The reason for the large surplus is that only a little more than half of the annual revenues collected are appropriated for maintenance of the harbors and ports. Last year, $1.6 billion were collected, but the Corps was only reimbursed $979 million. So, since 1986, the shippers have been paying a tax that is supposed to fund the maintenance needs of Federal ports and harbors. But, it has not worked out as authorized by the law. One could quickly conclude that we have been in port infrastructure denial. There is no easy way to resolve this as long as the Harbor Maintenance Trust Fund monies for maintenance must be appropriated and subject to the political vulnerabilities of the current budget process.

I keep wondering why we would want to subject our ports and waterways to this burden of political process and continued uncertainty. For the most part, these Federal navigation projects have gone through a rigorous economic evaluation, public comment, environmental compliance review, and in many cases, hundreds of millions of dollars have been invested to develop these ports and waterways, and yet these projects only receive a percentage of the actual maintenance dollars they need to keep the channels at full project dimensions (width and depth).

These ports and waterways serve us all, and are the lifeblood of our economic engine. Why would we want to allow them to deteriorate, and not be able to receive the commodities we need, and to export the grain, coal, and manufactured goods that make our Nation strong? We must find a way to keep our ports and waterways fully capable of supporting the increasing flow of goods efficiently and ensure our ability to compete in world markets.

It is time to legislate solutions, not just continue to talk about how bad our maritime infrastructure has become. It will be challenging and it will require bipartisan support. Early on, in the 114th Congress, we are hearing discussions about our highway infrastructure, and the need for a tax increase. To hear this rhetoric from leadership gives me hope that maybe a 2016 WRDA can offer a solution that will not just kick the infrastructure can to another day, or pass the responsibility to another Committee. There is a solution. The revenue is there, and now is the time to fully use the Harbor Maintenance Trust Fund tax for its intended purpose. Now is the time to move our ports and harbors into the 21st century.

Avoiding Pitfalls on the Water

When a land-based contractor decides to work on water, risk can arise from unexpected places. It doesn't have to be that way.

By Larry DeMarcay, Fowler Rodriguez Valdes-Fauli

In the past, companies involved in the marine industry, whether they were vessel operators, riggers, longshoremen, ship builders, repairers, or construction companies were, by and large, specialized and most companies focused on one niche aspect of the industry. Fast forward to 2015 and it is clear that our industry has changed. Today, there are fewer companies in the market with each company often doing business in multiple areas of specialty. And, that's where it can get complicated.

The efficiencies gained by service expansion have been good for both companies and the customers that they serve. Companies can move equipment, personnel and other assets to work on a multitude of projects that they have in the pipeline and are able to work multiple types of projects using shared resources.

Changing Business Models: Increasing Risks

The efficiencies and economy of scale offered by contractors today has made the provision of marine services easier. However, as a company moves beyond its traditional business model and begins providing services in other areas of the market, there are numerous pitfalls to avoid. Companies that are accustomed to operating only in a land-based environment may not think about the special issues relevant to a company that operates in the marine environment. The same holds true for traditional marine contractors. Although it is difficult (and sometimes unwise) to generalize, the significant issues which arise from such crossover usually relate to staffing, insurance, and security issues.

A land-based contractor that works on a project offshore, or adjacent to the shore, will often acquire or use marine equipment such as towboats, barges, launches and other work boats to complete the marine based project. Usually this equipment is acquired on an "as needed" basis where the sole concern is equipment acquisition to get the project done, and very little time is spent analyzing how the acquisition affects the company's method of operating.

A good example would be a land based dredging company that has experience in digging canals, building levees and moving dirt around on land based projects. If this company gets an opportunity to work on a project that demands similar skills but requires working on the water, they will often work the project in a similar fashion, with the only change being

the equipment that is needed, such as the towboats or barges that they acquire to operate their equipment over water.

With regard to staffing, operating vessels with unqualified and/or inadequately certificated crew can expose the company to liability or invalidate certain insurance coverage. The courts have ruled that a vessel that is not manned by a competent master and crew is unseaworthy. Furthermore, the insurer may exclude coverage by showing incompetency of the crew. Thus, if you operate a vessel without properly vetted and licensed crew, and an accident occurs, you could be found liable and the insurance company may decline paying for any of the damage if you do not have the right crew on board.

A comprehensive discussion of manning requirements could fill a library and otherwise is beyond the scope of this article. By way of illustration, 46 U.S.C. §8904 states that a towing vessel of at least twenty-six feet in length must be operated by an individual licensed by the Coast Guard to operate that type of vessel in that particular geographic area. As such, each towing vessel must be operated by a captain that is licensed with the appropriate level license. The statute also includes a provision that regulates the "hours of service" that the employee can work. These hours of service rules may or may not match up with the traditional work schedules of land-based work crews.

Depending upon the scope of the work being performed, and the workboats utilized, it is important to analyze your operation to make sure that you have acquired the right employees to operate the equipment that you are utilizing. Your land based equipment operator may have the ability to run the small push boat that you acquired to move the barge around, but should he? Only a thorough examination of the rules specific to your situation can identify these potential issues.

Insurance: apples to oranges

With regard to insurance, a land-based operator will be familiar with the workers' compensation system and will have obtained adequate insurance to protect employees and the company from the types of risks they would typically expect on shore. However, once these land-based operators move to the marine environment, insurance needs differ and these traditional insurance policies may not (and probably will not) cover many of the risks inherent to operating in the marine environment.

With regard to employees, it is important to note that a workers' compensation policy will not afford coverage to employees that are found to be Jones Act Seamen or longshoremen under the Longshore Act. With regard to prop-

"... it is important to note that a workers' compensation policy will not afford coverage to employees that are found to be Jones Act Seamen or longshoremen under the Longshore Act. With regard to property insurance, adding a recently acquired boat to the company's schedule of equipment on an existing property policy may not provide the coverage that you need in the event that someone is hurt aboard the vessel or if the vessel is involved in an accident that causes damage to someone else."

erty insurance, adding a recently acquired boat to the company's schedule of equipment on an existing property policy may not provide the coverage that you need in the event that someone is hurt aboard the vessel or if the vessel is involved in an accident that causes damage to someone else.

As contractors venture out beyond the scope of their usual method of doing business, it is important to sit down with an insurance broker to discuss the operational changes, identify potential risks and to procure insurance policies that adequately protect the company from these risks. Lastly, and sometimes depending upon the location of a project, certain marine projects require security measures that are not present in most land based jobs. For example, when working on a project at a marine facility that regulated by Maritime Transportation Security Act (MTSA), you may have to have your employees obtain a Transportation Worker Identification Credential (TWIC Card) from the Transportation Safety Administration. And, while that process has, over time, become a little less onerous, obtaining those cards can take time. It is also possible that, depending on the criminal records of certain employees, the issuance of the card may be denied.

A TWIC card is required for any employee that needs unescorted access to a covered facility and your employees may not be allowed on-site until they are properly certified. A little advance planning will help you avoid an embarrassing project shutdown or delay caused by having a workforce that has not been approved by the TSA.

An Ounce of Prevention

A growing list of infrastructure projects along the nation's waterways is opening up new opportunities for many firms. Moreover, the June 2014 passage of the Water Resources Reform & Development Act (WRRDA) will infuse much needed funds into this sector. That said; and while the expansion into new service areas provides an excellent opportunity for contractors to grow the business, at the same it also exposes the company to new risks that may not have been present in the past.

None of these potential risks should keep you from growing your business as these issues can be easily mitigated by working through your specific situation to determine how these changes affect your current risk profile. Once the potential risks are assessed, you can determine how your operation can be modified to manage these issues. As such, a little time spent meeting with your attorneys and insurance professionals on the front end can protect your company from any surprises in the future.

A Gift to the Nation's Waterways

By Michael J. Toohey

The nation and its inland waterways received a great gift at the end of 2014. On December 16, 2014, the Senate voted 76-16 to pass H.R. 5571, tax extenders legislation that included a 9-cent increase in the inland waterways diesel user fee. The increase will be effective April 1, 2015 and funds – around $40 million from industry levies – will be deposited into the Inland Waterways Trust Fund for the benefit of priority navigation project construction and major rehabilitation.

On December 3, 2014, the House of Representatives passed by a vote of 404-17 the *"Achieving a Better Life Experience (ABLE)"* Act that included the 9-cent increase to the user fee. The user fee increase is the most recent key recommendation of the Capital Development Plan (CDP) to be adopted into law, with four of the CDP's elements adopted through the passage of WRRDA.

Also, in December, the House and Senate passed the *"The Consolidated and Further Continuing Appropriations Act of 2015,"* known as a "Cromnibus," (H.R. 83) with details from the Energy and Water Development and Related Agencies Appropriations Act of 2015, as follows:

- *The Corps received strong Civil Works' program funding at $5.454 billion, $921.5 million above the Administration's request.*
- *The Construction account funding of $1.639.5 billion is an increase of $514.5 million above the Administration's proposal, including $281 million, a $112 million increase above the Administration's request, for Inland Waterways Trust Fund (IWTF) projects, to be allocated by the Secretary of the Army.*
- *Operations & Maintenance is funded at $2.908.5 billion, $308.5 million above the Administration's request and $47.5 million above FY14, including at least $42 million in additional funds for inland navigation.*
- *The Olmsted project is funded to at least $160 million at the 85%/15% cost-share change enacted in WRRDA. The Lower Mon project is funded to at least $9 million.*
- *No less than $1.1 billion is provided from the Harbor Maintenance Trust Fund, a $100 million increase above FY '14 and $185 million higher than the Administration proposal.*
- *No funding is provided for construction of hydrologic separation measures related to Asian carp.*

These developments, on top of the enactment last June 2014 of the *Water Resources Reform & Development Act (WRRDA),* are big triumphs for the nation and its inland waterways transportation system. The inland rivers employ more than half-a-million people and offer the most economical, energy-efficient, and environmentally sound way to move the commodities the U.S. and the world depend upon.

This critical link in the nation's transportation supply chain deserved these recent victories, and it will continue to deliver wins for the U.S. economy as long as we compete in the world market.

WATERWAYS COUNCIL, INC.

With more than 30 years of federal government expertise, Mike Toohey serves as WCI's President and CEO.

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Propellers:

One Size and Shape Does Not Fit All

Hydrocomp's newest release of PropCad incorporates 3 years of enhancements.

By Adam Kaplan

Propellers are surprisingly complex devices, especially considering most are a solid piece of metal with no moving parts. The variation in vessels and operational requirements leads to wildly different designs, from noise-sensitive propellers for luxury cruiseliners to wide-blade sets for tugs. With different combinations of diameters, pitches, blade styles, and blade counts, there is no limit to the design alternatives available. Creating these different designs can be an extremely time-consuming and specialized process.

Traditionally, propellers have been designed largely by hand, with manufacturers creating wooden foundry patterns of blades. These patterns are used to create sand-cast molds for manufacturing the propellers. While the pattern can be used to produce propellers with different numbers of blades, new patterns must be created for geometrically similar variations. A given design is usually available in a number of diameters and pitches, which means that the manufacturer has several patterns. It is not unusual for these patterns to be a mixture of body filler and wood as they are modified or improved over the years. Some of these patterns were created decades ago and are still in use today.

New Considerations

A number of developments in the marine industry are changing propeller design. One development is the increase in power densities of marine engines. Modern engines have more horsepower packed into a lighter engine of the same size. As a result, these vessels require stronger propellers with more blade area to accommodate the increased power and speed. Another contribution is cost of fuel and the desire for efficient propeller designs. As fuel costs increase, there is more incentive to optimize the performance of the propeller. The availability of analytical tools including model testing, flow measurements, and CFD simulation are allowing the industry to move away from the traditional designs of the 1960's, when known performance was prerequisite for investing in a pattern. Of course, one of the major changes to the propeller industry has been the growth of CNC machining which allows greater precision for producing patterns and finished propellers.

The propeller industry accommodates demands for both traditional and contemporary designs. Existing installations of legacy propellers must be supported because often the lifespan of the vessel is greater than that of the propeller. As a result, the original manufacturer is usually expected to have the same propeller available in the future. Clients also desire an expansion of product lines and available variants, especially for popular models. This has led to a common problem for propeller manufacturers and designers: creating a design variant from an existing pattern with no formal design documentation. Quickly creating design and size variants, whether from scratch or from an existing design, is one of the tasks HydroComp PropCad has solved for the industry.

Introduction to PropCad

HydroComp PropCad software geometrically models marine propellers for design and manufacture with automatic preparation of CAD/CAM data, 2D design drawings, 3D offsets, and thickness classification reports. Manufacturers, researchers and designers in over 40 countries use the software to quickly generate propeller designs. And, the newest version of this design tool includes three years of enhancements which both update and expand PropCad's propeller design capabilities.

At the heart of PropCad is a library of traditional propeller designs – allowing users to rapidly develop geometries. The library has over 10 different propeller series, including B-series, Gawn, Kaplan, and cleaver style propellers.

The design is controlled by individual parameters, such as nominal pitch and BAR. The parameters are matched using radial shape distributions. The radial shape distributions can come from many sources, including the provided library propellers or user-defined files. This parametric method of design allows users to mix-and-match the distribution shapes of different propellers.

Users can also set the general parameters to scale the distribution shapes to a magnitude desired for the current design. Variants can be designed simply by changing the target magnitudes. In the case of one manufacturer of small RC boat propellers, the design time for new molds was cut from one week to just a few hours. This savings is significant, and allowed the company to introduce six new product lines in one week.

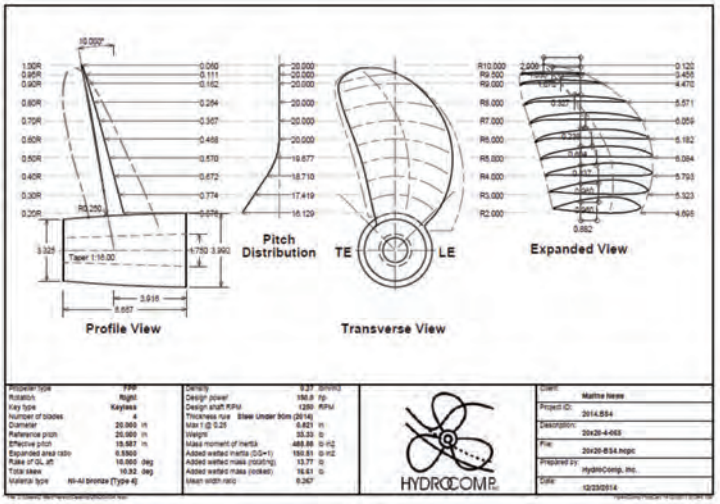
Recreating Existing Designs

PropCad is also being used to interpret existing propellers, patterns, and scan reports in order to recreate legacy designs. Propeller scan tools featuring a single touch probe to measure axial drop have traditionally been used to inspect the surfaces of propellers. Today, many consumer-level 3D scanning tools using lasers, probes, and depth-cameras are widely available. This has resulted in a new practicality for digitizing older propellers and patterns, many of which have no formal design documentation and have been heavily modified over the years. PropCad utilizes data from these digitizations to recreate the propeller blades. Using PropCad ScanConverter, individual sections are extracted from the geometry to derive the distributions of pitch, skew, rake, and more. Once the existing design is in PropCad, additional documentation such as 2D drawings, pitch inspection reports, and 3D offsets are generated with a few clicks.

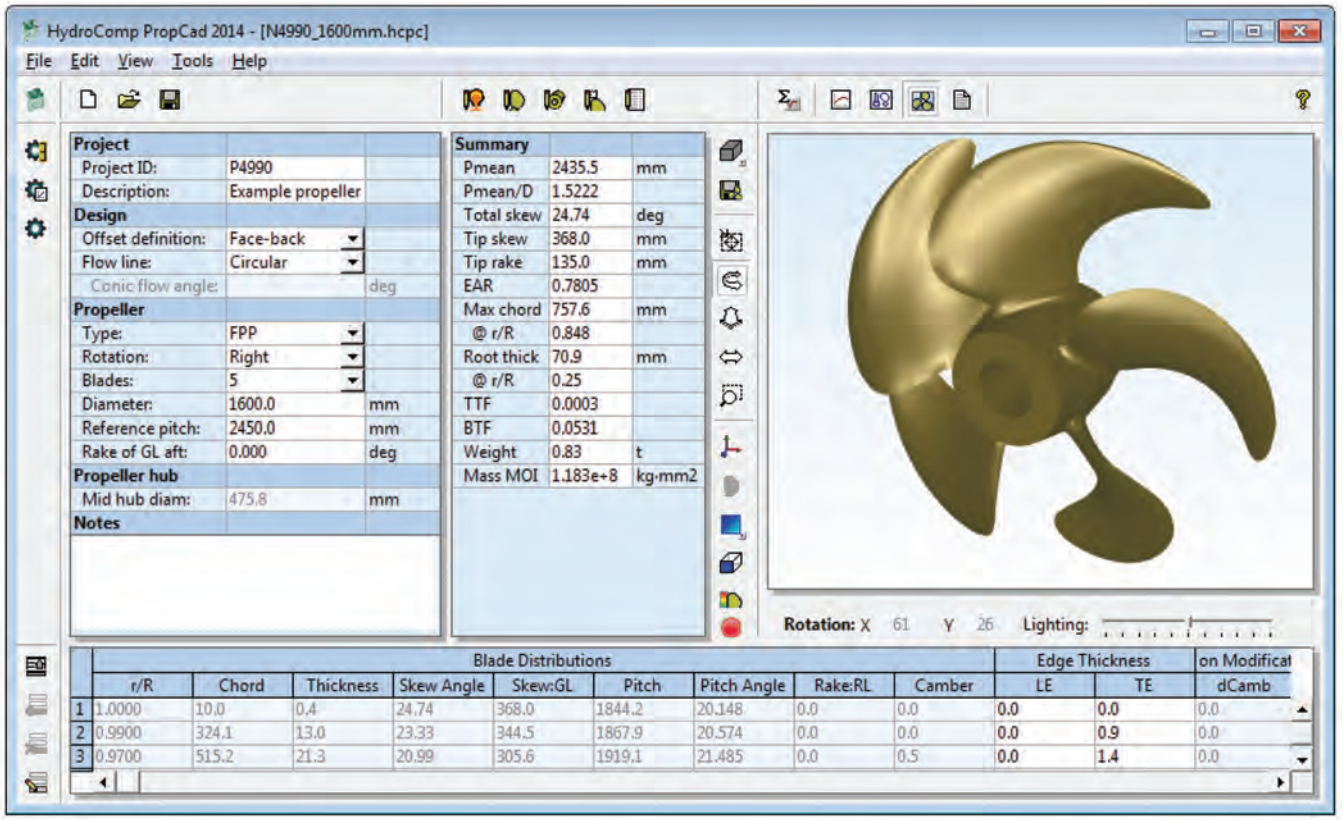
Many of the bumps and bruises that unintentionally became part of a propeller are exposed when legacy designs are digitized and examined with PropCad. Recreating scanned designs in PropCad offers an opportunity to improve the performance and smoothness of a design, while retaining all the flavors of the legacy propeller – allowing PropCad users to simultaneously document their designs, improve performance, and maintain market association with a particular brand and model.

Exporting designs for CAD/CAM

Because designers have a wide variety of software packages at their disposal, PropCad supports the native file types for many CAD/CAM packages, including internal data-



The software features updated and enhanced interface and better user experience.



A screenshot of the latest version of PropCad

transfer files for Solidworks, Creo/ProE, Rhinoceros, Delcam, Surfcam, Mastercam, and Unigraphics NX. For other packages, PropCad supports generic 3D transfer files including point clouds and IGES. All 3D CAD exports have been updated for compatibility with the latest versions of the major CAD tools. A new export dialog allows the user to select the exported surfaces (face/back, root, tip, LE, TE, and root fillet) and also to increase the density of the model without altering their design. Designers can therefore easily transfer geometries to a preferred environment for creating CNC toolpaths, pattern templates, or casting molds.

Streamlined by Design

Communicating the design of a propeller can be difficult. For high value projects, propeller drawings and classification society approval are typically required. The societies provide equations to govern the thickness of the propeller blade, and the rules can be cumbersome to implement by hand or with spreadsheet. These rules use the initial thickness and section areas to specify a required thickness; therefore the recursive nature of this problem requires iteration and convergence.

PropCad provides thickness classification for seven societies, including rules for controllable-pitch, ducted, and ice-class propellers. Rules for CCS, NK, and Swedish/Finish rules were added in 2014. Ice class designations are available for ABS Steel, BV/RINA, LR Ship rules, LR Naval rules, and Swedish/Finnish rules. Not only does PropCad save designers time, the final report is suitable for submission to the societies and includes all intermediate data required for these complex and time-consuming calculations. The 2D drawing, offsets, and classification reports generated by PropCad are professional and customizable with company information and logo. These reports can be exported in Adobe PDF, spreadsheet CSV, or word processing RTF formats.

Because propeller designs vary widely, it is important to designers that they have control over all aspects of the geometry. Contemporary propellers feature non-linear distributions of pitch, progressive face camber, highly skewed blades, special distributions of trailing edge cup, and more. PropCad features an improved, fully-parametric Builder

that allows users to define radial distributions of parameters from HydroComp's library propellers, from user-generated distribution files, or by entering the data directly into the sections spreadsheet. The Builder includes new options, including radial control of leading and trailing edge thickness, chordwise position of maximum thickness for segmental-type sections, and a CAD-friendly tip correction. These added settings, and others, give PropCad users an unprecedented level of control in their designs.

Updated Interface, Enhanced User Experience

Propellers can be as much as 30 years old – but propeller design software should not be. Compatible with the latest versions of Windows, the new PropCad includes substantial development of data entry and visualization metrics. As a result, PropCad has moved to a table-driven interface that allows users to quickly enter and modify data in their designs. The content of the interface has been consolidated so that principle dimensions, radial distributions, and 2D section offsets are now all visible on the main screen. A new display mode enables graphing of any radial distribution, such as chord, skew, or pitch angle. One-click graphing allows quick visualization of blade outlines, thickness profiles, and 2D section offsets. The 3D window includes hardware-accelerated anti-aliasing, smoothed 3D renders, new visualization modes, and even video recording.

Today, manufacturers are moving faster from new designs to finished products with PropCad's streamlined CAD/CAM exports, including updated program specific transfer files and general purpose IGES output. PropCad also supports reverse-engineering of existing propeller designs as well, and therefore the industry is seeing a new generation of improved designs. That's because when it comes to propellers, one size does not fit all.

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Powering Ahead with a Clean Design

The Shearer Group and Conrad Shipyard collaborate on an ABS approved LNG Towboat Design. What happens next could change inland shipping forever.

By Joseph Keefe

The December announcement that Conrad Shipyard, L.L.C. and The Shearer Group, Inc. (TSGI) had worked together to develop the design of a Liquefied Natural Gas (LNG) powered 4,200 horsepower towboat utilizing a proven TSGI design was, perhaps, exciting enough on its own merits. That the team had also been awarded an "Approval in Principle" (AIP) by the American Bureau of Shipping (ABS) for the design was especially significant for the nation's inland waterfront. Packing clean LNG power into an inland towboat was no easy task. And yet, the potential for the concept to blossom in this largely fixed, point-to-point market is very real.

Proven Technology Removes Risk

The towboat is based on TSGI's proven azimuth drive (z-drive) towboat design that debuted in 2008. Eight of these towboats, which also pioneered the use of z-drives for brown water operations, have been built for Southern Towing Company, where significant fuel savings relative to conventional towboats have been well documented. Beyond this, the LNG powered towboat design capitalizes on Wärtsilä's proven dual fuel technology, but is not necessarily wedded to it. This technology is the most widely accepted dual fuel technology currently in use in the domestic U.S. market. While Wärtsilä's existing dual fuel engines are medium speed diesels, it is anticipated that future engine developments will result in lighter and smaller high speed units. The design is flexible enough to allow for the use of either engine option as determined by the operator.

The Wärtsilä system specified is a smaller version of the system currently installed on the Harvey Gulf Multi Purpose Supply Vessels. According to Bristol Harbor Group President Greg Beers, it is important to note that a conventional towboat is not diesel electric like an OSV. Diesel electric applications are perfect for LNG adoption because they allow the prime movers to run at constant speed. He adds, "We have mitigated this with our towboat design by using dual fuel engines which reduce the throttle lag, and z-dives which allow for more control at a given throttle setting. In fact to go from full forward to full reverse with a z-drive, you do not adjust the throttle setting at all, you simple rotate the thruster 140 to 150 degrees."

Perhaps the biggest selling point for the new concept, at least from Beers' point of view, is that the new design removes the risk from 'early adopters.' Asked to further elaborate on that point, Beers replied, "In two words: proven technologies. Moving to a z-drive design would be a risk for many operators on its own. By using our proven z-drive design as the basis for our LNG towboat design, we have mitigated that risk. Further, Wärtsilä's dual fuel en-

"Gas itself is very abundant along the inland waterway system which should help keep the transportation costs to a minimum. Assuming gas continues to be adopted by other industries along the rivers (which we expect it to), the inland marine sector should be able to capitalize on this expansion."

– Greg Beers, President / Principal Naval Architect at Bristol Harbor Group

THE SHEARER GROUP INC.

gines and their LNG storage and delivery system have been proven (or are being proven) domestically by Harvey Gulf and in numerous cases internationally. Our towboat employs the same basic system architecture, which has been accepted by U.S. regulators. By combining these two proven technologies, we are able to remove the design risk."

Ed Shearer, TSGI's Principal Naval Architect, adds, "With Approval in Principle in hand, we know that the basic design is acceptable to ABS. Further, we know that ABS and USCG work hand in hand on many of these projects, and thus we infer that the major design issues are also acceptable to USCG. That said: the next step is to submit class drawings to ABS and USCG for review and approval. We expect that USCG will limit their review to the LNG storage and supply systems, as well as fire and safety plans. ABS on the other hand will review all structure and systems."

One of the variables that has been a sticking point in LNG propulsion – especially for smaller hulls – is the proximity of the LNG bunker tanks to the accommodations. In the case of an inland pushboat, this is especially evident. The design team got around this issue by locating the tanks in open air above the machinery space and sufficiently aft of the accommodations space. Structural fire protection is provided along with adequate buffer zones to meet Class requirements for the storage tank location.

Solid Partners: Deep Experience

This kind of forward-thinking design effort simply can't be done in a vacuum. Collaboration was important in the design of the new towboat. Conrad Shipyard, established in 1948 and headquartered in Morgan City, LA, had a big hand in moving the LNG towboat concept forward. That's because when building an LNG powered vessel, a shipyard must take many things into consideration. Terry Frickey, Executive Vice President Conrad Shipyard, says that experience is important. He also laid out the importance of critical learning curve items, one of which includes the piping and containment systems. "Conrad has worked with a series of piping, valve, and tank manufacturing companies in this space over the past couple years in anticipation of this product category further developing. These vendors/partners have experience in design/development and installation of their products and have been instrumental in assisting us with our vetting of this product. Since 2009, Conrad has delivered almost 40 gas carrying Type C tank barges. To extend our knowledge into the double walled requirements of the LNG space will be a challenge, but one we feel is right in line with who we are, based on our experience."

Bristol Harbor Group and The Shearer Group together bring varied experiences that combined to enhance the project. In this case, TSGI was the principal designer of the subject vessel. That said; both TSGI and Bristol Harbor Group, Inc., have long been involved with LNG, and are currently involved in five active LNG projects. These include analyzing a subset of the U.S. Army Corp of engineers (USACE) fleet regarding its suitability for conversion to Liquid Natural Gas (LNG) and/or Compressed Natural Gas (CNG) power, and the development of a 3,000 cubic meter Liquefied Natural Gas (LNG) transport barge utilizing a Bristol Harbor Group proven hull design built by Conrad. Notably, the transport barge design has also received ABS AIP approvals.

Ed Shearer, TSGI's Principal Naval Architect, has experience in towboat design stemming from his past employment with several of the major inland shipyards. Beyond this, Shearer is a member of the Coast Guard's Chemical Transportation Advisory Committee (CTAC) which develops Policy Letters and Regulations for transporting and bunkering LNG as well as gas-fueled vessels.

LNG vs. Diesel: does it make sense for you?

In today's upside down oil markets, the financial model for LNG propulsion has changed somewhat. Those changes naturally impact a particular operator's decision process. Greg Beers explains, "Conventional wisdom is that LNG

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– Terry Frickey, Executive Vice President Conrad Shipyard

loses viability if the cost for the LNG delivered is more than 80% diesel on a diesel gallon equivalent (DGE) basis. Diesel is approaching that price now, but Ultra Low Sulfur Diesel (ULSD) is 15% to 25% more, still making LNG an attractive option. As shoreside fueling infrastructure continues to improve, the deliverable cost of LNG will only decrease for marine vessels, further incentivizing LNG as a marine fuel."

The variables to consider don't just stop at price, however. That's because it takes 1.7 gallons of LNG to equal one diesel gallon equivalent (DGE = ~129,000 BTU). When stowed in cylindrical Type-C pressure tanks, the difference can be as much as 3.8 times the volume for LNG because of the poor stowage factor of the cylindrical tanks. The TSGI design mitigates this difference by placing the tanks aft, over the machinery space. Ed Shearer told MarineNews, "We believe that an alternate containment system such as GTT's Mark III Flex system, will be more attractive for internal hull tanks when and if they are ever allowed to be placed beneath accommodations spaces. Currently, the USCG does not allow LNG tanks to be placed beneath accommodations, service or control spaces."

The range differential for this LNG towboat design and for that of a conventionally powered vessel is about 10 days (10 vs. 20), but if the operator uses diesel in the same trip once LNG is exhausted, the range is the same. Shearer cautions potential adopters, "Burning LNG primarily (remember, with a dual fuel engine, you always burn some diesel as a pilot fuel) will make the economics most attractive, improve the environmental impact, and aid with maintenance. Gas fueled engine internals are much cleaner than diesel powered, so engine longevity and time between engine overhaul is also an advantage."

Arguably, the use of LNG for propulsion in ferries and dedicated vessels in the Baltic is the perfect model for using it on inland waterways – a fixed route in an enclosed waterway system. Asked if LNG could someday overtake diesel as the preferred propulsion on inland rivers, Greg Beers replied, "I believe so. Gas itself is very abundant along the inland waterway system which should help keep the transportation costs to a minimum. Assuming gas continues to be adopted by other industries along the rivers (which we expect it to), the inland marine sector should be able to capitalize on this expansion."

It is also true that the operating scenarios of Harvey Gulf, Crowley, TOTE, Washington State Ferries with their new-build gas-fueled vessels is to fuel the vessels at one location. The operating scenario for an inland service line-haul towboat would involve fueling at two or three specific locations. Therefore, the logistics of the number and size of bunkering barges as well as shore-side liquefaction facilities could drive the cost of converting or building vessels for LNG or dual fuel.

Vessel Particulars at a glance:

Molded Length: 140'	Design Draft: 9'	Power: 2 x Wärtsilä 9L20DF Engines
Molded Beam: 40'	LNG storage capacity: 190m3	Engine HP: 2100 HP each
Molded Depth: 11'-6"	Crew: 6 berths	Propulsion: 2 x Schottel SRP 1215 FP Thrusters

"The beauty of the TSGI design is that it marries these benefits with the proven benefits of utilizing z-drives on a towboat. These efficiencies provide an owner with combined operational cost savings that can exceed 35% of the cost of operating a conventional towboat."

– Ed Shearer, TSGI's Principal Naval Architect

BRISTOL HARBOR GROUP INC.

The cost premium for both Z-drives and the LNG propulsion component also has to be considered. But, the design team says those costs are tempered by the savings z-drives represent during construction. The old rule of thumb for the cost of new construction of a towboat with z-drive units adds 25 to 50 percent to the construction cost of a traditional design. But this, according to Greg Beers, doesn't take into account the items that are eliminated from the construction cost of a traditional towboat. Along the way, many expensive man hours are eliminated from the process. He adds, "The new z-drive inland towboat will be approximately the same cost or at most ten to twelve percent more than the current construction cost of a new, conventional design, inland towboat. Actual construction cost of the Southern Towing z-drive towboats proved this assumption to be valid."

Sealing the Deal

Ed Shearer says that the economic and environmental benefits of using LNG as a fuel source for high horsepower applications like towboats are widely understood. He adds enthusiastically, "The beauty of the TSGI design is that it marries these benefits with the proven benefits of utilizing z-drives on a towboat. These efficiencies provide an owner with combined operational cost savings that can exceed 35% of the cost of operating a conventional towboat."

Looking ahead – and downriver – the Clean Fuels/Clean Rivers initiative to build a natural gas corridor that extends from the Morgantown area in West Virginia through Pennsylvania and down the Ohio River to Huntington, WV is alive and well. The Clean Fuels/Clean Rivers Team consists of Life Cycle Engineering, Pittsburgh, Pittsburgh Region Clean Cities (PRCC), Port of Pittsburgh Commission, Rahall Appalachian Transportation Institute and The Shearer Group, Inc. (TSGI). The ultimate goal of this effort is to expand the potential of natural gas as a replacement for diesel fuel to the inland waterways system, which encompasses about 12,000 miles of navigable waters. If and when that happens, of course, the ideal pushboat already exists.

WWII Museum's PT Boat Readies for Passengers Next Year

A cadre of volunteers navigate the regulatory labyrinth and a host of safety requirements to bring back to life an enduring symbol the nation's can-do spirit and resiliency.

By Susan Buchanan

Early next year, a 78-foot Patrol Torpedo 305 boat, being restored at the National WWII Museum, should be U.S. Coast Guard compliant and ready for passengers. The fast-attack PT-305, equipped with cannons, torpedoes and machine guns, served in the Mediterranean in 1944 and 1945, operating from Bastia, Corsica. PT boats fired at warships, mainly under cover of night, and then fled at speeds of up to 43 knots, making it difficult for enemies to retaliate. The overhaul of PT-305 started at the New Orleans museum eight years ago.

Rich History

The boat, built and commissioned in1943, was among 199 produced by Higgins Industries in New Orleans. New Jersey-based Elco was the biggest builder, churning out a total of 385 PT boats in a number of U.S. yards, and

Top image: The vessel's framing completed, waiting for planking. Center image: The first layer of planking installed. Bottom image: The restoration work continues in May 2013.

Images courtesy of the WWII Museum

"In particular, our local senior marine inspectors, Douglas Olson and Thomas Alho with the USCG Sector New Orleans, Domestic Vessel Inspections Branch, have been tremendously hands-on in lending their expertise."

– Mark Masor, Gibbs & Cox Naval Architect

Huckins Yacht Co. in Florida was another producer.

The Higgins and Elco designs used a planing-type hull, developed for racing boats. The PT-305, with a sharp V at the bow that softens to a flat bottom at the stern, lifted out of the water at high speeds. With a layered hull over a wood frame, these vessels were light, but strong and resilient enough to stand up in heavy seas, Robert Stengl, the National WWII Museum's boat builder and logistics engineer, said last month. The PT-305's wood construction allowed it to be repaired near the front lines.

A number of PT boats were set on fire when WWII ended. But PT-305 was sent to New York in 1945, auctioned in 1948, and put to private use as an oyster boat in Chesapeake Bay until 2001. "Thirteen feet of boat were removed from the stern before it began collecting oysters," Stengl said. That was to avoid a regulation that vessels over 65 feet have a Coast Guard-licensed captain. In 2001, PT-305 was acquired by the Defenders of America Naval Museum in Galveston, Texas. Five years later, that institution contacted the National WWII Museum about taking over the vessel's restoration. The boat was moved to New Orleans in April 2007.

Volunteers and Donations Defray Costs

Work on the vessel, now housed in the John E. Kushner Restoration Pavilion, is about two-thirds done, Stengl said. He's in charge of collecting new and vintage spare parts from U.S. and foreign donors, and he oversees a cadre of volunteer craftspeople. "Over a span of five years, our restoration crew has had 195 total volunteers," he said. Sixty are donating their time now. "We have one WWII veteran, Jimmy Dubuisson, who is 87 years old and working on the PT boat," Stengl said. "His contributions are huge. And as the cofounder of Halter Marine in Mississippi, he introduced us to his supply chain."

To make the boat fully operational, some designs had to be modified. "The challenge is to restore the vessel to historical accuracy while making it compliant with today's Coast Guard standards," New Orleans-based volunteer and naval architect Mark Masor with Gibbs & Cox in Virginia said.

The vessel will be launched in Lake Pontchartrain in early 2016. After that it might visit several ports along the Gulf Coast. "Once the restoration is complete, PT-305 will go back on the water in an as-yet-determined capacity," said Kacey Hill, spokeswoman for the National WWII Museum. "A number of options are being explored for the boat. But the first step is to have it certified by the Coast Guard to carry passengers."

The project's volunteers include boat builders, engineers, electricians, mechanics and carpenters. "These men and women have various work experiences and professions, and give their time to make a difference and honor fighting sailors," Hill said. "A few are retired and do hands-on work on the boat." Many are veterans knowledgeable about military equipment.

"We began this restoration with six WWII volunteers five years ago, and our remaining volunteer vet from that war, Jimmy Dubuisson, serves as the project's brain trust," Hill said. The project's price tag, which could have been several million dollars, has been reduced by voluntary labor and donated parts and services. The projected cost of restoration is about $1,425,000, Hill said. "That doesn't include estimates for mobilization and operation once the restoration is complete," she said.

"Volunteer work is done in a matrix organizational structure, with very little top-down management," Hill said. "The work atmosphere allows innovation by individual contributors, leading to or influencing broad solutions. No one volunteer is more important than another."

Photo of PT305 officers at Bastia in 1944.

Images courtesy of the WWII Museum

Volunteer Louis Lanaux working under the guidance of the officers.

No Easy Task

Restoration workers have replaced about 80 percent of the boat's original wood. In 2009, workers found that the deck and the ribs supporting it were damaged. After decades of wear and tear, the deck's ribs had failed, planks had rotted and screws were corroded. Moreover, the deck had suffered structural deterioration.

The wooden boat's planking provides most of its strength. When the deck was removed in 2010, it was evident that the ribs had de-laminated after the glue failed, flattening the deck and leaving it unsound. The ribs were removed, measurements were made, sections of hull were restored, and material was ordered before the deck was laid again.

In 2012, PT-305 was re-outfitted with 80-foot deck boards. An inner layer of three-inch mahogany planking was laid diagonally across the deck's length in August 2012. This layer rests on the deck ribs and acts as the roof for crew members when they're inside the boat, Masor said.

While the inner layer was laid, a covering board was completed and production began on the top layer of deck boards. The top deck boards are 5/8 of an inch by 2-inch mahogany planks, spliced together to create boards up to 80-feet long. Mahogany keeps the boat light, while making it strong. These deck boards run fore to aft on the length of the boat, except for its center section – which contains the chart house and engine room hatch.

The completed deck is one inch-thick, with an inner 3/8-inch planking; a layer of Dolfinite, which is a bedding compound used to waterproof joining layers of wood; a layer of canvas; another layer of Dolfinite and the top layer of 5/8-inch deck boards. This assembly is screwed to every deck rib and riveted together between every deck rib. The deck was installed with canvas and Dolfinite.

According to the workers, Dolfinite, trademarked by Dolphin Paint & Varnish in Ohio, sticks to everything in its path. Dolfinite duty on PT-305 has produced tales of what the substance did to clothes, hair, tools and emotions. But some of the original Dolfinite on PT-305 remains moist, and the stuff really works. The rebuilt deck feels very solid underfoot, especially compared with wood floors in New Orleans houses.

Inside and Below Decks

The deck house, constructed of mahogany frames and containing a chart room and radar room, is on the PT-305's main deck. The aft end of the deck house has a steering and propeller control station, along with a windscreen and storage compartments. Ammunition storage lockers for cannons are on the deck. A radar mast and radar dome was located on the deck's middle. Navigation and survival equipment, including a life raft, were mounted on the deck. Mark Masor adds, "About twenty cowl scoops and clamshell vents all over the deck support natural ventilation. Some of them are fitted with mechanical blowers to force air into living and machinery spaces."

The PT-305's interior is divided into watertight com-

The restoration team including Naval Architect Mark Masor (second from left) and Don Luparello (on far right).

partments. Starting at the bow is a chain locker, where anchor chains, lines and deck gear were stowed. Next is the forward crew's quarters and galley, which contain bunks on each side; along with lockers; cabinets and a gyro-compass sensing unit. The next compartment aft, to the rear, is the officer's wardroom, with two berths, a desk, radar equipment, small-arms weapons and ammunition lockers. Aft of the wardroom is the forward tank room, with two 800-gallon gasoline tanks flanking either side of the officers' head.

The next compartment aft is the engine room, which will contain three engines, auxiliary electric generators and an electrical DC switchboard. Volunteers have restored three Packard Marine V12 Engines 4M-2500s and are working on a fourth. The PT-305 had three such engines, using 100-octane aviation gasoline. When the vessel was converted to an oyster boat, the equipment was replaced with two diesel engines.

The boat can carry 3,000 gallons of fuel, giving it a cruising range of over 550 miles. Fuel is carried in the forward tank room and in the aft tank room, located aft of the engine room. Near the stern back end of the boat is a store room and lazarette/steering gear room, which contains four crew bunks and the rudder steering gear. In WWII, the PT-305 carried eleven crew members and two officers, or a total of thirteen.

Balancing Historical Accuracy with Regulatory Compliance

Three marine professionals – naval architects Masor at Gibbs & Cox and Don Luparello at Thomas Sea in Louisiana, along with the museum's boatwright Bruce Harris – are among those guiding the project. "They've kept the vessel's reconstruction on track and in concurrence with federal regulations," Hill said. The U.S. Coast Guard is helping the project navigate the certification process. Gibbs &Cox Naval Architect Masor adds, "In particular, our local senior marine inspectors, Douglas Olson and Thomas Alho with the USCG Sector New Orleans, Domestic Vessel Inspections Branch, have been tremendously hands-on in lending their expertise."

PT-305 will have its original fuel-system configuration, and will use aviation gasoline or AvGas. "The sounds, smells and performance of the Packard aviation gas engines are part of the vessel's historic essence so it was important to retain it, even with operational challenges," Masor said. AvGas has a much lower flash point than diesel fuel, making it very flammable and combustible if exposed to sparks, flames and heat, he said. AvGas vapors accumulate in low spaces, such as bilges and other pockets in the vessel. The original PT design provided safeguards, combined with documented operational procedures that successfully mitigated these risks.

To meet today's regulations for passenger safety, new safeguards were added. An upgraded, CO2 firefighting system was installed in work led by volunteer Stephen Kramer and his company Herbert S. Hiller in New Orleans. Other innovations on the vessel include more ventilation; ignition proof lighting; electrical interlocks; vapor detection; and modern, programmable logic controller or PLC-based monitoring, alarm and control systems.

"Most of these safeguards are being implemented while maintaining the look of the original configuration," Masor

A difficult day – painting the mahogany deck

First layer of planking fastened to boat

said. "For example, additional electrical equipment is installed in a secured ammo locker below deck. This storage, which held over a thousand pounds of ammunition, is ideal for today's heavy electrical equipment, and its use maintains the vessel's original center of gravity."

When the museum decided PT-305 would carry passengers someday, Masor began working with the Coast Guard on vessel certification. "That entails plan or drawing reviews for approval by the Coast Guard and coordinating in-progress work reviews of the boat," Masor said. "Since passenger and crew safety is the highest priority, we analyzed intact and damage stability, fire-fighting, lifesaving appliances, bilge and navigation systems." Naval architect Don Luparello has volunteered on the project since its start, and marine electrical engineer Jim Buchler with Pelican Energy Consultants in Louisiana is overseeing upgrades of the vessel's electrical generation and distribution systems.

The Effort Continues: here and abroad

The hunt for no-longer-produced parts and components continues. "The volunteers' search for parts has involved detective work, the internet and plain luck," Tom Czekanski, director of collections and exhibits at the National WWII Museum, said. "Their search has been worldwide. The vintage radar was found in Australia, and the Packard engines were located in a farmer's barn in Illinois."

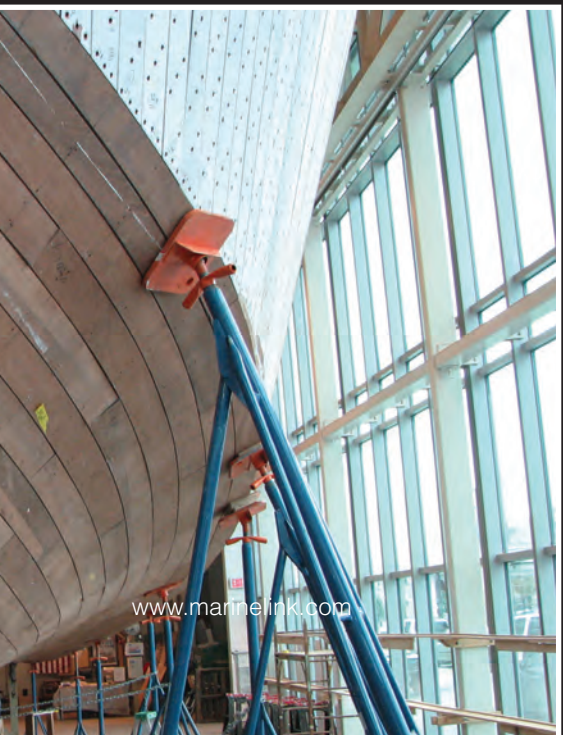
Items which Stengl and volunteers have collected or continue to gather are: Packard Marine V12 Engines 4M-2500, complete and in parts; auxiliary generators, including a Capital Motors 5.5kw Generator, US Motors 2.5kw Generator; demilled armament, including a Mk9 Cradle Machine-gun; two 20 mm Oerlikon deck mounts; Higgins PT boat operating and maintenance manuals; chart house navigational accessories; galley components, including a bread toaster made by the former Toastwell in Missouri; and modern navigational equipment. The project is also gathering PT boat photographs, albums, photos and movies.

The National WWII Museum conducts tours of PT-305 daily at noon. "It's suggested that you sign up at the ticket booth for these tours, which are no cost to visitors," Stengl said. A handful of PT boats exist in the United States today, and one, Higgins PT-658 at Swan Island in Portland, Oregon, is operational. When PT-305 sails next year, its converted ammunition boxes will provide seating for passengers. PT-305 didn't have a full name in WWII but was known by sailors as The Sudden Jerk, The Bar Fly and The Half Hitch.

The worthy effort to restore and preserve a rich piece of naval history – and naval architecture itself – continues with enthusiasm in New Orleans. With dedicated volunteers like Mark Masor from Gibbs & Cox and a host of others, and a hands-on Coast Guard sector that embraces the project, its ultimate success is all but assured. The can-do spirit of America's so-called "Greatest Generation" is clearly alive in well in the Big Easy and coming soon to a port near you.

Susan Buchanan *is a New Orleans-based business writer, specializing in energy, maritime matters, agriculture, the environment and construction. She holds a master's degree from Cornell University in agricultural economics and an undergraduate degree from the University of Pennsylvania.*

An almost fully restored deck (Image: Judy Cantrelle)



Quality Comes First In Safety

Benchmarked, standardized and customizable – Rapp Marine's array of crane options safely cover the full gamut of workboat needs.

Edited By Joseph Keefe

In the marine industry, one of the most potentially dangerous pieces of deck equipment on a vessel is the crane. The trigger of a serious failure can range from a simple operator error to significant mechanical overload. Consequences can be devastating in human terms, certainly expensive from lost revenue and costs to repair, to say nothing of cleaning up the mess. These are compelling incentives for the prospective crane customer to look for a crane both engineered and manufactured to the highest industry and quality standards. In today's global marketplace, it is difficult to distinguish the quality differences behind the computer illustration, one crane tends to look like another. There needs to be another way for buyers to ensure receiving a high-quality, safe crane.

Benchmarking to a High Standard

You can't put a price on safety. With that in mind, the crane division of Rapp Marine U.S. (formerly Rapp-Hydra Pro) puts quality at the top of the priority list. Rapp employs the American Petroleum Institute to hold it accountable to high quality standards. Going beyond ISO 9001:2008 quality standards, Rapp also adheres to be a strict Quality Management System in order to maintain an API Q1 Specification.

There are several key differences between ISO 9001 and API Spec Q1, but the additional requirements contained within API Spec Q1 mandate the formal documentation of risk assessment and management. The Q1 specification makes sure that certified manufacturers such as Rapp are for-

"We like to have control over the production of critical components wherever possible. We find it is easier to control processes and ensure quality when the product is made under our roof so that is what we do whenever possible."

– Ben Jordan, Rapp Marine Senior Engineer

RAPP MARINE

mally documenting all of the checks and balances of the design and manufacturing process, to ensure that all of quality standards are being met. These checks and balances include documenting employee competency, ensuring that vendors of critical parts meet quality standards, and heading off potential issues through robust preventative maintenance.

Cranes built by Rapp Marine may be certified to API spec 2C, a unique certification known as "monogramming" that may be applied by crane manufacturers that meet these rigorous quality standards. The API 2C certification provides the end user with an easy way of knowing that the crane that they are purchasing has met the set of requirements that are outlined by API, and that API has made sure that the manufacturer has gone through intensive audits to maintain the certification.

Since initially implementing the quality system over 6 years ago, Rapp Marine has realized a payoff for both themselves and the end user. Creation of cranes meeting such high quality standards has resulted in units that provide reliable service for an extended lifetime. Beyond this, internal warranty related costs have almost disappeared. And a further benefit of the quality program implementation is that should an issue occur with a particular crane, the documentation allows review of similar cranes that are currently in use which potentially may suffer a similar problem. Proactive repair and maintenance of any identified issue can result in big savings in both costs as well as the safety for the crew and the vessel.

Standardized Features Customized

In addition, Rapp Marine has leveraged its QMS processes to better capture the specific requirements of each customer. With long standing customers in the fishing, offshore, and LNG markets, Rapp Marine is often depended upon to provide affordable, robust solutions to meet its customers' requirements. One example is a new crane design developed for Foss Maritime, which is building a new Fireboat 20 and its sister ship for the Port of Long Beach. The crane features a personnel basket that is self-leveling via a master-slave cylinder system. The basket can also be manually tilted and slewed, its underside is outfitted with LED flood lights and a camera.

In order to fit the crane into the tight space allotted on the vessel, but also be capable of achieving the required reach, Rapp engineers came up with a double-telescopic boom. The crane can be controlled via wireless remote, basket controls, or from the platform. A telescopic ladder is mounted to the booms of the crane.

Rapp Marine features standard model cranes including fixed boom, telescopic, knuckle, double-telescopic, and knuckle extension type cranes from two to 100 tons in capacity. Typically, the standard crane models are customized according to each customer's specific application. Crane projects with lift capacities up to 100 tons are fabricated in-house in the Seattle, WA, production facility in order to protect the quality of the product. The fabrication of any crane with lift capacity above 100 tons is outsourced to a

qualified manufacturer in the U.S. or Europe. "We like to have control over the production of critical components wherever possible," Ben Jordan, Rapp Marine Senior Engineer, told ***MarineNews*** in January. "We find it is easier to control processes and ensure quality when the product is made under our roof so that is what we do whenever possible." Rapp Marine cranes also feature hardened stainless steel rods as standard on luffing cylinders, which are fabricated in house by certified welders.

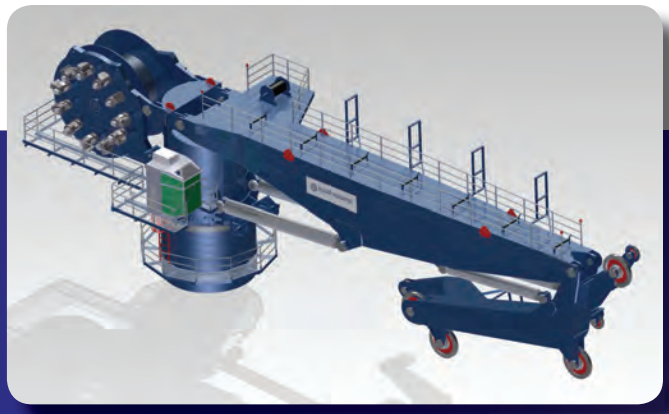
By catering to the distinct application of each customer, Rapp Marine continues to collect custom options that can be quickly applied to the next project. These options include an assortment of platform and cab options, custom retractable ladders, wireless controls systems, load limiting systems, boom mounted service platforms, roto-seals, roto-joints, LMI systems, personnel baskets and custom hydraulic solutions. In addition, Rapp Marine produces custom winches and hoists built to meet the requirements of all the major classification societies.

Rapp Marine builds custom hydraulic power units for explosion-proof atmospheres including IECEX, ATEX and Class 1 Div. 1. Power units can be built in special configurations or integrated into the pedestal of the cranes.

One-Stop Shopping

Under a company structure set in place by new CEO Helge Vatnehol, all of the various manufacturing and product centers of the Rapp Marine group around the globe have been combined into one entity, Rapp Marine. This allows for an extensive suite of deck machinery to be offered for research, fishing, offshore oil and workboat vessels. The combination of engineering capacity in Rapp Marine's Bodø, Norway, and Seattle, USA locations has opened up new opportunities that are now within the company's capabilities.

A great example of synergy created by this new company structure is the design of a 150 ton knuckle crane that will be provided to an offshore oil vessel in the Gulf of Mexico. The crane has been designed in Norway by engineer Helge Stakkeland, using proven techniques and technologies to reduce weight and increasing performance. The crane meets the requirements of DNV Lifting Appliances and is capable of lifting 150 tons at 17 meters. Outfitted for subsea operations including active heave compensation and a winch capable of storing 3,100 meters of 77mm wire rope, this will be the first of many cranes that will be able to meet the heavy load demands of offshore vessels in the Gulf of Mexico and around the world.



Balanced Dredging with E-Crane

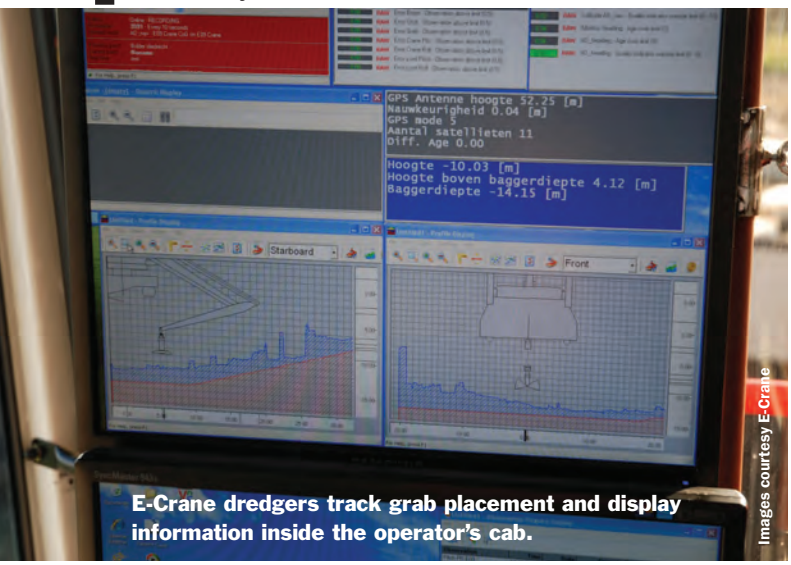
One doesn't usually think about cranes when talking about dredging, but cranes form a big part of the niche business. And, even though Indusign/E-Crane Worldwide has over 200 cranes in operation since Lieven Bauwens and Geert Watteeuw partnered up over 20 years ago, they are perhaps not that well known in dredging circles on this side of the pond. The Belgian company has tons (pun intended) of experience engineering their balance cranes. During that time, their equilibrium crane has more than proven itself in the scrap industry, as half of their machines operate in scrap yards throughout the world, but the crane can handle much more than just scrap. Its popularity continues to grow in ports for handling other materials, such as coal, grain, cement and iron ore. And now, that reach includes the business of dredging.

Today, only a few E-Dredgers are in operation worldwide. Dredging is actually E-Crane's smallest market, but one which they hope will someday yield great success. Neverthless, for projects that involve large scale dredging projects, there are better machines on the market to accomplish those missions. Where the E-Crane excels, however, is when projects that call for precise or maintenance dredging. One important advantage of the E-Crane dredger is being able to know where the grab is digging at all times, as opposed to a cable crane, where precise placement of the grab is impossible. In fact, E-Crane dredgers even have a system inside of the operator's cab that tracks the grab placement and displays that information on the operator's screen.

Balance & Equilibrium

The balance crane principle is simple. The "E" in E-Crane stands for equilibrium, a key feature of the parallelogram style boom which provides a direct mechanical link between the stick and the rear counterweight. There are no steel winches or cables in the design. The counterweight continuously balances the total weight of the steel structure along with half of the operational load. As the lifting radius is varied, the change in the load moment is automatically

Images courtesy E-Crane



E-Crane dredgers track grab placement and display information inside the operator's cab.

Images courtesy E-Crane

equalized by the moving counterweight. With traditional hoisting machinery, the payload, working tool, and steel construction all have to be lifted, but the E-Crane's balance compensates for all but half of the payload. Along the way, this typically results in important energy savings.

This superior balance permits mounting on virtually any type of barge, even ones without spud poles. There are many benefits, one of which is that the balanced nature helps to minimize tipping when fully loaded. This means less barge movement which results in less friction between the floating terminal and the vessel and more precise and faster grab positioning. In other words: the arguably perfect equipment for dredging. There are numerous examples of E-Crane's installed on barges or pontoons, but two in particular used for dredging deserve mention.

Albatros

Back in 2009, Herbosch-Kiere (part of the group Eiffage) put a new dredger into operation, called the Albatros. The Albatros is a self-propelled spud barge with a 1500B Series E-Dredger installed on it. It has a 29m horizontal reach, 15 Mton lift capacity and an 18m dredging depth. It's immensely flexible, as the crew only has to raise the spuds and start the engines. There is no need to wait for a tow.

The Albatros puts balance to the test day after day. Even after raising the spud poles at the dredging job and lifting a fully loaded 5.5 m3 clamshell bucket to an extended position of 27m outreach above the water, the pontoon tilted by only 20cm, according to the crane operator. Spud poles are only needed to keep the barge in position in tidal waters. Beyond this, the crane operator also claims that the machine is amazingly quiet – something that can be quite useful when working closer to shore and/or near residential areas. The Albatross is also a "green machine", operating on a 225kW (300 hp) electric motor, harnessed from the engine used to propel the barge. This means costs for diesel can be kept to a minimum.

Notably, the Albatros has worked on projects in the port of Ostend in Belgium, in Rotterdam and in London. Currently, Albatros is being put into service preparing the seabed for wind turbines in the Swedish part of the Baltic Sea.

New dredging unit: the Titan

Remember the "extreme machine" Blockbuster in the port of Rotterdam? This state-of-the-art machine is a heavily modified E-Crane with an outreach of 63m and a lifting capacity of 50 Mton (55 UStons). This monstrous machine has a height of 30m and tips the scales at 1200 Mtons.

The original contractor, PUMA, used the machine from 2011 through 2012 for the construction of a stone dune at the Port of Rotterdam, an important part of the hard sea defense which will protect Maasvlakte 2 from the sea and from extreme "10,000 year" storms. The Blockbuster placed approximately 20,000 individual large concrete blocks into the hard sea defense of Maasvlakte 2. Each block is 2.5 cubic meters (8.2 cubic feet) and weighs more than 40 Mton. In January 2012, the Blockbuster's work at the hard sea defense was complete.

Today, the Blockbuster has a new lease on life in the Caspian Sea. Renamed the "Titan," the unit was in 2013 disassembled and sent back to E-Crane's workshop for modifications to fit its next job.

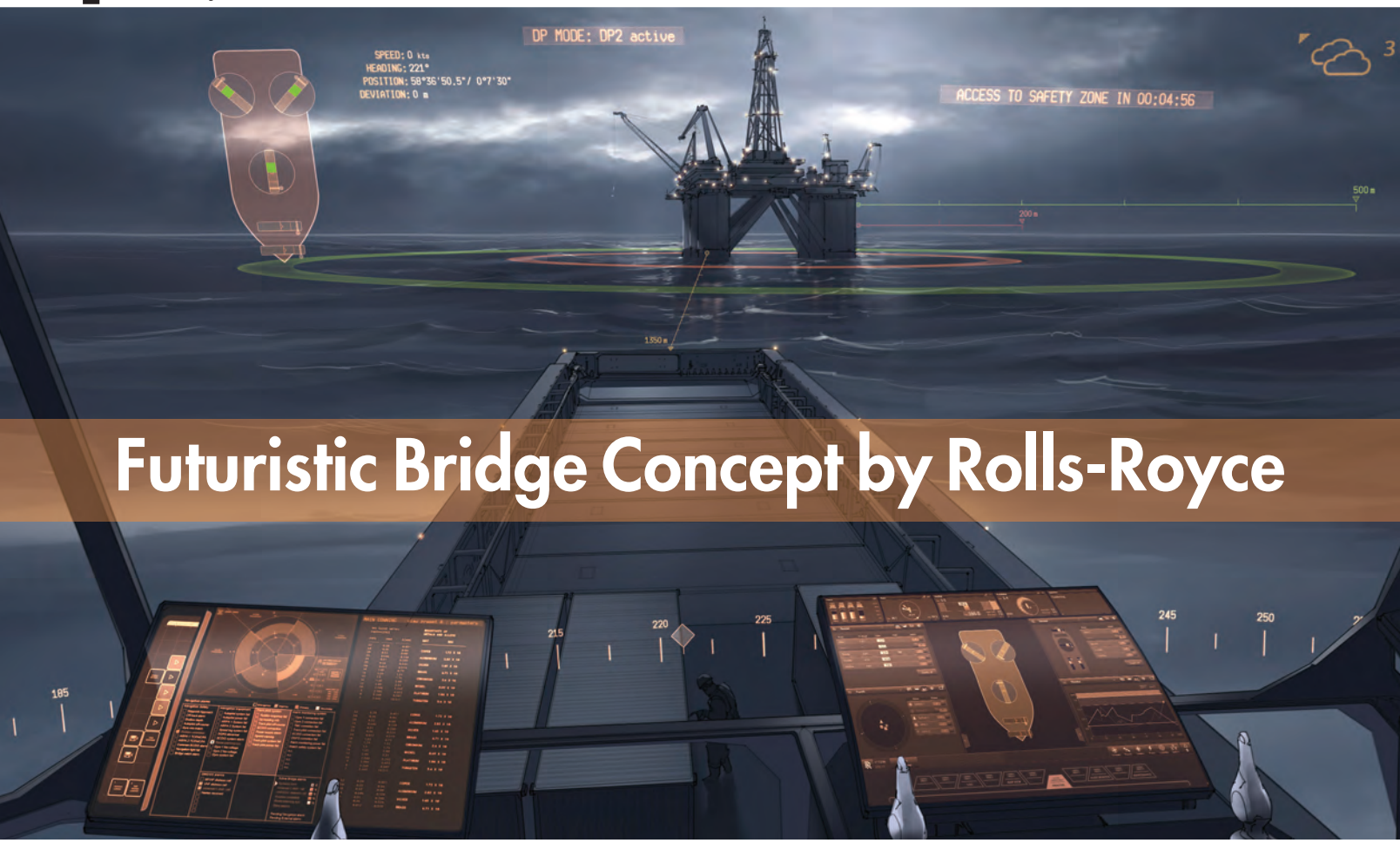
Soon, the newly modified machine will become a huge dredging unit operating in the Caspian Sea, close to the shores of Kazakhstan.

E-Cranes in Service Everywhere

Overall, E-Crane boasts more than 170 cranes in operation worldwide, of which 70 of these machines operate in North and South America. In this hemisphere, the majority of these machines operate in the bulk handling marketing: barge unloading/loading, ship unloading/loading, stockpiling, etc). In Europe, the majority of the machines are used in the scrap handling industry, at scrap yards and steel mills. And now, the dredging sector is bnefiting from the superior utility that these machines provide.

Port and terminal operators are beginning to realize the benefits of the balance principle for their floating stations and dredgers. An interesting alternative to landside cranes, these floating systems are extremely flexible. From dredgers to bulk trans-loading stations, the E-Crane is an ideal solution due to its innovative and original design.

www.e-crane.com



Futuristic Bridge Concept by Rolls-Royce

By Joseph Keefe

In 2013 alone, Rolls-Royce invested £1.1 billion on research and development while at the same time supporting a global network of 31 University Technology Centers, which position Rolls-Royce engineers at the forefront of scientific research. Today, Rolls-Royce predicts that Ship Intelligence will be the next major transition for the shipping industry as ships become ever more complex. As that happens, managing high levels of data in order to operate on-board systems will be a big part of that reality. At first, says Roll-Royce, this will better manage propulsion and navigation systems. Later, it could potentially lead to autonomous vessels.

The first step towards that lofty goal was taken in December by the VTT Technical Research Center of Finland, together with Rolls-Royce, as they jointly unveiled their latest vision of Ship Intelligence – a futuristic ship's bridge concept which could become reality as early as 2025. Rolls-Royce VP of Innovation Oskar Levander told ***MarineNews*** in January, "We are system integrators." That said; a first glance at their oX Bridge concept reveals that they have already accomplished so much more than that. Rolls-Royce worked together with VTT's researchers and Aalto University to develop the new bridge, known as the Future Operator Experience Concept or 'oX'. It features smart workstations, which automatically recognize individuals when they walk into the bridge, and adjust to their own preferences. Beyond this, the windows of the bridge serve as augmented reality displays of the vessel's surroundings, including visualization of potential hazards that would otherwise be invisible to the human eye. The system can, for example, pinpoint sea ice or tug boats and other craft that may not be visible to the crew.

The real change, according to Levander involves how the system brings up data for the user. He explains, "We provide the right information, for the right user at the right time," adding, "It's a more interactive experience between the anchor handling tug and the rig itself. Using 'augmented reality,' where everyone shares the same information, the goal is to not to overwhelm the user, but instead give them the data that they need and can handle."


Oskar Levander, Rolls-Royce VP of Innovation

This Concept oX Bridge, says Levander, shows the market what they are doing in a similar way to that which auto manufacturers sometimes roll out a 'concept car.' And, while the oX bridge might not be ready for a few more years, many of the features of this control system are already in use. For example, the platform supply vessel "Stril Luna" in August became the first vessel to enter service using Rolls-Royce's Unified Bridge. That vessel has begun a long-term contract with Statoil and other operators have ordered the system for their fleets.

Complete with touch screen displays, the system incorporates a common interface for all equipment. For all users and equipment – the interface looks the same and feels the same, integrating different systems into your bridge systems. For comparison, older tanker mates may remember the standardized cargo control rooms of the old Sanko crude oil tankers, where any experienced Chief Mate could

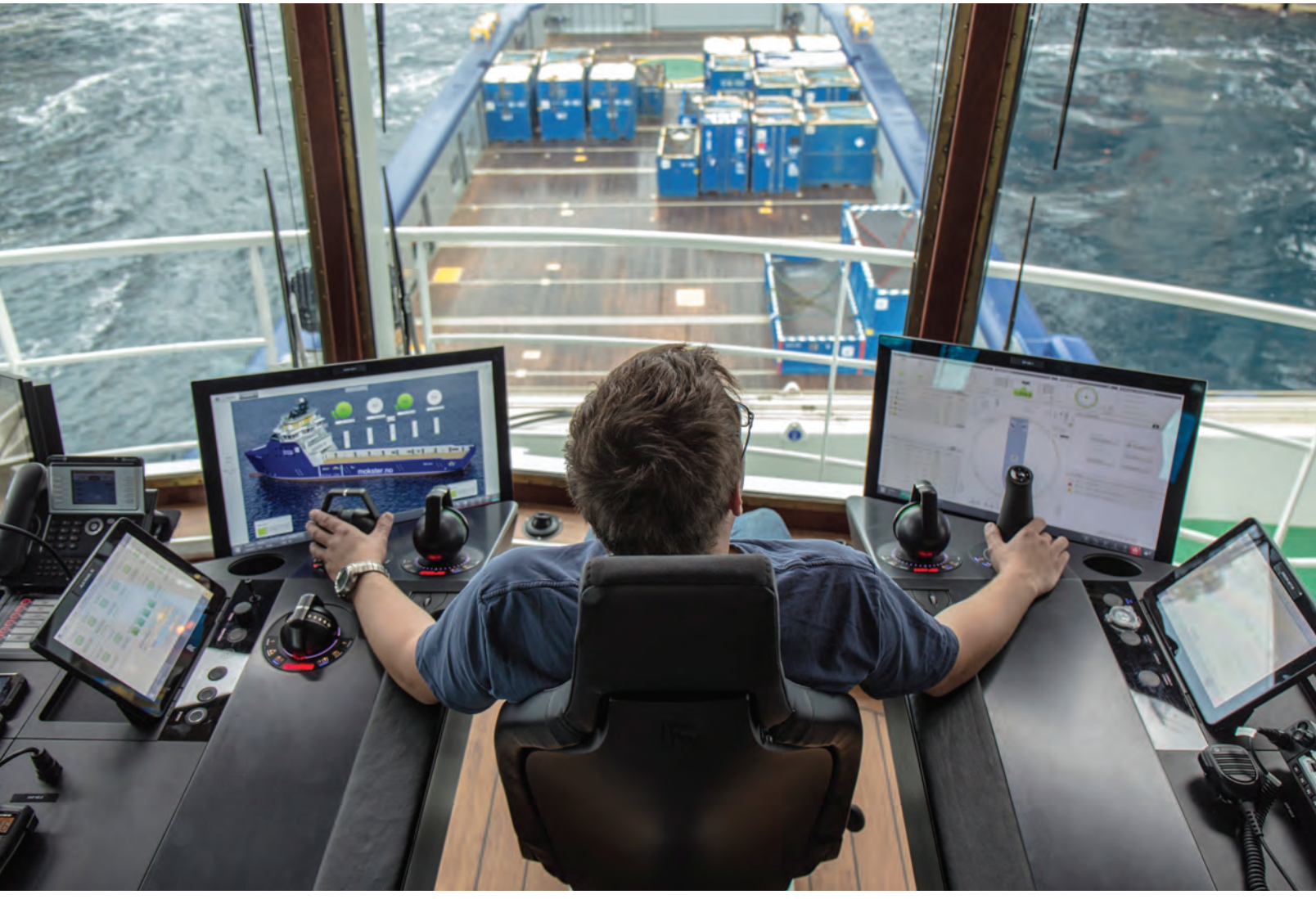
walk onto any of the company's tankers and immediately begin operations. The unified bridge concept takes that practice to another level.

Levander told ***MarineNews*** that the new oX Bridge concept is part of a logical plan. He says, "The Unified Bridge was first, and then, the oX Bridge is the next level up. Eventually, this will lead to remote control. Yes, you can look to the eventual reduction of the number of crew, but at the same time, you also need to remove some functions because reduced crews are already overwhelmed." Those functions, he says, can be accomplished remotely or from shore, adding, "Ultimately, we will try to create an unmanned vessel."

According to Levander, the oX Bridge will be likely be attractive to megayachts, but will also appeal to the commercial markets, as well. All of this is part of Rolls-Royce's efforts towards improving 'ships intelligence.' Eventually – and this could happen within the next two or three years – Rolls-Royce will test an unmanned remote controlled vessel within one country's waters and, of course, with a flag state's approval.

Beyond the oX bridge, remote monitoring of equipment on board ships is also advancing, and Rolls-Royce has control centers in Norway and Finland, where many ships and thrusters are already monitored in real-time in operation around the world.

Oskar Levander says simply, "We are investing in ship intelligence, which will be a major driver of the next transition era of shipping. Much in the way that sail gave way to steam powered ships, and coal gave way to oil, we will see increasingly sophisticated ships, highly automated and perhaps even unmanned remote controlled, plying the seas within the next two decades." **www.rolls-royce.com**

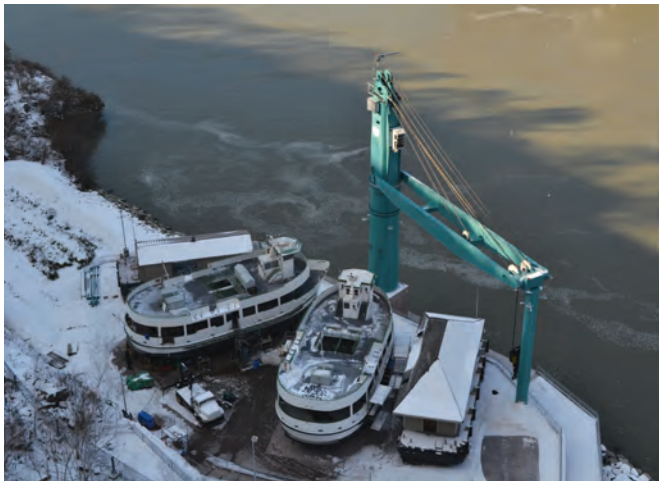


Bollinger Delivers FRC CGC Isaac Mayo

Bollinger Shipyards LLC has delivered the ISAAC MAYO, the 12th Fast Response Cutter (FRC) to the United States Coast Guard. The 154 foot patrol craft ISAAC MAYO is the 12th vessel in the Coast Guard's Sentinel-class FRC program. To build the FRC, Bollinger used a proven, in-service parent craft design based on the Damen Stan Patrol Boat 4708. It has a flank speed of 28 knots, state of the art command, control, communications and computer technology, and a stern launch system for the vessel's 26 foot cutter boat. The Coast Guard took delivery on January 13, 2015 in Key West, Florida and is scheduled to commission the vessel in Key West, Florida in March.

Re-powering Maid of the Mist VI

A six-man crew from Lake Erie Ship Repair and Fabrication (LESR) out of Jefferson, Ohio recently upgraded the engines of Maid of the Mist VI, one of two iconic vessels that are the flagships of the longest running tourist attractions in North America. The original Volvo engines have been replaced by two, 400 horsepower, top of the line, Volvo Penta engines. To make way for the new engines and gears, LESR removed the existing engines and gears, keel cooling system and control system on the boat, replacing them with new Volvo Penta engines, Twin Disc gear boxes, Duramax Duracool keel coolers and Volva Penta controls. The new control system will send a low voltage signal to the engines. Re-powering of Maid of the Mist VII is expected following the 2015 season.



Metal Shark Delivers Pilot Boat to Canaveral Pilots

Louisiana-based boat manufacturer Metal Shark has delivered a new pilot boat to the Canaveral Pilots Association at Port Canaveral, Florida. The custom 45-foot aluminum vessel was built at Metal Shark's newly-opened shipyard in Franklin, Louisiana. For the project, the Canaveral Pilots specified a purpose-built pilot boat design by naval architect Bill Preston. The design utilizes the weight of a single bow-mounted diesel engine and an extremely sharp forward entry to slice levelly through waves as opposed to riding over the top of the crests and then plummeting into the troughs. Due to its enhanced stability, this proven design is used by several pilot groups operating in the often adverse open ocean conditions encountered along Florida's Atlantic Coast. Metal Shark added its own unique touches to the design, such as its use of wraparound "pillarless" glass in the pilothouse to substantially reduce blind spots for greatly enhanced safety during inclement weather or nighttime operations. This is an important consideration for pilots operating around the clock.

GE LM2500 Gas Turbine-Powered NSC Hamilton Commissioned by Coast Guard

GE Marine reports that National Security Cutter Hamilton (WMSL 753) was commissioned by the United States Coast Guard on December 6, 2014, at its home port of Charleston, South Carolina. The vessel is powered by one GE LM2500 gas turbine and two diesel engines in a Combined Diesel And Gas turbine (CODAG) propulsion system. Constructed in Pascagoula at Huntington Ingalls Industries' Ingalls Shipbuilding division, Hamilton previously completed a series of sea trials that proved the successful operation of a variety of components including the CODAG system. Hamilton is the fourth in class for the U.S. Coast Guard cutter program. The ship is 418-foot-long with a 54-foot beam, and has a displacement of 4,300 tons. The LM2500 was manufactured at GE's Evendale, Ohio, facility.

John Anthony Chamberlain

(December 12, 1940 – January 1, 2015)

It is with great sadness that the Managers of Signal Mutual Indemnity Association Ltd. report the unexpected passing of **John Chamberlain** at the age of 74. A founding father of Signal, John began work for Charles Taylor in 1969; moving to the United States in the early 1980s to work with a leading maritime consulting and claims adjusting firm, Lamorte Burns, on the early development of the business which would eventually become Signal Mutual. John served on Signal Mutual's Board of Directors from its inception until his retirement from Charles Taylor in 2005. John had also held various positions of executive responsibility with the Managers throughout his tenure. Upon his retirement from Charles Taylor, John's dedication to his adopted country led him to accept the position of Branch Chief, Financial Management, Insurance, and Assessment with the United States Department of Labor Office of Workers' Compensation (OWCP), the regulator for all Longshore underwriters and self-insureds. After five years of service with the OWCP, John again retired to found a consulting firm. John passed away on January 1, 2015 in Denver, Colorado. He was returning to Connecticut from a family holiday gathering in California and was taken ill in transit. He was rushed to hospital where he died in the midst of urgent surgeries. He is survived by his wife, and five grown children.

Beardsley

de Tugny

Bordelon

Detmer

Duluth Seaway Port Authority names new CFO

The Duluth Seaway Port Authority has named a new Chief Financial Officer – just the third CFO in its history. **Kevin Beardsley** brings 20 years of experience in accounting, taxation, financial management and strategic planning. Beardsley, a CPA, was previously controller for Flatwater Fleet. He graduated with a B.S. in accounting from the University of Wisconsin-Superior.

Bureau Veritas Appoints New Offshore Lead

Bureau Veritas has appointed **Matthieu de Tugny** as Senior Vice President in charge of Offshore activities within the Marine & Offshore Operating Group. Mr. de Tugny graduated from the Ecole Nationale de la Marine Marchande, France and from the Ecole Supérieure d'Electricité, France as an engineer. He started his career at Bureau Veritas in 1994 in the Electricity and Automation Section and has staidly risen in the company, eventually being appointed Marine Chief Executive for the United States and Canada. Since 2012, Matthieu de Tugny has been Vice President, South Asia Zone for the Marine & Offshore Division.

Bollinger Shipyard Announces New Leadership

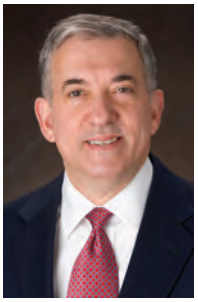
Ben Bordelon will assume the duties of Chairman, President and Chief Executive Officer of Bollinger Shipyards. Bordelon, along with the Chouest family, has acquired all assets and stock of Bollinger Shipyards. Bordelon served in many capacities during his career at Bollinger, and has been a member of the Board of Directors since 2002. He has served as Executive Vice President of Repair and most recently as Chief Operating Officer of Bollinger Shipyards.

Sea Hawk Paints Appoints Mike Detmer Chief Operating Officer

Mike Detmer has joined New Nautical Coatings as chief operating officer. Based at the company's headquarters in Clearwater, Fla., Detmer will report to Erik Norrie, co-founder and chief executive officer at Sea Hawk Paints. His responsibilities will include overseeing day-to-day operations as well as executing key strategic growth initiatives. Prior to joining New Nautical Coatings, Inc. and the Sea Hawk brand, Detmer spent two years as president of the Niles division of Nortek. Prior to that, from 1991-2010 he was vice president of sales and marketing at Niles.

Decision Sciences Appoints New CEO & COO

Decision Sciences International Corporation (DSIC), an advanced technology provider of security and detection systems, today announced it has appointed **Dr. Gene W. Ray**, former CEO of Titan Corporation, as interim Chief Executive Officer and **Admiral Jay M. Cohen** (USN, Ret), former Undersecretary of the U.S. Department of Homeland Security (DHS), as interim


Cohen


Ray


Bleavins


Campbell


Christian


Miner

Chief Operating Officer.

Dr. Ray currently serves on the DSIC Board of Directors and co-founded Titan Corporation, a provider of information and communication products for national security. Admiral Cohen, also a member of the DSIC Board, is a principal of The Chertoff Group. He spent 38 years with the U.S. Navy including as the Chief of Naval Research.

Port of Los Angeles Appoints Bleavins CFO

The Port of Los Angeles has appointed **Marla Bleavins** as its Chief Financial Officer. She most recently served as the Assistant General Manager for Finance and Administration at the City of Los Angeles Department of Convention and Tourism Development. She holds a Bachelor of Arts degree in public policy and political science from Stanford University. She earned her Master's degree in business administration from the Wharton School.

BAE Systems Taps Campbell to Lead Ship Repair Business

BAE Systems has named **Joseph Campbell** as vice president and general manager of the company's Ship Repair business. He previously served as vice president and director at American Systems Corporation, where he was responsible for undersea warfare and naval combatant programs. Campbell served in the U.S. Navy for more than 30 years and was commissioned as an engineering duty officer. He holds a


Smith


Warren


Lakin


Williams


Paxton


Campbell

bachelor's degree from the University of Pennsylvania, as well as a Naval Engineer's degree and master's degree in Mechanical Engineering from the Massachusetts Institute of Technology.

Port Names Brandy D. Christian New Chief Operating Officer

Brandy D. Christian has been named the new Chief Operating Officer of the Port of New Orleans. Prior to joining the Port of San Diego, Christian worked with KPMG Consulting, the Los Angeles Area Chamber of Commerce and Fleishman-Hilliard Inc. Christian earned a bachelor's degree in political science from the University of Arizona and a master's degree in public administration from the University of Southern California. She is a Certified Port Executive.

Alps Wire Rope Corporation Adds Flour to Management Team

Alps Wire Rope Corporation has announced four additions and promotions. **Jim Miner** was appointed Regional Manager for the North Central and Midwest area. **Greg Smith** has just joined Alps Wire Rope Corporation as Territory Sales Manager for North Central territory. Greg was recently employed with WireCo World Group and has over 17 years experience in the wire rope industry. **Dan Warren** started at Alps Wire Rope Corporation December 8th as Buyer at the corporate headquarters. **Gregg Lakin** has been named as warehouse manager in St. Charles, Illinois.

Safariland Names Williams VP, Marketing

David Williams has named Vice President of Marketing at The Safariland Group. Williams brings a wealth of brand building, product creation, and commercial expertise to his new role. At Safariland, Williams will focus on expanding marketing support for the Company's distribution network, enhancing product knowledge, and growing digital media. Williams will report to Sean McCarthy, Safariland Vice President of Strategy.

Adams and Reese Adds Four to Governmental Practice

Adams and Reese has announced the addition of Partner **Matt Paxton** and Governmental Affairs Advisors Joe Carnevale, Ian Bennitt and Ashley Godwin. Paxton serves as President of the Shipbuilders Council of America (SCA), while Carnevale and Godwin serve as Senior Defense Advisors, and Bennitt serves as Manager of Government Affairs. Paxton earned his J.D., in 2001, from Willamette University College of Law, and he received his B.A., in 1997, in political science from the University of Washington. Carnevale, a retired Rear Admiral, has a B.S. in Chemical Engineering from the University of Massachusetts, in 1971, and has two postgraduate degrees. Bennitt earned his B.A. in English and political science, in 2005, from Skidmore College, and he received his M.P.A., in 2013, from American University in the School of Public Affairs. Godwin has more than 15 years of experience in the legislative and executive branches of the federal government. Godwin earned her B.A. in political science from the University of South Carolina.

Fergus Campbell Named Director of Imtech Marine USA

Fergus Campbell is the new Director of Imtech Marine USA. He has worked for the Imtech Martine company previously (Radio Holland USA) from 2000 to 2010 as Branch Manager Florida, National Service Manager and National Sales manager. In 2010, he pursued his career as General Manager at C-MAR America. Fergus holds a Bachelor of Science degree in Electrical and Electronic Engineering and amongst others studied at the Glasgow College of Nautical Studies.

Veritas Petroleum Services appoints new MD, Americas

Veritas Petroleum Services (VPS) announced that **Michael McNamara** has been appointed as Managing Director for the Americas. McNamara, who holds an MBA from Oklahoma City University, was most recently Associate Vice President, Energy Management at Royal Caribbean Cruises Ltd., where he was responsible for coordinating global strategies for all aspects of the company's fuel exposure


McNamara


Jourlait


DeSutter


Pascarelli


Smith


Weakley

and energy expense across all of the corporation's cruise and airline operations including procurement; emission abatement; fuel/emission regulation; fuel hedging; and energy efficiency.

Navico Names Jourlait Deputy CEO

Marc Jourlait has joined Navico as Deputy CEO. Jourlait brings a wealth of experience to Navico's management team. Jourlait will take responsibility for the Recreational Marine and Digital Marine Divisions, as well as managing the Customer Service and Information Technology functions within Navico. In previous positions, Jourlait was based in the United States, working for Apple, Hewlett-Packard and Seagate in product management, marketing, sales and general management.

NMHG Promotes Two

NACCO Materials Handling Group (NMHG) has announced the promotion of **Pat DeSutter**, Director of Fleet Management, to Vice President of Fleet, Service and Aftermarket. DeSutter has more than 25 years of industry experience and holds a B.S. degree in economics from Purdue University. **Chuck Pascarelli**, President of Sales and Marketing, Americas, has been promoted to President, Americas. In this new position, Pascarelli will oversee all sales, marketing, manufacturing, finance and pricing functions for the Hyster and Yale product lines, as well as their extensive distribution networks across the Americas.

OSVDPA Launches Membership Drive

The Offshore Service Vessel Dynamic Positioning Authority, Inc. (OSVDPA) announced the initiation of its general membership program. The Authority invites dynamic positioning operators (DPOs); DPO instructors; and other entities and individuals engaged in DP training, operation, or related endeavors to apply for membership. Members of the OSVDPA shall receive a number of benefits. OSV Executive Director **Aaron Smith** says that members can elect two of their own to be Membership Representatives to the OSVDPA's Technical Advisory Council (TAC). In addition to electing Membership Representatives to the TAC, OSVDPA members are able to address the OSVDPA Board of Directors during their Annual Meeting, have access to direct and specific notice about new features of the OSVDPA certification system, and are invited to participate in member surveys and other information-gathering endeavors in order to shape the future of OSVDPA's training system. More information about becoming a Member of the OSVDPA can be found at **www.OSVDPA.org**.

LCA calls for new American icebreaker

The ice that brought shipping on the Great Lakes to a virtual standstill last winter cost the economy more than $700 million and nearly 4,000 jobs and has prompted Lake Carriers' Association (LCA) to call for construction of a second heavy icebreaker to partner with the U.S. Coast Guard's Mackinaw to keep the shipping lanes open in the harshest of conditions. The winter of 2013-14 was so brutal that U.S.-flag cargo movements plummeted nearly 7 million tons compared the same period in 2012-13. "At a minimum, Congress must authorize construction of a twin to the Mackinaw so we can have two high-powered American icebreakers on the Lakes," said **James Weakley**, President of LCA. "Another 140-foot-long icebreaking tug must be assigned to the Lakes at least until the service life extension program currently underway for the six existing 140s is completed later this decade."

EPA Proposal Would Ramp up Oil Spill Preparedness, Response

The U.S. Environmental Protection Agency (EPA) is proposing to amend requirements under the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) to improve the nation's ability to plan for and respond to oil spills. This proposal addresses issues raised by the public, responders, government, and industry officials during the 2010 Deepwater Horizon Oil Spill. EPA is also proposing product chemical ingredient disclosure options and new evaluation criteria and a process for removing products from the Product Schedule. The agency will accept public comments on the proposal for 90 days following publication in the Federal Register.

Seafire's Fire Control Panel Big on Features

Identifying precisely where smoke, fire or a detector fault has occurred on a boat is crucial to ensuring safety. Sea-Fire's scaled Triton 2 addressable fire detection panel has the capacity to drive 252 addressable devices over its two integrated loops. Three repeater panels and an optional expansion module provides for 16 loops for 2,016 devices. The Triton 2 pinpoints the exact location and type of incident.

www.sea-fire.com

Ocean Signal's new rescueME MOB1

Ocean Signal's rescueME MOB1, is designed to attach to compact life jackets, ready for automatic activation in the event of a man overboard situation. The MOB1 device communicates the location of a person in the water with accurate position information on the vessel's chart plotter, and distance and bearing to the person in distress. The Digital Selective Calling (DSC) VHF alarm will also be triggered.

www.oceansignal.com

Videotel's Enclosed Space Management System

Videotel, with Mines Rescue Marine, launched the Enclosed Space Management System, designed to effectively assess, and manage safety of enclosed spaces and combat the number of accidents and fatalities that occur when problem areas are overlooked. The computer-based system enables compliance with IMO's "Revised Recommendations for Entering Enclosed Spaces Aboard Ships," as well as the latest SOLAS recommendations for enclosed spaces.

www.videotel.com

BCG Delivers Upgrades to Long-time Customers

Buffalo Computer Graphics (BCG) delivered upgrades to Columbia Pacific Maritime and The River School in Memphis, Tenn. The River School ordered laptop computers preloaded with BCG's simulation software to assist with training courses. The laptop will be used in conjunction with BCG's PCS-250 Portable Radar Stimulator and four Furuno Radars for portable radar training at various locations around the country.

www.bcgeng.com

Rescue Boat Davits Rely on Quality Hooks

Coastal Marine Equipment's davit is rated at 2,800 lbs and has no accumulator, slew bearing or hydraulic oil. Certified SOLAS, ABS, and USCG approved, they are used on workboats and come standard with the Cranston-Eagle APR-206-CBH hook, rated at 4,400 lbs. with a pull cable quick release. These are relied on by US Coast Guard, Canadian navies, and commercial marine applications.

www.deltatsystems.com

Glamox Floodlights Promote Safety on Deck

The Glamox FL60 Spot beam is available as a 4 module version and is an excellent choice of luminaire for demanding applications where illumination on longer distances is required. The luminaire provides savings in terms of costs and manpower and energy consumption. The FL60 Spot beam is made of seawater resistance aluminum and mounted by stainless steel frame and bracket.

www.glamox.com/gmo

E2S Gains VdS Approvals for Horn Sounders

E2S Warning Signals AlertAlarm D112 alarm horn sounder combines the field-proven electronics of its AlertAlarm A Series with a robust, corrosion resistant marine grade LM6 aluminum alloy enclosure, giving greater mechanical and UV protection. For use in a wide range of signaling applications, the AlertAlarm D112 offers a choice of 45 different alarm tones and is a cost effective, sophisticated signaling solution.

www.e2swarningsignals.com

Miller XMT ArcReach Welding Systems

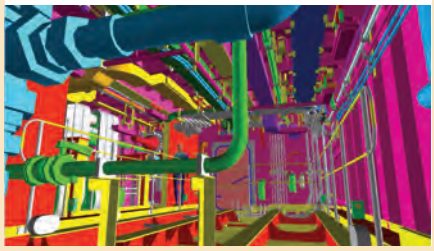
The multiprocess XMT ArcReach systems from Miller Electric Mfg. Co. reduce downtime, costs and exposure to hazards by allowing operators to set voltage at the weld joint without use of control cables. This minimizes trips to the power source, allowing more arc-on time and productivity. The new systems also reduce the opportunity for trips, slips or falls on the jobsite.

www.MillerWelds.com

Robert Allan uses FORAN for 6000 HP Shallow Draft Pushboat

FORAN has been used by the naval architecture firm ROBERT ALLAN LTD in the review of the production design of 6000 HP Shallow Draft Pushboat. The 6000 HP Shallow Draft Pushboat was designed by ROBERT ALLAN LTD. for Hidrovias do Brasil. FORAN FVIEWER is a solution in FORAN, developed by SENER, allowing the user to navigate around the ship 3D model and with capabilities to query the model about properties and attributes, check visual interferences and make annotations.

www.sener.es



Wärtsilä Engines for Largest Cutter Dredges

One of the world's largest non self-propelled cutter dredger vessels will feature Wärtsilä engines to generate power and drive the dredging pump. The vessel will be fitted with four 12-cylinder Wärtsilä 32 engines, two of which will be used to drive the dredging pump. Designed for reliability & easy maintenance, this medium speed engine is also used for genset applications and is compliant with IMO Tier II emissions regulations.

www.wartsila.com

VOSTA LMG Quick Connect Dredge Hose Coupling

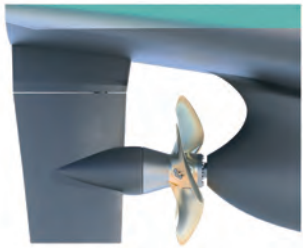
A new "quick connect dredge hose coupling" designed by VOSTA LMG has been successfully tested by a US customer. The new coupling enhances safety and makes the assembly/disassembly procedures for floating dredge hoses easier and faster. The field test showed that the "quick connect dredge hose coupling" can be used without additional buoyancy, a direct result of the lightweight design.

www.vostalmg.com

Rolls-Royce Propulsion on AK Class Ferries

Rolls-Royce has been selected by the Alaska Department of Transportation and Vigor Industrial to provide a propulsion system for its future Alaska Class ferries. The Alaska Class ferries will feature a range of Rolls-Royce technology, including reduction gearboxes, tunnel thrusters and steering gears. A Rolls-Royce Promas propulsion system, integrating controllable pitch propellers and rudders, will increase fuel efficiency and enhance maneuverability.

www.rolls-royce.com



PRODUCTS

Eaton Vacuum Contactor for Marine Applications

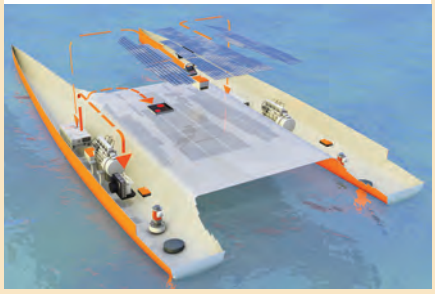
Power management company Eaton offers a high-current (1,600A, AC-3) DILM1600 vacuum contactor for use in demanding marine applications, such as the control of large bow thrusters. The benefits offered by the vacuum technology include long life span and minimal maintenance. The operating mechanism requires less power and generates less heat than operating mechanisms used in air break contactors and has major class society approvals.

www.eaton.uk.com/electrical

Torqeedo Deep Blue Hybrid Solution

Torqeedo's high-powered Deep Blue product line now has a comprehensive hybrid solution. More than propulsion, the fully integrated system acts as an energy supply for both the hybrid drive and all AC/DC electrical loads on board. This groundbreaking solution can harness solar, wind, plug-in and regenerative power in the system's high-capacity batteries, keeping generator runtime to an absolute minimum.

www.torqeedo.com



Flexible Control for Winches and Cranes

Rexroth has developed a new control solution that is suitable for both simple and complex winch and crane drives. The control system can easily be connected to the customer's system using predefined interfaces. Numerous hardware variants in the form of a modular system allow flexibility and reduce costs during commissioning with a simple "plug-and-play" interface. The controller is designed for use in harsh environments.

www.boschrexroth-us.com

YANMAR America's EPA Compliant Commercial Marine Engine

YANMAR America's EPA Tier III compliant, class society approved commercial marine diesel engine is rated at 755 mHP and 1900 RPM. The 20.38-liter 6AYAM-ET uses a fully mechanical control system for easy servicing and reliable performance. The four-cycle, in-line six-cylinder 6AYAM-ET offers low fuel consumption and is suitable for pushboats, tugboats, trawlers and other applications with uninterrupted operations or cycles.

us.yanmar.com

Seapilot Navigation APP for Android Devices

Seapilot's Navigation app for Android devices is downloadable for Android-compatible smartphones and tablets. The easy-to-use app combines S-57 vector chart data with direct GPS connection for position, presenting AIS data on portable devices. Seapilot can display current position information, course, speed vectors, and weather data. Users can set routes, waypoints, mark objects, and assess bearing and range between plotted points and the vessel.

www.seapilot.com

Thermoplastic Composite Pipe Design Guideline

2H Offshore has teamed up with oil and gas industry leaders to develop a new design guideline for thermoplastic composite pipes (TCP) to advance the understanding and use of composite materials in the offshore industry. The Joint Industry Project (JIP) began in October and will take a year to complete. The work will build on existing knowledge and guidelines to achieve an industry accepted standard.

www.2hoffshore.com

ABS Chair of MT & Logistics/Naval Architecture/Eng

Job Location: USA, Bronx, New York

ABS Chair of Maritime Transportation & Logistics

ABS Chair of Naval Architecture/Marine Engineering

About SUNY Maritime College:

SUNY Maritime College located on a 55-acre scenic waterfront property on the outskirts of New York City on the Throggs Neck peninsula where the East River meets Long Island Sound. The campus blends the best of two worlds: a comfortable college-town feel with the greatest city in the world. An impressive view of the sound extends toward the North Atlantic, yet only a few miles away are Yankee Stadium and midtown Manhattan. SUNY Maritime offers an array of esmployment opportunities stemming from entry level to professional positions which encourage growth and development among its employees.

Job Description:

SUNY Maritime College and ABS are pleased to announce a search for the inaugural ABS Chair of Maritime Transportation & Logistics and ABS Chair of Naval Architecture/Marine Engineering. Individuals who have a distinguished record of accomplishments—in either academia or the public and/or private sectors—are encouraged to apply. The successful candidate(s) will be expected to teach one-half normal load (two courses per term) in addition to engaging in research related to his/her area of expertise.

Requirements:

- Doctoral degree
- Significant record of scholarly or public achievement, including but not limited to publications, successful grant writing, major awards and commendations, or industry recognition
- Extensive background and experience in the maritime industry, broadly construed.
- Ability to engage students using a variety of teaching platforms and modes of delivery that ensure student engagement and active learning
- Motivation to engage in course design and scholarship that will bolster existing offerings and foster new programs
- Willingness and ability to engage in high-profile research that will reflect well on the institution of SUNY Maritime College and ABS

Additional Information:

The ABS Chair of Maritime Transportation & Logistics and ABS Chair of Naval Architecture/Marine Engineering are endowed positions. The ABS Chair is an annual appointment for up to a period of five years in which the roleas ABS Chair will relinquish at such time. During the time of their role as ABS Chair, the incumbent will earn a stipend of $40,000 with an additional $20,000 allocated to travel and research support. These funds are in addition to a base annual salary commensurate with the experience and qualifications of the incumbent.

Classification/Salary: Visiting Instructor is a UUP position. Compensation includes a full benefits package. Salary will be commensurate with experience and qualifications. The successful candidate will serve in a term appointment, not to exceed five years.

Special Notes: This is a 10 month full-time college year UUP qualified academic rank position. FLSA Exempt position, not eligible for the overtime provisions of the FLSA. Internal and external search to occur simultaneously. Review of application to commence immediately however, the appointment anticipates to start in the Fall 2015.

Budget Title: Visiting Instructor (10 Month)

Application Instructions:

Application Instructions: Persons interested in the above position should apply online at http://maritime.interviewexchange.com/jobofferdetails.jsp?JOBID=55131. Please submit:

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- Cover letter with salary requirements
- One page statement of teaching philosophy & one page research plan
- Contact information for three professional references.

URL: www.sunymaritime.edu/hr

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