MARITIME LOGISTICS PROFESSIONAL

July/August | *Volume 8, Issue 4*

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Port Infrastructure

Doubling Down on Domestic Dredging

DIGITALIZATION
OF TANKER LOGISTICS

FROM THE DESERT TO DELAWARE
GULFTAINER IS MOVING IN

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THE 30-YEAR, $3B QUEST TO REPLACE A CRITICAL INLAND LOGISTICS LINK


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Credit: William Doyle

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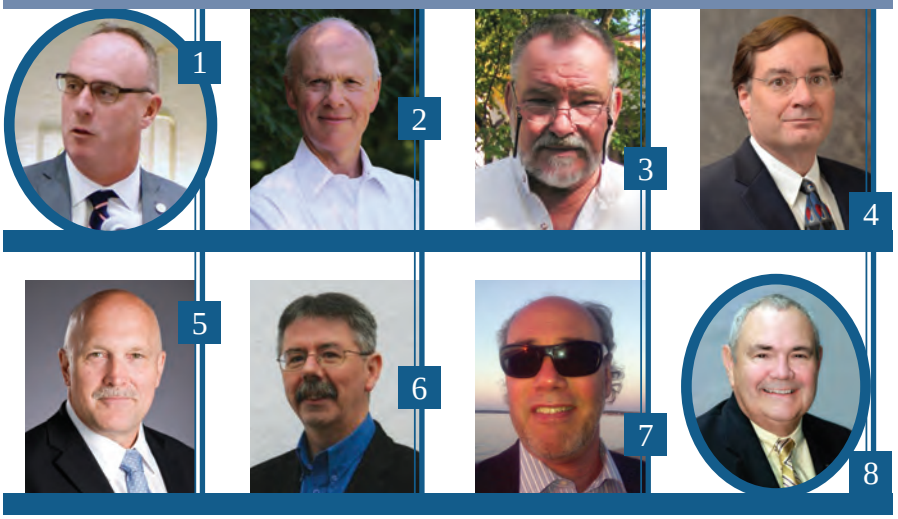

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ON THE COVER

On the post-Panamax waterfront, a deepened channel is of little value unless the accompanying shoreside infrastructure is similarly improved. Inside, you'll find that this takes planning, money and technology, too.

Image: Adobestock © yaniv

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Editor's Note

If you build it, they will come

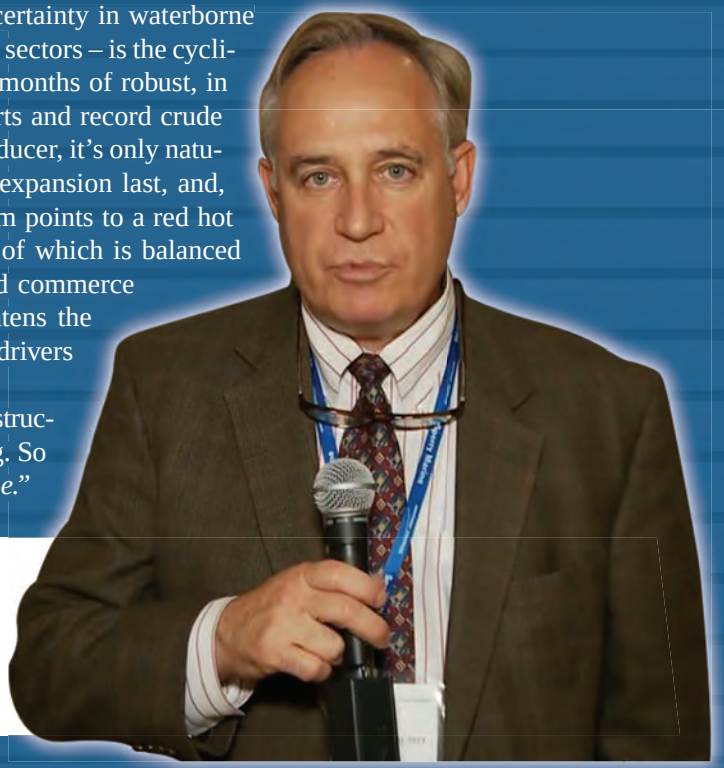
"*If you build it, they will come.*" I can't remember just where and when I heard that now-familiar adage, but I'm guessing that more than a few U.S.-based port executives got wind of the exact same wisdom, and subsequently acted upon it. What that means for the global supply chain and the world's biggest trading partner is still being sorted out, but if the early returns are encouraging, then the possibilities are endless. We now live in a post-Panamax world where the words *deeper, wider, taller and heavier* really mean something. U.S. ports, as a rule rarely blessed with naturally deep harbors or plentiful real estate, know that reality only too well.

That optimism, or realization of what's still to come, isn't just North American-based sentiment. For example, terminal operator Gulftainer, leveraging a new vision and identity that includes ambitions to be a Top Six Global container terminal operator by 2020, has its eyes firmly on the Americas. That vision includes significant investment in infrastructure and long-term plans to be a local port stakeholder for many decades. This important story, by ***MLPro*** contributor Rick Eyerdam, begins on page 26.

It is also true that port development isn't just a deep draft story. It's also not just about blue water, international commerce. Or, is it? Actually, it all ties together. Underscoring that thought, and to say that the 2,596-foot Olmsted dam is situated on a vital section of the Nation's inland waterways would not give full weight to the importance of this critical infrastructure. After 30 years of angst, the ribbon cutting to open the Olmsted Locks and Dam will take place on August 30. ***MLPro***'s Tom Ewing traveled to Olmsted in July to see this civil engineering gem in person. He brought back the good news: American agriculture's access to deep draft export venues just got easier, quicker and probably cheaper. That story kicks off on page 38.

Like death and taxes, we also know that the only real certainty in waterborne shipping – tankers, bulk, containers and/or inland domestic sectors – is the cyclical nature of its very existence. That said; and seeing 18 months of robust, in many cases record TEU totals for the nation's top boxports and record crude and petroleum exports from the world's soon-to-be top producer, it's only natural to ask what's fueling the growth, how long will that expansion last, and, of course, what could bring it down. Conventional wisdom points to a red hot American economy and rock bottom unemployment, all of which is balanced against a looming trade war that has boosted imports and commerce just ahead of possible tariffs, but at the same time threatens the very boom that it follows. Inside, you'll find out that the drivers contain a little bit of both schools of thought.

This year's big maritime story might just be all about infrastructure; who's building, who is not and where that is happening. So far, the tale of the tape says that, *"If you build it, they will come."*



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PORT CANAVERAL

Managing the switch

The impending change to the global cap on sulphur emissions will complicate vessel operations and safely switching to a compliant fuel will therefore require careful planning, explains John LaRese, Marine Fuels Technical Advisor, ExxonMobil.

By John Larese

There is less than 18 months to go until the International Maritime Organization's (IMO) global 0.5 per cent sulphur cap comes into force. From the 1st of January 2020, the marine landscape will dramatically change and many questions still remain unanswered. Vessel operators will need to take extra care in the face of this uncertainty as there are a number of issues that will likely require managing when the revised sulphur cap arrives. Amongst these issues comes the increased likelihood of compatibility problems, along with the chance of heightened levels of cat fines.

Unless operators opt to install abatement technology known as scrubbers, and continue to burn heavy fuel oil (HFO), it will be therefore essential for the marine industry to prepare for the switch to compliant options and develop a set of actions that will minimize the risks associated with the move to new low-sulphur fuels.

CREDIT: ExxonMobil

to low sulphur fuels

Establish Best Practice

For operators choosing to switch to compliant fuels, the first step should be to establish practice as 'prevention is always better than the cure.' It is therefore advisable to buy fuel that meets the latest ISO 8217:2017 specification whenever possible. Vessel operators should also only bunker from reputable fuel suppliers and it is advisable to clean out tank residues prior to the IMO deadline as they are likely to contain HFO sediment, which could contain high levels of sulphur. Unless this is removed there is the risk that it will contaminate compliant fuel, pushing its sulphur content above the 0.5 percent limit.

In order to minimize this risk, ship owners could flush fuel tanks with marine gas oil (MGO) or an ECA fuel to remove sludge deposits. This process may need to be repeated, depending on the amount of sludge present. ExxonMobil recommends that tanks bottoms should be manually cleaned as a precaution against non-compliance.

Test for Cat Fines

Some new compliant fuels available could contain elevated levels of cat fines which, if not properly treated, could trigger catastrophic engine damage. If laboratory testing shows a high concentration, then action needs to be taken. Fortunately, cat fines have a higher density than the fuel oil in which they are contained and will readily settle if water isn't present.

To aid this action, on board personnel should remove water, maintain storage tank temperatures at least 10°C above fuel pour point and keep settling tanks at 85°C. Where possible, crew should also use two settling tanks on a rotational basis to extend the settling time. Purifiers must also be operated at optimum efficiency to ensure as many of the cat fines can be removed from the fuel as possible.

Check for Compatibility

There is a risk that two compliant fuels will not be compatible, which can trigger damaging sludge formation. It is therefore essential to test the fuels for compatibility, ideally in a laboratory. If fuel has already been loaded onto the ship, crew can test on-board for immediate results. Fuels should also be stored separately until testing has been carried out. Beyond this, if mixing is unavoidable, avoid comingling in excess of 80:20 mix ratios.

Monitor for Sludge

Fuel compatibility issues must be treated as a critical concern as they can result in the formation of sludge, which can block strainers, filters and purifiers, resulting in costly and avoidable maintenance. In the worst case scenario, sediment and the resultant sludge can cause engine fuel starvation and power loss.

If sludge does start to form it is essential to ensure against further fuel blending before any remedial action is taken as this may exacerbate the problem. Ship owners should then operate two or more separators in parallel at their lowest throughput, increase the frequency of purifier discharge and monitor and clean filters frequently.

Choose a Reliable Fuels Partner

With so many different types of fuel potentially set to enter the bunker market, vessel operators are rightly concerned about stability, compatibility and quality issues, such as elevated levels of cat fines. It will therefore be more important than ever for operators to follow best practices when bunkering compliant fuels, including the employment of recognized, reputable laboratories to test fuel samples for potential issues.

As part of this process, vessel operators should work with a trusted fuels supplier with the experience and knowledge to help them navigate the way through the challenges that lay ahead.

The Author **John LaRese**

is the Technical Advisor for ExxonMobil Marine Fuels. He has been with ExxonMobil for over 39 years. Most of his career was spent on-board affiliate Tankers as a Chief Engineer, sailing on-board affiliate VLCCs, Product and Chemical Tankers. He has been ExxonMobil's Marine Fuels Technical Manager since 2009. A large portion of his current position focuses on the development of 0.5% Sulphur Compliant Marine Fuels. LaRese graduated from Maine Maritime Academy in 1979 with a B.S. in Marine Engineering.

Reducing Human Error,

Innovative Geofencing Technology Developed by Cashman Dredging and Marine Construction Company

By William P. Doyle

Recently, I had the opportunity to visit the start-up operations for what is commonly referred to as Phase II of the Boston Harbor deepening project. And, while Jay Cashman, Inc.'s Cashman Dredging and Marine Contracting Company (Cashman Dredging) and the Dutra Group joint venture are off to an auspicious start to this important infrastructure improvement, I was particularly impressed with the new technology that Cashman Dredging has designed and implemented to prevent inadvertent placement of dredge material in non-authorized ocean disposal sites.

The Environment:

This innovative technology, aptly named the Scow Geofence System (SGS), was developed right here in the United States by the Cashman Dredging team of Norman Bourque, Frank Belesimo and Tim Manning. Cashman Dredging also presented its SGS concept during proceedings of the Western Dredging Association's Dredging Summit & Expo in June 2018. It would not be overstating the matter to say that SGS will likely become a dredging industry standard. And, for good reason.

Human Error is just one of them. Accidental discharge of dredge material outside of approved disposal sites is actually a big problem. Over the past decade, human error has significantly contributed to the accidental discharge of dredge material from split-hull dump scow barges. The dumping operation of a scow requires a crewmember to activate a switch that in turn allows the scow to "split open" and dump its dredge material. The accidental dumping of dredge material is usually a result of poor communication between crewmembers. In these instances, dredge material is dumped outside of the authorized disposal sites in violation of the Marine Protection, Research and Sanctuaries Act. Consequently, the Environmental Pro-

IMAGES: William Doyle

Protecting the Environment

tection Agency issues fines against the dredge operators who discharge their scows outside of the approved disposal sites. SGS has the potential to completely eliminate that possibility.

The Law:

Compliance with the Marine Protection, Research and Sanctuaries Act (MPRSA), commonly referred to as the Ocean Dumping Act, isn't optional. It became law in 1972. Under the Act, the U.S. Army Corps of Engineers issues permits for the disposal of dredged material subject to EPA's concurrence. The Environmental Protection Agency (EPA) administers and enforces compliance with the MPRSA. The EPA designates dredged material disposal sites for long-term use. Before designating these sites, EPA conducts an extensive environmental review process, including opportunities for public participation. Each designated site has its own site management and monitoring plan. Disposal of dredge material is strictly prohibited outside EPA designated sites because of the potential for harm to the marine environment.

Geofencing: a Viable Solution

Cashman Dredging set out to find a solution to the human error problem of accidentally discharging dump scows outside of the designated dump sites. What they came up with is the Scow Geofence System (SGS). The system itself is comprised of a small computer and a Global Positioning System (GPS) receiver that is connected to the scow controls. SGS utilizes a relay that connects it to the scows programmable logic controller (PLC). The PLC controls the communication, engine start and stop and the sequencing of the hydraulics for the split hull scow.

In a nutshell, the SGS does not allow a scow to dump its dredge material unless the barge is inside a predetermined geographic zone, or so-called "geo-fenced" area. Even if a crewmember activates the scow's dump switch, the barge will not split open if the vessel is not within the geographically fenced area. The vessel must travel into the geo-fenced area for the dredge material to be discharged. More to the point, SGS locks the PLC control of the scow-opening process within seconds of the GPS antenna transiting outside the predetermined geofence ocean dump site.

Looking Ahead

Testing and real-time operation of the Scow Geofence System indicates that SGS has the potential to significantly reduce the human error element of accidental split hull discharges. Since Cashman Dredging implemented SGS in 2016, the company has tracked and recorded over 550 disposal events. Notably, there have been no accidental discharges of dredge material since implementation. This is all good for the operator, regulator and the environment. It's quite likely that geofencing for dump scows will become an industry standard. With the number of dredging and infrastructure projects now underway in North America, that development can't happen soon enough.

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Public-Private Partnerships (P3s)

By some in Washington, DC, "Public-Private Partnerships" (P3s) are the much-debated "solution" to financing public infrastructure with private sources of money. Not so fast, says WCI's Mike Toohey.

By Michael J. Toohey

Private funding sources are usually equity firms or financial institutions seeking a way to recoup their investment through state concessions to charge tolls for more efficient or additional capacity lanes. Highways have been the primary focus for P3s, some of them successful, but others not so much. One example is the Indiana Toll Road that runs for more than 150 miles across northern Indiana from Illinois to Ohio. Owned by the Indiana Finance Authority, the toll road was operated by the Indiana Toll Road (ITR) Concession Company LLC, which filed for bankruptcy in 2014, just eight years into a 75-year concession. In 2015, ITR was purchased by Australia's IFM Investors on behalf of IFM Global Infrastructure Fund.

Highways are very different than waterways, and P3s that charge tolls simply do not work for building locks and dams. On highways, drivers have a choice to use new capacity provided by the toll facility, or to continue to use the existing, untolled capacity. But waterways P3s would remove that choice, with users having only the tolled stretch of the river option. There is no off-ramp on a river.

In 2015, Mercator International LLC conducted a feasibility

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Not a Panacea

analysis to look at constructing a new 1,200-foot navigation lock at Peoria, Illinois with a P3. The study found that a lockage fee of 47 cents per-ton would be required to provide a reasonable rate of return for project investors, equating to a toll of between $750 and $1,975 per barge, per lockage. The study concluded that such a rate was "economically infeasible" and could drive grain and other traffic from the waterway, causing gridlock on the other transportation modes (if there is even capacity to move the freight on other modes).

Waterways Council, Inc. (WCI) is not opposed to the concept of appropriate, properly-structured innovative financing or other efforts to attract capital investment to the nation's inland waterways transportation system. However, there is already a strong and viable Public-Private Partnership with the Corps of Engineers through the Inland Waterways Trust Fund (IWTF), guided by the Capital Development Plan (CDP). Developed in 2010, the CDP prioritized completion of navigation projects across the system, improved the government's management and delivery of projects to help control costs, and recommended a fuel tax increase on the barge and towing

industry to help finish 25 navigation projects over a 20-year period. Under this current partnership, commercial users of the inland waterway system contribute substantial tax revenues for modernization of locks and dams and participate in making specific capital investment decisions.

WCI has long opposed lockage fees, tolls or other new charges for commercial users of inland locks and dams. Instead, our members support the diesel fuel tax collected as a levy on fuel used in commercial transportation on the inland waterways, most recently advocating for a 45% tax increase that went into effect on April 1, 2015. These private sector revenues are placed in the dedicated Inland Waterways Trust Fund and matched by General Treasury funds for navigation infrastructure capital improvements. This is an example – and definition – of a Public-Private Partnership in action.

Commercial barge operators and their customers are the only users of the waterways to pay this tax, while numerous other system beneficiaries pay nothing. These include those who benefit from municipal water supply, hydropower generation, recreational opportunities, industrial cooling water, flood damage prevention, national security, and irrigation. WCI does not suggest that these beneficiaries be taxed, but it should be underscored that it is fundamentally unfair to burden one small beneficiary group with additional (or all) costs while the entire Nation reaps the value of the waterways.

The Trump Administration, and others before it, has attempted to impose more than $1 billion in new lockage or user fees on the inland waterways, but Congress has consistently rejected this, most recently in FY2019 Energy & Water Appropriations funding and (at press time) in the House-passed Water Resources Development Act (WRDA) of 2018.

WCI's opposition to tolls and lockage fees is based upon the need for consistent federal policy and fundamental fairness. Businesses have relied upon efficient waterways transportation in making locational decisions. If the federal government were to enable private entities to charge tolls for the use of any waterway, businesses on those waterways would suddenly be competitively disadvantaged. Production agriculture could be most negatively impacted by tolling.

The family farmer living far upstream who utilizes the waterways to transport crops to market would now be tremendously disadvantaged, and his/her farmland potentially devalued. The export market establishes the price for most U.S. grain markets. Therefore, producers would have to pay new tolls as growers get the price at the export terminal, less the cost of transportation. Some estimate tolls on the Upper Mississippi River could equate to 31.5 cents per-bushel to transit 24 locks.

Also, American refineries and chemical plants that depend on water transportation for feedstock supply and product distribution to customers would be impacted at a time when the Nation is enjoying an energy renaissance.

America's inland waterways transportation system is composed of 12,000 miles of navigable waterways in 38 states, with 219 locks at 176 sites. In 2016, more than 550 million tons of freight valued at $300 billion was transported across the system. Mile-for-mile, the inland waterways have capacity and they provide the most fuel efficient, safe, and environmentally responsible option to transport America's "building block" commodities.

Public expenditures to maintain navigation channels and build related infrastructure were among our Nation's earliest investments, and similar investments are just as critical to an efficient 21st century freight system.

One waterways modernization option to consider is to look at hydropower, one of the many beneficiaries of the nation's inland transportation system. In fact, hydropower's energy production would not even exist without the lock and dam infrastructure. According to the Corps of Engineers, hydropower facilities produce 3% of total U.S. electricity capacity through 75 hydropower projects in operation with 356 generating units. The annual gross estimated revenue generated from these facilities is approximately $5 billion, with an estimated $1.5 billion in net income paid each year to the U.S. Treasury from power sales at Corps' dams.

A small portion (10%) of the net hydropower revenues generated at Corps' dam projects could be deposited into the Inland Waterways Trust Fund to help pay for capital improvements at navigation dams. This change would enable the Inland Waterways Trust Fund to sustain annual appropriations of approximately $400 million to enable the completion of the 25 modernization projects already authorized by Congress, at a cost of $8.8 billion.

Last April, a letter led by Rep. Bob Gibbs (R-OH) and Rep. Dan Lipinski (D-IL), was signed by 36 House Members to support this idea to redirect 10% of net hydropower revenues generated at Corps of Engineers dam projects into the Inland Waterways Trust Fund. The letter, sent to House Transportation & Infrastructure Committee Chairman Bill Shuster and Ranking Member Peter DeFazio, and House Water Resources & Environment Subcommittee Chairman Garret Graves and Ranking Member Grace Napolitano, urged that WRDA 2018 include language to require this change. In the end, the House WRDA bill did not include this language, but WCI will continue to seek proposals such as this that can enable the waterways to deliver for the American economy.

P3s may work for other transportation projects, but they simply do not hold water for inland waterways infrastructure modernization.

The Author **Michael J. Toohey**

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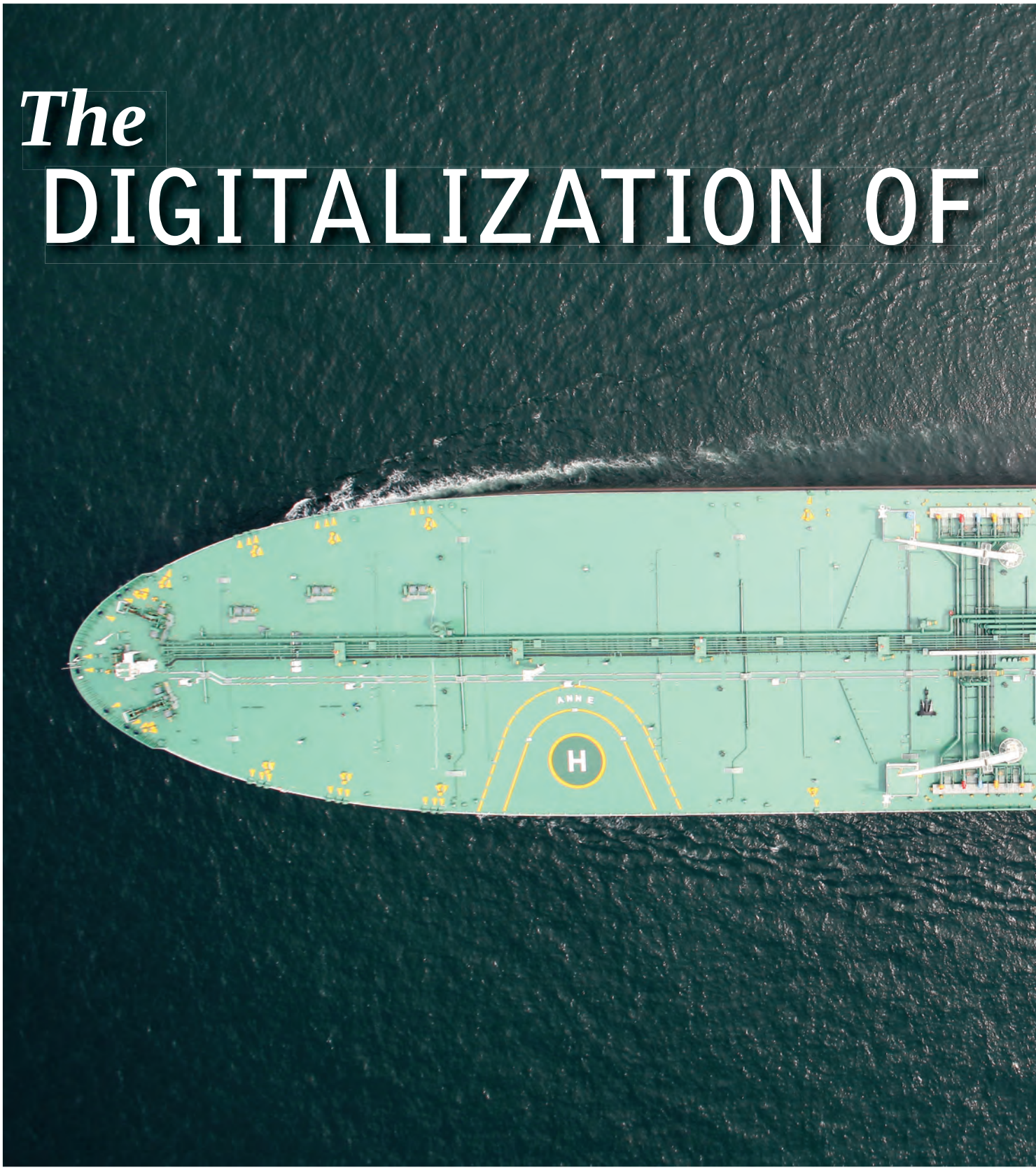

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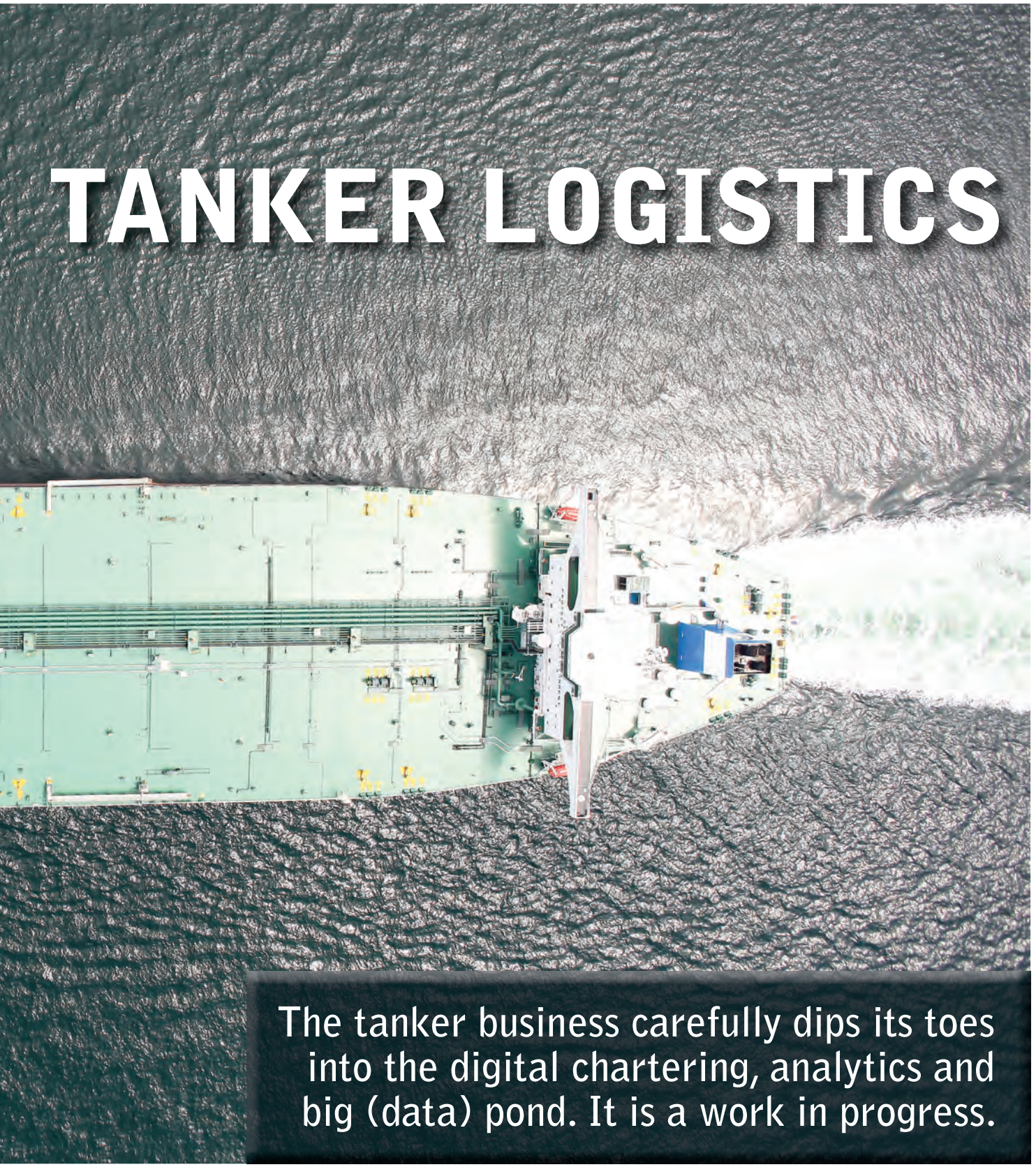


The tanker business carefully dips its toes into the digital chartering, analytics and big (data) pond. It is a work in progress.

By Barry Parker

Like every other business, raw materials, refined products and petrochemicals, are undergoing unprecedented waves of digitalization. However, shipping is one linkage, albeit an important one, within the much bigger supply chains for crude oil and products. But cargo is king, raising an important question: Will future efforts to link ship chartering, and ship brokerage, into oil company supply chains come from the charterer side – that is, oil companies developing bespoke systems – rather than from the brokers or their service providers infusing an online component into ship brokerage?

DIGITALIZATION: TANKSHIPS SEARCH FOR THEIR NICHE

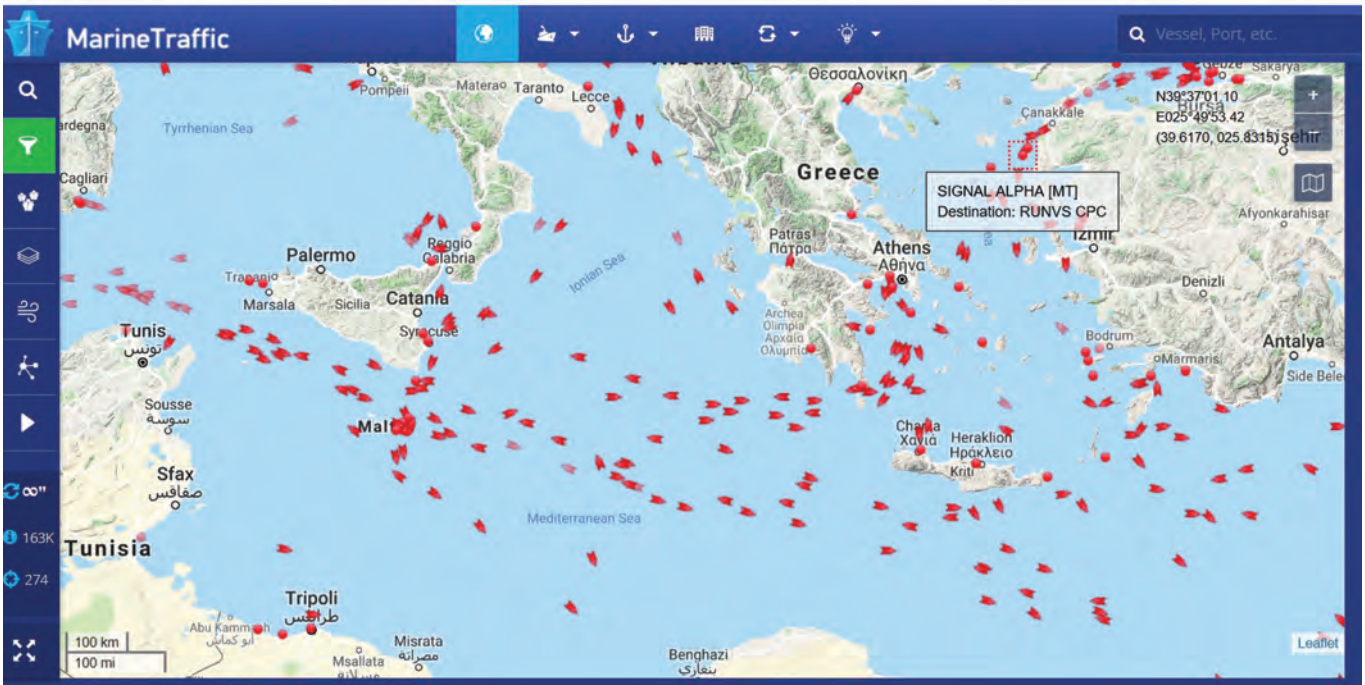
As the thinking goes, processing of data, by machines, using algorithms (repeatable ways of handling inputs) and applying artificial intelligence (where the machine may "learn" from its previous efforts), is more efficient than employing humans to process paper. With these efficiencies, through automating processes, comes savings of costs. In the oil businesses, a major driver has been the (relatively) low prices of oil and products, following the late 2014-2015 price collapse.

Looking at the oil business, consultants McKinsey (in marketing efforts aimed at large entities on the cargo side of the business) note that fat has been squeezed out of purchasing during the recent cycle. They say, "Many services and equipment purchases currently are outsourced to a variety of providers, which results in complexity and a fragmented supplier base. Multiple oilfield services and equipment (OFSE) companies are now bringing these services in-house, with integrated offerings reducing coordination costs. This can lead to savings of as much as 30 percent." But, where, exactly, does tanker shipping fit into this missive?

Irrespective of the levels of oil prices, it's tough to argue with the logic of cost savings, as supply chains across cargo generating businesses have been digitized. In liner shipping, with high valued cargoes and market concentration on the carrier side, there has been a recent push to advance further on steps towards automating commercial processes. INTTRA, a successful online booking venue developed by the carriers more than ten years ago, has now, nearly two decades after its formation, been making a push towards real supply chain integration. In drybulk chartering, Australian iron ore charterer BHP Billiton has been deploying online inquiries for routine standardized Capesize chartering inquiries, with a stated objective of reducing ship-brokerage commissions, but also driving a move towards counterparties meeting more rigorous standards. But, if INTTRA and BHP Billiton are pointing to the way forward for tanker logistics, then certainly, we are not yet there.

SOLUTIONS EMERGE AND EVOLVE

Inside of companies, on the operational side, established vessel management companies and arms of large owners have streamlined their processes. Consider, for example, Bernhard Schulte Ship Management (BSSM) which has created an entire company, called MariApps, to market a maritime Enterprise Resource Planning (ERP) package to other shipowners, for the purpose of optimizing vessel management. The marketplace recently learned of a new initiative by the Italian owner d'Amico (in conjunction with Class Society RINA and communications provider Telemar), to collect data for optimizing vessel performance. Class NK has launched its "Internet of Ships" platform, and attracted the large Japanese carrier NYK. These firms, whose fleets



Tanker buildup in eastern Mediterranean showing a Signal Maritime vessel. Source: MarineTraffic.com

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include more than one type of vessel, all manage tankers, as well.

Shipping deal makers have certainly been quick to adopt new tools; email and messenger applications have replaced telex machines. Ship positions are readily available with multiple platforms displaying vessels' locations, pinged from AIS, on a map. Applications described further below pull in feeds from services such as AIS specialists Marinetraffic.com and Vesseltracker.com. Traditional brokerages have inched towards the online world; "traditional" service offerings are enhanced with enhanced delivery using new tools, through the Software as a Service (SaaS) model- where users log into a central server, hosting the broker's application, via the internet.

But, here is the rub: if a computer scientist were to study how a ship brokerage is organized, and sketched out a diagram, it would be labeled as a "Distributed Agent" model. In plain English, this describes a fragmentized ship chartering marketplace, where activity occurs in multiple private pockets, albeit with robust overlaps. This means that no one central force is in charge (and therefore able to force precise standards on all the participants), bedeviling efforts to bring vessel chartering into a central automated fold. And when there is a need to interface with multiple oil company logistics interfaces, each one a little bit different (and, most likely, each with a slightly different brand of blockchain), the complexities become exponential.

AXSMarine, Paris, an offshoot of the long established Paris-based broker Barry Rogliano Salles (BRS), with the large German owner Oldendorff Carriers also an investor, was formed during the dotcom era, and has thrived as a provider of data and insights into the drybulk, tanker and liner sectors. Its deep connections into the tanker broker community have enabled it to gain support from many of the brokers. Its aim is to provide tools to assist them – not supplant them. Its product suite goes beyond fixture histories, vessel descriptions and distances, and takes advantage of Big Data capabilities analyzing reams of AIS data. Ships (with positions pulled from real time AIS) are displayed, along with locations of cargoes, with capabilities for the user to filter the data.

Big data analytics come into play with patterns of port congestion and traffic flows (including likely movements of vessels) developed from crunching historical voyage and port call data. Importantly, the tools on offer here support vessel fixtures and enable brokers to manage their workflow (for example organizing numerous e-mails regarding specific ships and cargoes, and private messaging venues), but do not delve into the supply chains for the movement of crude oil, or products.

Most recently, a new entrant still in beta (testing) phase, Athens-based Signal Maritime made a big splash in Greece at the Posidonia event in June, 2018. The company (online at www.signalocean.com), with ties to the Greek shipowner Thenamaris (Martinos family) describes itself as "a commercial ship management company with a technology twist. The company's focus is placed on producing sustainable, responsive, high-performance commercial management for a growing, modern fleet. At the same time, we are leveraging the group's technologies, as design clients, to enable and pursue new business (sic) models in shipping."

CREDIT: John Galayda/Marine Money

Signal Maritime, one of multiple Martinos companies, is indeed a tanker specialist. Its Signal Ocean Platform emphasizes an ability to get out from under a mountain of brokerage paperwork, by linking cargo opportunities on a specific ship with the products of Artificial Intelligence. Here, predictive models and geospatial processing are used to develop "private market views" or forecasts of possible build-ups (or not) of vessels in particular ports and loading areas. Vessel specific data and calculation algorithms (time charter equivalent) are then fused into the picture, offering brokers (and, importantly, traders, as well) a tool for quickly evaluating and comparing multiple pieces of business.

Another player is Vesselbot, on the scene since 2016, which founder Constantine Komodromos (an oil industry veteran who also spent time at BSSM) describes as an online chartering marketplace that digitizes the whole chartering process. In an interview, Komodromos indicated that drybulk (with many more parameters than tanker chartering due less standardization of vessels) was the primary target, but that inquiries had also come in from the LNG sector.

Vesselbot's promotional information offers a bold and improbable mission: "To transport chartering brokerage into the 21st century by providing an online ecosystem supported by cutting edge technologies." This includes electronic charter parties, a technology now being embraced among brokers. Similarly, the Baltic and International Maritime Council (BIMCO) has created a vast repository of electronic documents, including charter party forms.

In a Vesselbot whitepaper, there is a great emphasis on computerized matching of cargoes with "optimal" ships, improving on the tedious human chartering process. In between the lines, there are inferences to "…finding the best positioned vessels…" and "…minimizing ballast legs…" suggesting an operations research linear programming approach to optimization beyond the intra-company level. In a page perhaps borrowed from Uber and Lyft, charterers can rate the performance of owners.


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BIG DATA FOR BIG OIL

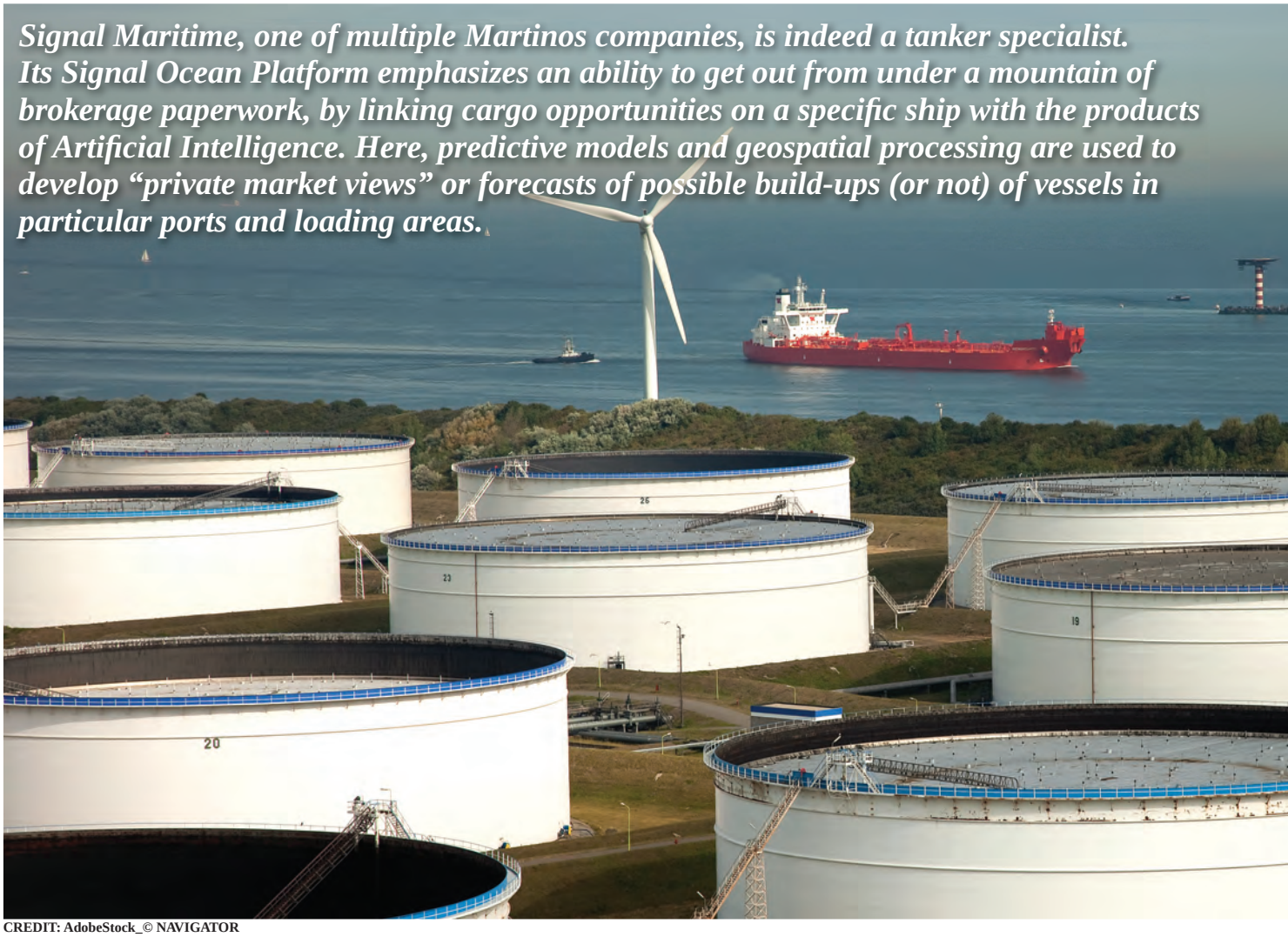
Owner's choices for routing tramp ships (in anticipation of cargo buildups), rather than automating brokerage, provide a hint at the potency of Big Data and Machine Learning, in the hands of serious people. At the June, 2018 Marine Money conference, ex Coastie and now self-described "Quant", Dr. Scott Borgerson, founder of information guru CargoMetrics Technologies, shared the podium with his client, Mr. Soren Meyer, Chief Strategy Officer (an implementer of new technologies) at Maersk Tankers, which is also a shareholder in Mr. Borgerson's company. Mr. Borgerson did reveal that CargoMetrics collects real time information on stocks and flows of oil and refined products (besides voluminous vessel position data), and emphasized the relatively short term emphasis, with models being run on a daily basis. "We are not making five year forecasts on buying or selling [vessels]," he said.

For his part, Meyer talked about the need for augmenting Maersk's already superior operations "platform" with additional layers of intelligence (with machines processing vast caches of data) to solve problems with a timeframe extending out over weeks and perhaps three months. One example mentioned was generating returns, and managing risk/reward metrics, through better chartering decisions on routing LR2 vessels (tankers of 100,000 to 120,000 DWT tons usually deployed in crude oil trades) "… to the East or West of Suez."

A LOOK AHEAD

In spite of the flood of "digitalization" solutions for shipping (some real, some purely aspirational), old timers may not have it entirely wrong. Looking through the electronic fog, there are clear hints that a hybrid entity, with an integral role for humans, has a place in creating more efficient solutions for vessel brokerage. Quite possibly, these efficiencies will enable new channels, beyond the usual clusters on the big matrix, to be carved out, allowing occasional fixtures between two pockets that would otherwise not communicate.

However, when it comes sealing the deal (with the result



Signal Maritime, one of multiple Martinos companies, is indeed a tanker specialist. Its Signal Ocean Platform emphasizes an ability to get out from under a mountain of brokerage paperwork, by linking cargo opportunities on a specific ship with the products of Artificial Intelligence. Here, predictive models and geospatial processing are used to develop "private market views" or forecasts of possible build-ups (or not) of vessels in particular ports and loading areas.

CREDIT: AdobeStock_© NAVIGATOR

being a vessel fixture agreement), the human input, with a knowledgeable hand on the tiller (or mouse pad) is still widely in evidence, especially when it comes to chartering ships. Vesselbot, a self-proclaimed disrupter and innovator, notes, on its website, that "Our dedicated team of Maritime specialists is on call 24 hours a day, 365 days a year, to personally deal with any problems that may arise between parties from the initiation to the completion of all shipments arranged via the VesselBot platform. Furthermore, our leading team of Maritime experts are available, on request, to provide an advisory service which offers market insights, route freight rate indications, negotiation facilitation, charter party terms and post fixing operations etc., for both Charterers and Vessel Owners." If this sounds very similar to the functions of a traditional old-style broker, emphasizing the important "value added" from humans, then perhaps the future won't so different from what we see today.

The Author

Barry Parker of bdp1 Consulting Ltd provides strategic and tactical support, including analytics and communications, to businesses across the maritime spectrum. The company can be found online at www.conconnect.com

CREDIT: AbuOmar Ibrahim

From Desert to Delaware

Gulftainer strives for top six in terminals.

By Rick Eyerdam

A view across Al Majaz park to the Sharjah City skyline.

Sharjah is a glimmering city-state carved from the desert, the third largest emirate in the United Arab Emirates and the only one to have land on both the Persian Gulf and the Gulf of Oman. And soon, within weeks, a company based in Sharjah could control one of the most strategically located marine ports in the United States. Gulftainer through its subsidiary GT USA, Wilmington has inked a deal with the State of Delaware, USA, which would grant GT USA, Wilmington exclusive rights to operate and develop the Port of Wilmington, on the Delaware River downstream from Philadelphia for the next 50 years.

For an emirate which covers a mere 1,000 square miles or about 3.3 per cent of the UAE's total area and with a population of around 1,400,000, to achieve such a major foothold in the American maritime industry and culture is a major achievement. But it came with a few stumbles along the way.

The emirate of Sharjah comprises the city of Sharjah City and borders Dubai to the south and Ajmân to the north forming a conurbation, an extensive urban area resulting from the expansion of several cities and towns so that they coalesce but retain their separate identities.

The city lies some 170 kilometers away from the UAE capital city Abu Dhabi. But Sharjah also owns three enclaves on the east coast, bordering the Gulf of Oman. These are Kalba, Dibba Al-Hisn and Khor Fakkan, providing Sharjah with a major east coast port. Sharjah also encompasses some important oasis areas, the most famous of which is the fertile Dhaid region, where a range of vegetables and fruits are cultivated.

Sharjah was not Dubai or Dubai Ports World, or even close when, on December 13, 2013 the private company owned by Crescent Enterprises was renamed Gulftainer and rededicated with a new "vision and identity" that "aims for 35 (container) terminals by 2020 across five continents handling 18 million TEUs annually, (and) becoming a Top Six Global Container Terminal Operator," according to a company statement.

Eyes on the Prize

For many years Crescent Enterprises was active only in the UAE in terms of port operations, but it then began embarking on a strategy of international expansion beyond the UAE and Middle East and then into the United States, first unsuccessfully via the Port of Jacksonville, Florida.

Back in June of 2012 Paul Anderson and Roy Schleicher, then port director and his deputy at Jaxport, took a look at a proposal which the South East Shipping News said at the time was a "misspelled, unsophisticated, inaccurate; one-dimensional proposal offered by Sharjah-based Gulftainer Group to totally restructure Jaxport's major facility at Blount Island." They decided not to bother the Jaxport Authority Board with such a trifling distraction. They had just begun a years-long master planning process.

Gulftainer took the unprecedented and anti-traditional course of recruiting a couple of local reporters and a couple Port Authority board members to make a splash by showing a plan to put $250 million into the Jacksonville economy in trade for a mere 123 acres on Blount Island. It did so with little consideration that their proposed terminal could displace Ports America, Horizon/Tote, two auto import yards and the U.S Marine Corps Blount Island Command.

Paul Anderson explained at the time: "They wanted us to turn over the port to them, and we're not going to do that."

"With Gulftainer's proposal, we have an opportunity to develop the overall infrastructure and potential of the port, which can lead to a direct and significant impact on our economy as a whole. We hope to see significant impact to the state's revenue stream with the planned injection of $580 million investment into the cargo facilities within the city of Wilmington. This massive infrastructure upgrade will have a knock-on effect to the logistics sector of the entire East coast. It is also exciting to see that Gulftainer's proposal included a plan to establish a marine training institute to boost local career aspirations in maritime industry and port operations.

– John Carney, Delaware Governor

With Jacksonville off the table, Gulftainer looked for another way to enter the US port market, while the company grew. By the end of 2013, the company's portfolio included four UAE operations in Khor Fakkan, Sharjah, Hamriyah and Ruwais, as well as activities in Iraq at Umm Qasr, Recife in Brazil, Tripoli Port in Lebanon, and a recent acquisition in Saudi Arabia, managing container terminals in Jeddah and Jubail.

Port Canaveral, less than 200 miles south of Jacksonville in Central Florida, had a thriving cruise business, a major submarine base and some space-related shipping but, except for bulk cargo including cement and salt, offered little in cargo handling. Unlike the Jacksonville proposal, before moving into Port Canaveral, Gulftainer thoroughly examined the Central Florida market, talking with importers and exporters and other potential customers about using shipping operations based in Cape Canaveral.

"It's a bit like the chicken and the egg," Peter Richards, the Gulftainer CEO said at the time. "It's a case of convincing the shipping line there are actually volumes there that can be imported and exported through the Canaveral port facility. It's a bit like saying to the importers and exporters 'There's a shipping line there and if you commit to these volumes, we'll actually call a ship.' "

Port Canaveral and Gulftainer struck a deal in June 2014 that gave the company control of the Canaveral container terminal operations and future development for up to 35 years for an eventual $100 million investment in terminal improvements and local hiring.

When the new Canaveral Cargo Terminal opened in June of 2015 it had a capacity of 200,000 TEU's per year with plans for expansion to 750,000 TEU's. Gulftainer added a subdivision called GT USA, which it based in the Port Canaveral administration building. GT US said the $100 million investment in infrastructure and equipment would create 2,000 jobs and contribute US $630 million to local economy. The terminal was developed on 20 acres on the northern side of the port with two berths and two cranes.

But neither GT USA nor Gulftainer operated any ships so there was no immediate rush to call at the port with containerized cargo. However it only took until January of 2016 for the first call of a weekly rotation linking the port and terminal to Central America and Europe. The Blue Stream Service, operated by StreamLines, part of the SeaTrade Group, agreed to provide refrigerated and dry container service to and from GT USA's Canaveral Cargo Terminal, with a focus on fresh produce and perishable cargo.

"We are excited about the opportunity to provide our signature world-class service to StreamLines and to be its U.S. port of call. The new Blue Stream Service can showcase Port Canaveral as an ideal gateway, opening markets in Central America to Central Florida, and providing our local exporters the most efficient route to Europe," said Richards. "This will undoubtedly lead to even more growth in coming months for Canaveral Cargo Terminal, building Port Canaveral's reputation as a key cargo destination along the Southeastern Seaboard."

In addition to containers, the terminal customer base also includes vehicles, breakbulk, and heavy lift cargo. GT USA said it provides a full range of logistics services, including trucking, cross docking, storage and inventory control and last mile distribution. But by March of 2018, the SeaTrade Group found little demand for a Canaveral destination and went looking for another east coast port, according to SeaTrade agents.

An agent for the shipping company North American General Agents, Inc. Trading as SeaTrade USA said simply, "Sometime around March we just decided to go up the coast for our calls." The port was Wilmington, North Carolina. SeaTrade already called Wilmington, Delaware.

The port's spokesman said he had no idea what happened to the SeaTrade rotation because it left before he arrived. Separately, and in a prepared statement issued July 27, 2018, Richards said, "StreamLines's Bluestream container service suspended all direct U.S. calls in April, 2018. GT USA continues to perform depot and inland logistics functions at CCT in support of StreamLines' current slot charter services."

On July 24, 2018, however, Port Canaveral announced it had begun work on a new cargo berth with no mention of GT USA. "Multi-Purpose Cargo Berth Construction Moves Ahead at Port Canaveral," the release was headlined. "North Cargo Berth 8 will provide flexible capacity, capability to handle more diverse commerce, including spaceport operations," it began.

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Irony

Ironically, in May of 2016 a master planner estimated that the state-owned Port of Wilmington, Delaware would need up to $300 million for new warehouses, cranes and land to keep up with growing demands over the next two decades. And the recently shuttered Chemours Edgemoor titanium dioxide production center was evaluated as a potential site of the port to expand on the Delaware River at a cost of about $500 million to level the plant and construct port terminal facilities.

"All the numbers you saw today are big. They are all a challenge to a state that has significant budget constraints. So if we are going to expand in a significant way, we are going to have to partner with other investors," said Delaware Secretary of State Jeffrey Bullock, chairman of Diamond State Port Corp., (DSPC) the public-private board that oversees the sprawling complex.

Wilmington Port, which started operations in 1923 as the first major port on the Delaware River, is the top North American port for imports of fresh fruit especially bananas into the US, and has the one of the largest dockside cold storage facility in the country.

In October of 2016 DSPC purchased the Edgemoor site and in February 2017 retained Seabury PFRA to market a public/private (P3) project and PFM Financial to be an independent reviewer of the respondents to the March 2017 request for qualifications. The RFQ's key criteria included direct and indirect jobs, return on investment, relationship(s) with existing clients and port labor, especially union stevedores, and credit worthiness.

A total of 92 RFQ's were sent, 21 parties signed required confidentiality agreements and 10 submissions were received by the May 31, 2017 closing date for submission.

Staff and Seabury in supporting roles developed a scorecard to evaluate proposals including, job creation, construction and operations, return on investment, capital investment projects, compensation to DSPC/State, continuation of existing clients and labor, cargo customers / union labor and office staff, quality of business plan, capital resources, creditworthiness and scope.

In the evaluation process 10 submissions were narrowed to six that were deemed fully responsive. In October 2017 the list was cut to three and then two joined forces, leaving two for final evaluation. In early December 2017, the final review was held by the committee. And in Mid-December the committee met with the lead respondent who scored 4.4 out of five on the evaluation, a full point higher than its rival, and authorized the Board Chair to sign non-binding, exclusive Letter of Intent with GT USA, Wilmington.

GT USA, Wilmington was formed under Delaware laws, as a

The Al Noor Mosque during the Sharjah festival of lights, with the skyline of Sharjah City in the background.

CREDIT: Beautiful mosque.com

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The Chemours Edgemoor plant on the Delaware River, sold to the Port of Wilmington and to be developed as a greenfield container terminal by GT USA, Wilmington when they take control of the port.

100% subsidiary of Gulftainer Company Limited UAE. Important in the selection were the company's claims that it was established for over 40 years, it is the world's largest private and independent terminal operator and that an affiliate, GT USA, operates Canaveral Cargo Terminal at Port Canaveral, Florida.

Of equal importance was the acceptance of a 50-year lease in which DSPC continues to own the real property and GT USA Wilmington is expected to operate terminals to handle containers, break-bulk, bulk (dry and liquid), roll-on/roll-off but with no liquefied natural gas terminal.

The capital investment commitment is considerable. In the first 10 years GT USA Wilmington (GT) is committed to spend about $584 million. That involves $73 million to upgrade Port Wilmington; $411 million to build the Edgemoor terminal and $100 million for warehousing. A minimum capital investment guarantee for Wilmington is $100 million with $40 million in the first 2 years and an additional $20 million in warehousing in first 3 years.

At Edgemoor, GT is required to invest $250 million starting 12/31/2020 and have the greenfield container terminal operational by December 31 2023 – extended by 2 years if container cargo volume is less than 600,000 TEUs. In addition GT is responsible for Edgemoor Delaware River dredging at a cost of about $42 million.

Based on cargo volumes and periodic adjustments for inflation payments of approximately DSPC is to collect $6 million in year one in fees rising to approximately $13 million by year 10 with no continuing financial support from DSPC and or the State of Delaware for operating and capital expenditures.

Separately, the International Longshore Association is assured Wilmington Port will be an ILA-exclusive facility. Use of existing unionized labor workforce will be in accord with applicable collective bargaining agreements while it agrees to offer employment to all other DSPC employees at substantially similar compensation for not less than six months.

Ticking All the Boxes

The DSPC Board recommended approval of the deal to the Delaware General Assembly which approval of concurrent resolution authorizing the transaction. Meanwhile the Federal Committee on Foreign Investment in the US (CFIUS) and Federal Maritime Commission approved the transaction. And on July 18, 2018 the Associated Press reported that Delaware Gov. John Carney said the federal government's sign-off from the Committee on Foreign Investment in the United States means the final terms of the agreement now must be ratified by the port's quasi-public operating board, the DSPC, to finish the deal.

"With Gulftainer's proposal, we have an opportunity to develop the overall infrastructure and potential of the port, which can lead to a direct and significant impact on our economy as a whole," said Delaware Governor John Carney. "We hope to see significant impact to the state's revenue stream with the planned injection of $580 million investment into the cargo facilities within the city of Wilmington. This massive infrastructure upgrade will have a knock-on effect to the logistics sector of the entire East coast. It is also exciting to see that Gulftainer's proposal included a plan to establish a marine training institute to boost local career aspirations in maritime industry and port operations."

Badr Jafar, Chairman of Gulftainer's Executive Board, said in prepared statement: "For over 40 years, and as the oldest container operator in the Arab Gulf Region, Gulftainer has been at the forefront of transforming port and logistics operations across four continents. We are honored and excited to extend this experience and capabilities to the Port of Wilmington, as we continue to pursue a strong growth trajectory in the U.S."

The Author

Rick Eyerdam
is a Miami-based, national award-winning journalist and editor. He is a former editor of Florida Shipper Magazine and has served as an adjunct professor of communications at Florida International University. Eyerdam graduated from Florida State University with a double major in English Literature and Government. His articles have appeared in myriad maritime publications.


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Two Royal Fleet Auxiliary vessels docked at the Outer Coaling Pier and the Deep Water Berth, with Queen's Pier in the background.

CREDIT: Portland Port

Intermarine UK Investment Boosts Portland Port Activities

UK-based Portland Port leverages new fabrication and welding facility to win a bigger share of ship repair, refit, conversion and shipbuilding markets.

By Tom Mulligan

Polish-owned maritime engineering company Intermarine UK has unveiled major growth plans after investing a six-figure sum in a new 2,400 square meter (26,000 sq ft) fabrication and welding facility at Portland Port in Dorset, UK. The move will create up to 60 new jobs in the area over the next two years. Along the way, the company has signed a 20-year lease and moved its UK head office from Bridgend to Portland Port, a former naval base and the third-largest man-made harbor in the world.

Ship repair operations at the new facility started in March, and Intermarine UK is looking to work with shipyards around the UK to offer a range of engineering services to the ship repair, refit, conversion and shipbuilding markets. Intermarine UK is now ramping up operations at the new facility after taking delivery of £450,000 ($600,000) worth of new machinery.

"We are delighted to receive all our equipment on-site and start the training and commissioning process with our workforce," said Inter Marine Group President Slawomir Kalicki. "We are investing substantially in our new facility, taking a long-term view reflected in the 20-year lease we have signed. Intermarine UK is pleased to start employing workers from the southwest of England region and we are recruiting for more multi-skilled engineers who have competence across plating, welding and mechanical fitting. We urge anyone in the area with this skill set to get in contact."

NEW ORDERS WON

Kalicki said the new Portland operation had already won orders that include a £600,000 ($800,000) deal to supply piping and combing equipment to a major British shipyard.

"We have further been encouraged by the support we have received from the local authority and UK Government which understand our vision and our desire to invest in the UK, creating jobs and providing skills," added Kalicki. "We have a clear track record in the UK maritime sector we want to build on, working on projects such as the Queen Elizabeth class aircraft carrier program. We have further worked with some of the prime movers in the industry, including Babcock, Cammell Laird, BAE Systems, Ferguson Marine Engineering and CalMac. We believe there is strong demand in the market for our services."

Kalicki said the new facility was also launching a new spare parts service from Portland Port offering Wartsila, Cegielski, Sulzer, MAN, B&W and Cummins engines, Hydroster IMO pumps, Alfa Laval and Westfalia separators, and ABB and Napier and WSK turbochargers, as well as marine laundry equipment made by Primus and Lavamac.

'HUGE' POTENTIAL

"We see huge potential in Portland Port as one of the best-located ports in Britain," he said. "It sits on pole position for naval and commercial shipping operating on the south coast of England and the English Channel. Our aim is to complement the range of maritime services already available at the port by offering more extensive ship repair facilities, encouraging shipowners to use Portland Port for afloat repairs."

Portland Port CEO Bill Reeves stated that Intermarine UK's new facility would strengthen Portland Port's operations. "It is great news for Portland Port and the local economy that the Inter Marine Group has decided to base its UK headquarters in Portland," he said, adding quickly, "There are exciting new job opportunities being offered by Intermarine UK, with more to come as it becomes established. We wish the company every success with their new venture and look forward to a long, productive working relationship with its team. Intermarine has shown considerable commitment by investing in new machinery in their facility and their presence enhances the range of services available in the port. We look forward to working with them as they establish themselves on the port and develop their business."

Reeves continued, "The arrival of Intermarine UK is a very welcome addition to the port. They are proactive and very professional, and are a good cultural fit. Intermarine UK and Manor Marine are now the two companies based on Portland Port that specialize in shipbuilding and ship modification and repair, and because they are primarily focused on different sectors and operate on different scales, their activities are largely complementary to each other."

CREDIT: Portland Port

Bill Reeves, CEO of Portland Port [front row, left] and Slawomir Kalicki, Group President of InterMarine, Bill Reeves, CEO of Portland Port (front row, left), and Slawomir Kalicki, Group President of Inter Marine Sp. z o.o., with members of their teams at the signing of their companies' agreement establishing Intermarine UK's welding and fabrication facility at Portland Port.

PROSPECTIVE CLIENTS

Reeves stated that Portland Port was looking for more infrastructure projects and was in discussions with several prospective clients. "Over the past three years we have invested £10 million (about $13.4 million) in infrastructure improvements, including a berth extension, a new tug, and major road improvements. In the next two years, we are planning to spend an additional £7 million (about $9.38 million), including dredging and other berth enhancements. And although we have not received any financial support from the UK Government, we do have excellent relationships with, and the backing of, our local authority officers and councillors, and of our local Member of Parliament.

"We have the capacity to develop more land, and to take more shipping volume and are in discussions with a number of potential project clients which together would see about 60,000 square meters (645,000 sq ft) of land developed, bringing in a significant additional volume of shipping movements. Over the next five years, we aim to reach and exceed one million tonnes per annum of cargo movements and have 50 cruise calls in the port, increasing our turnover by about 50 percent. Cruise-line day visits are

an important part of the port's business and we have seen a steady increase in calls over the past three years from 17 in 2016 to 26 in 2017 and 32 in 2018, with 45 calls booked for 2019.

"Our overall strategy is to use the port's significant advantages of deep water, low tidal range, excellent breakwater shelter and proximity to the channel shipping lanes to attract customers that will build storage capacity on port land for dry and liquid bulk operations. This will support our goal of handling one million tonnes of cargo per year by 2023 and increasing our turnover."

PORT ACTIVITIES

More commerce isn't just coming: it is already here. For example, and in terms of large-scale companies and activities at Portland Port, Global Marine has an operational base with storage facilities and a dedicated berth for power and telecoms cable-laying. Glencore has a large warehouse complex supporting its animal feed import activities and its exports of grain. Portland Bunkers operates a marine fuel terminal in partnership with Danish company Monjasa to provide a bunkering service for a wide range of vessels passing through the channel, while Spanish company Dragon Alfa has a storage facility through which it imports powdered cement.

The port is also the base for two thriving aquaculture companies, Portland Shellfish and Native Marine. Portland Shellfish provides fresh shellfish for the UK and export markets and supplies some of the best-known restaurants in London while Native Marine grows lump sucker fish for use in salmon farms in Scotland.

Portland Port also has a long-term commercial relationship with the UK Ministry of Defence and is frequently used by the Royal Fleet Auxiliary and the Royal Navy, with usually at least one gray ship in harbor most weeks.

"We have strengthened the port's core operational staff to ensure that we continue to provide a consistent and professional service as the port grows and develops," Reeves stated. "Unlike many other ports, we have our own pilots and tugs, which gives us greater flexibility. We have also built strong and constructive relationships with the local planning authorities and relevant regulatory bodies.

"The combination of excellent shelter, deep water, low tidal range and proximity to the main shipping lanes in the English Channel make the port an obvious choice for damage or reclassification surveys," he added. "We are also able to offer hull-cleaning services as well as commercial diving and this, together with the survey work and the bunkering operations, make the port a 'one-stop-shop' for a range of marine services.

"Leisure activities are well represented in the harbor, which is home for the National Sailing Academy and the Dean & Reddyhoff Marina, as well as for a number of sailing clubs. In good weather, the harbor is very busy with sailing regattas, canoeing, windsurfing and kitesurfing," Reeves said.

Meet Bill Reeves, *CEO of Portland Port*

Bill Reeves is a Member of the Institution of Engineering and Technology (MIET) and holds a BSc in Electrical and Electronic Engineering from University of Manchester Institute of Science & Technology (UMIST). He has had a 30-year career in corporate management that includes senior positions with Imperial Chemical Industries, General Electric Company and Alstom, with job functions ranging from roles in project management to running multi-site businesses having up to £150 million ($200 million) in sales and employing 1,400 staff.He subsequently spent 16 years as an independent consultant specializing in managing and guiding businesses through major change programs. He has worked with all the major UK banks and accounting advisory firms across a wide range of sectors including manufacturing, chemicals, contracting, engineering, transportation, leisure, logistics, printing, IT, health care and retailing. He is a Fellow of the Institute for Turnaround (FIFT).Reeves joined Portland Port in 2015 with a brief to develop the business to its full potential. In the past three years, the company's shareholders have invested £10 million (about $13.4 million) in equipment and infrastructure improvements and are set to spend an additional £7 million (about $9.38 million) over the next two years in further enhancements. During the initial three-year investment period, cargo handling volumes at Portland Port more than doubled, as did the number of cruise calls.

FUTURE VISION

"My vision for the future for the port is to develop the business to maximize the use of our land and marine facilities through building strong and mutually beneficial relationships with a broad range of customers. By doing that we will secure long-term profitability for the business and deliver value for our shareholders. I want the port to be recognized by our customers as a responsive and professional service provider, by our staff as a supportive employer, by the regulatory authorities as a responsible operator, and by our local stakeholders as a good neighbour," Reeves concluded.

The Author **Tom Mulligan**

is a maritime, science and technology writer based in Ireland.

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OLMSTEAD ONLINE

In 1921, Thomas Edison told Forbes magazine, "I have not failed. I've just found 10,000 ways that won't work." He could have been talking about Olmsted. That's because, after more than 30 years of frustratingly slow progress, cost overruns and more than a few mistakes, Olmsted is finally poised for success. That's something to celebrate.

By Tom Ewing

It is official:

The U.S. Army Corp of Engineers (USACE) wants Olmsted operational by October. And, not a moment too soon. After more than 30 years, the ribbon cutting to officially open the Olmsted Locks and Dam will take place on August 29. The very old (1929) upstream locks and dams – Nos. 52 and 53, which Olmsted is replacing – will be dismantled by December 2020. Before that happens, Olmsted's performance will be tested and confirmed. On the Ohio River at Olmsted, IL, about 10 miles north of Cairo, IL, where the mighty Ohio flows into the mighty Mississippi, this crucial piece of American infrastructure is finally almost in place.

Just about everyone involved with Olmsted, with stakeholders spanning four decades across the breadth of the USACE to members of Congress and commercial maritime operators, all likely welcome this news with the same response: *It's about time.*

The Agony of Olmsted

To say that the 2,596-foot Olmsted dam is situated on a vital section of the Nation's inland waterways would not give full weight to the importance of this critical infrastructure. Barge traffic moving between the Mississippi River system and the Ohio, Tennessee, and Cumberland rivers must pass through this stretch of the Ohio. The tonnage passing through this section, over 90 million tons annually, exceeds every other section of America's inland navigation system. Olmsted isn't just about critical transportation – its operations are integral to the entire Midwest economy.

Most people whose business is aligned with waterways issues are only too familiar with Olmsted's endless challenges. To summarize (based on a 2017 GAO "Report to Congressional Committees"), Olmsted was first authorized within the Water Resources Development Act (WRDA) of 1988 at

CREDIT: USACE

a cost of $775 million, with construction estimated to take seven years. An appropriation for construction was first made in 1990 but the Corps did not award money for a construction project until 2004 – 14 years later. The 1990s were given over to technical analytical work regarding a construction method – evaluating the more traditional "in-the-dry" method, using cofferdams which block the flow of water around a site, versus a newer, but less familiar "in-the-wet" method, more difficult but promising more flexibility and a lower final cost. 'In-the-wet' was chosen in 1997, and a new construction estimate was arrived at: six years. But, even the in-the-wet decision didn't deliver much certainty. It was repeatedly re-examined, even as late as 2012 – eight years after initial project funding.

Contracts were also a challenge. In 2002, the Corps requested proposals for construction as a firm fixed-price, but received no offers, because according to subsequent Corps' analysis, the construction method was innovative, the river conditions were too risky, and a potential contractor could not get bonding.

In 2003, the Corps offered a cost-reimbursement contract, receiving two offers. In 2004 – sixteen years after authorization – a contract was awarded to Washington Group/Alberici (WGA) Joint Venture. The winning proposal was $564 mil-

lion. Still another new construction estimate (8 years) was arrived at. Nevertheless, the project continued to flounder.

In 2006 and again in 2011, new baseline estimates projected cost increases – by $81.6 million in 2006 and by a whopping $551.1 million in 2011 and increased the construction schedule by 4 to 5 years. There were many reasons, some surely external to the project. And, everyone had an excuse. The 2005 hurricane season, for example, which included Katrina and Rita, created a scarcity of barges and cranes when the contractor was trying to mobilize equipment and barge prices doubled. From 2002 to 2007, fabricated steel prices increased about 300 percent, cement 90 percent, riprap by 100 to 200 percent and fuel about 300 percent. Insurance and bonding costs went up about 230 percent.

Fundamentally, it was the numerous and unknown struggles with in-the-wet construction that checked early project momentum. The dam portion of the project, for example, included pre-cast concrete shells, building blocks weighing up to 5000 tons each, moved from a fabrication site, via a rail sled, to a catamaran crane barge – the largest in the world – and then moved upriver, and lined up at a 30-foot depth across the river bottom, an underwater task demanding ¼ inch tolerances.

In many ways, the Olmsted project was remarkable; arguably the civil engineering equivalent to the Manhattan project. Nothing was off the shelf, just about everything had to be invented and developed, from computer modeling to the barge mounted crane that will lift 140 steel wickets attached to the top of the underwater shells. In every aspect, Olmsted demanded an extensive and expensive learning curve.

Angst on the Hill

Naturally, Olmsted's challenges attracted Congress' attention. In 2012, it was clear that Olmsted would exceed its maximum authorized cost. The Corps prepared a PACR – a "post authorization change report," seeking to increase the authorized cost to $2.918 billion, approved by Congress in 2014. There were many related funding issues. Olmsted was gobbling up all of the money in the Waterways Trust Fund; leaving very little for other critical projects. Congress' 2014 legislation limited how much Trust Fund money could go to Olmsted, from a 50% Fund share to 25% and then to 15%.

Critically, Congress also declared that Olmsted should get no less than $150 million/year until it was finished. These

Figure 1: Location of the Olmsted Locks and Dam Project

Sources: U.S. Army Corps of Engineers (information); Map Resources (map). | GAO-17-147

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The opening of Olmsted will represent true modernization on the inland waterways and will provide reliability and operational consistency that commercial carriers and shippers have waited a long time for.

– Deb Calhoun,
Senior Vice President, Waterways Council, Inc.

funding and policy shifts paid off. Work on Olmsted had been plagued by unpredictable and intermittent funding – sometimes work was deliberately slowed or delayed because of money issues. Once predictability was set, the project's schedule smoothed out. Since the 2012 PACR, the Corps points out that Olmsted has stayed within the time and budget constraints of this critical reset. The PACR ceiling was $3,099,000,000. The 2016 total estimated cost: $3,059,266,000.

Around the Next Bend in the River

After 30 years, project fatigue finally shifts to the rear-view mirror. The upcoming ribbon cutting isn't a wake – it's a beginning. Olmsted means action – and for inland waterways operators Olmsted is major league.

The Corps estimates that Olmsted will produce average annual national economic benefits of more than $640 million. Operation and maintenance costs will be reduced. New locks mean fewer delays, which raise prices. Olmsted's two 1200 x 110-foot locks will eliminate transit double-locking. Most tows on the Ohio – a towboat and 15 barges – measure 1150 feet by 105. Now, these sets will not have to break up and refleet. Lockage time will drop to less than an hour, compared to five hours through Locks and Dams 52 and 53 (when they work and often, they do not at precisely the wrong moment).

In 2017, for example, the late year infrastructure failure(s) at Lock 52 was unquestionably one of the biggest stories of the year for the domestic waterfront. At one point in the crisis, average delays of 65+ hours were being experienced by a queue 58 vessels and 658 barges waiting their turn. Another unscheduled maintenance issue saw Lock and Dam 52 closed for almost nine days in September. Hence, if time is money, Olmsted is sound currency.

Catharsis

In late July, the Waterways Council, Inc. (WCI) arranged for its members and the press to visit the Olmsted site. Stakeholders from all spectrums and who collectively depend on river

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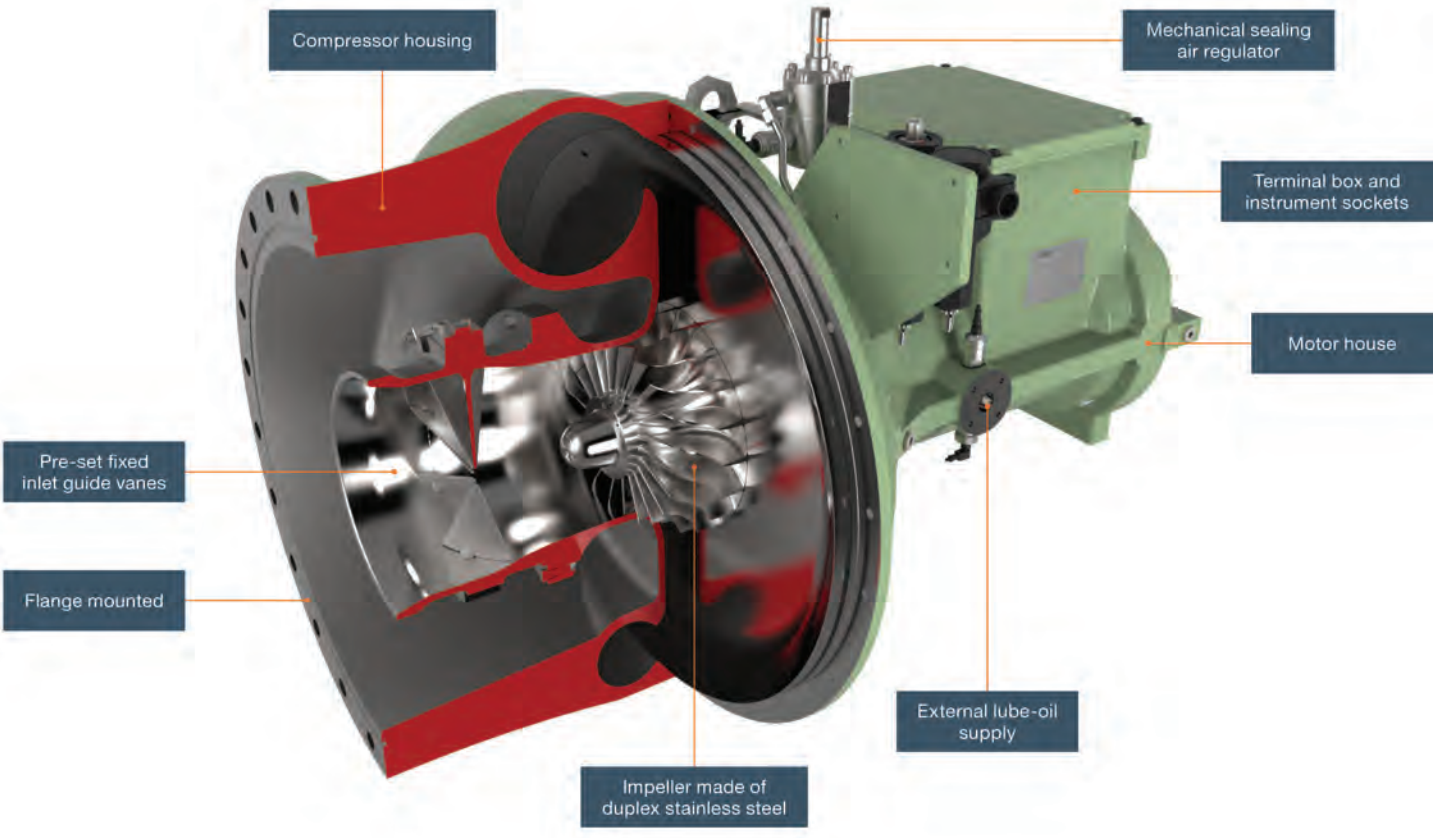

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transport spoke to the importance of Olmsted finally coming on line. Deb Calhoun is Senior Vice President for WCI and she perhaps said it best when she said, "The opening of Olmsted will represent true modernization on the inland waterways and will provide reliability and operational consistency that commercial carriers and shippers have waited a long time for."

Reliability and consistency are highlighted, repeatedly, by WCI members. Dan Mecklenborg is Senior Vice President and Chief Legal Officer and Secretary at Ingram Barge Company and a member of the Corps' advisory Inland Waterways Users Board. Mecklenborg commented that lockage at Lock 52 now takes an hour – "if it's working." He expects Olmsted lockage to drop to "a reliable 30 minutes. Reliable," he stressed again, adding that Olmsted is "important for Ingram and strategic for the country."

Separately, Illinois-based Garry Niemeyer is President of the National Corn Growers Association. Niemeyer presents a concise cost-benefit summary: He pays $0.40/bushel to ship corn via barge. Via train? $0.80. And, even worse via (environmentally inferior) trucks: $4.00.

Matt Ricketts is President and CEO of Crounse Corporation, based in Paducah, KY, close to the Olmsted site. Ricketts, also a member of the Inland Waterways Users Board, now deems Olmsted a success story – but links that compliment to the 2012 funding and policy reset that allowed the Corps to stay focused with the necessary funding to get the job done. "This gave the Corp a lot of certainty," Ricketts commented, "it can't be stated enough. After the new cost sharing agreements in 2012, the Corps delivered on schedule and below budget. Everyone is well served by that." Ricketts said that Olmsted removes logistical uncertainties. "If Olmsted performs well," he said, "that will de-risk that area of the river."

Lessons Learned

What are the lessons learned from Olmsted? That's perhaps the most common question that always arises from any Olmsted review and discussion. In fact, and as part of the Water Resources Reform and Development Act (WRRDA) of 2014, Congress required the Corps to develop a Lessons Learned report. It's an extensive document, divided into three broad sections that span the topics of Dam Design Considerations, Dam Contracting & Acquisition and, of course, Dam Construction.

Future projects, says the USACE, need to evaluate the risk of "less than optimum or uncertain funding" and impacts on innovative construction methods. Olmsted's current leadership stressed again and again that US lawmakers must adopt predictable financing to pay for mega-projects like Olmsted. Stop-and-start funding does not work. That's because unrealistic estimates resulted in inaccurate costs and overly optimistic schedules which ultimately provided poorly reflected project risk.

Moreover, the USACE recommends working with the Corps' Walla Walla Cost Engineering Center of Expertise to develop, sooner not later, dependable costs and timelines. Changes to final design need input from contractors. Plans developed by government architects and engineers had little input from contractors and changes led to delays and cost increases. To that end, projects expected to take more than five years need an annual review to monitor:

- *Staffing turnover and loss of 'historical knowledge.' Managers need to "build the bench behind them and sustain technical competency."*
- *Changes in regulations/requirements (safety manuals, environmental requirements, technical regulations, security requirements, etc.)*
- *Outdated technology and possible requirements for updates. Olmsted is newly complete, but this 'new' project starts with some equipment and material that is already 15-20 years old.*

During the recent question and answer session at Olmsted, USACE and contractor personnel, justifiably, were proud to describe Olmsted's completion. Martin Hettel, VP Government Affairs for American Commercial Barge Line, and Chairman of the Inland Waterways Users Board, was also part of the Q&A panel. That Board worked closely with the Corps to advance Olmsted, particularly regarding Congressional activity.

Hettel also complimented the final rounds of commitment and hard work. But he added a reminder: Olmsted is part of a larger waterways system, now in serious disrepair, partly because Olmsted gobbled up all waterways funding. The Corps and Congress shouldn't cite Olmsted's success and then pull back on waterways commitments. Olmsted's benefits, Hettel emphasized, will not be maximized until the larger system works at full potential.

The most important lesson learned? That comes down to lessons applied on future projects. And, as much scrutiny as Olmsted (justifiably) received, it is all but certain that the next project will be watched just as closely to ensure that 'lessons learned translate into efficiencies earned.' On an inland river system that promises countless uncertainties lurking around every bend, that's one lesson stakeholders can take straight to the bank.

The Author

Tom Ewing

is a freelance writer specializing in energy, environmental and related regulatory issues.

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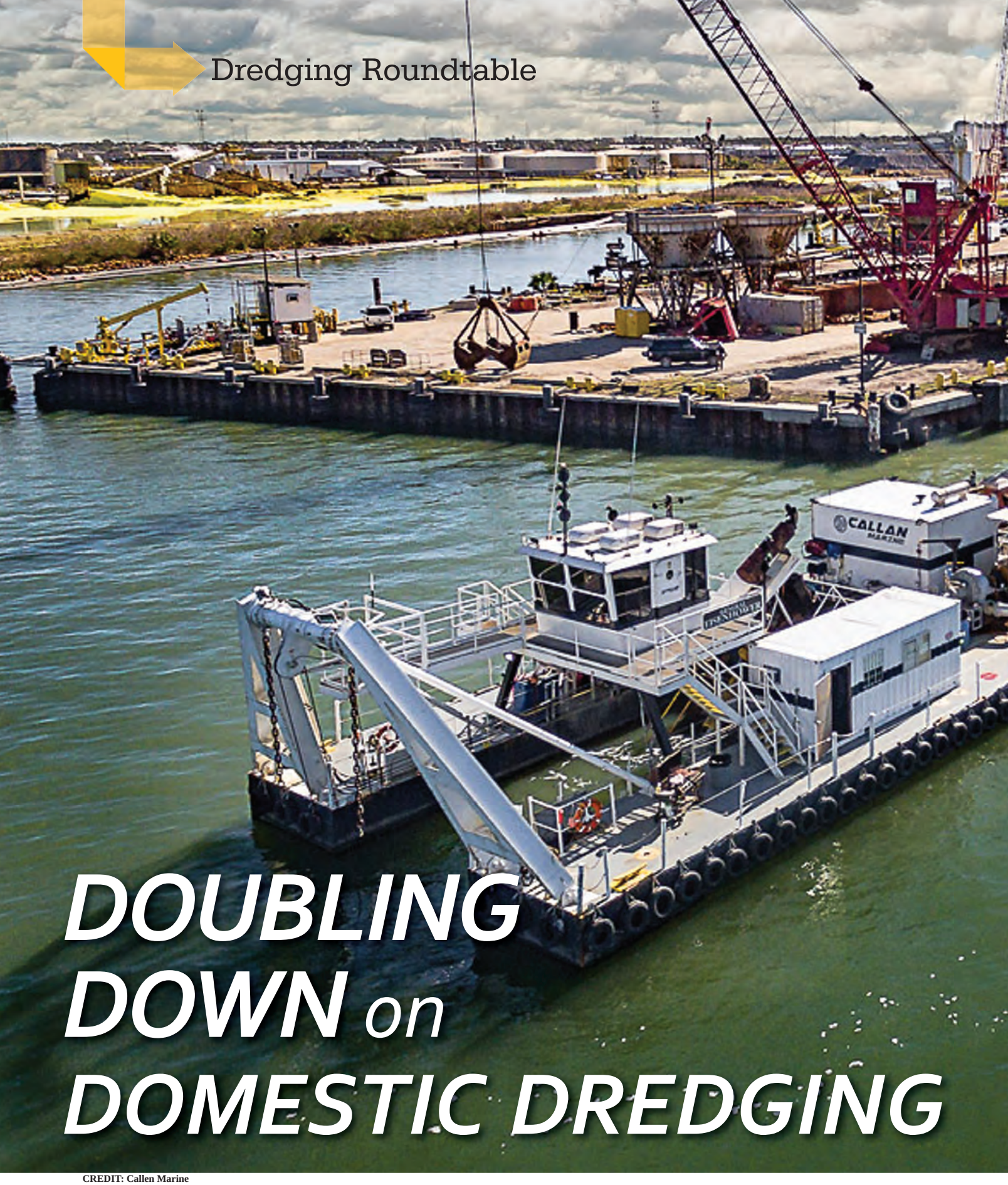

DOUBLING DOWN on DOMESTIC DREDGING

CREDIT: Callen Marine

U.S. Dredgers Weigh in on Infrastructure, U.S. Capabilities and the road ahead.

Jay Cashman,
Founder and Chairman of the Board at Cashman Dredging

Maxie McGuire,
President of Callan Marine, LTD

Eric Ellefsen,
President of Weeks Marine, Inc.

Domestic dredging firms face many challenges in the coming months and years. At the same time, opportunities abound in a market and political climate that seems to beg for infrastructure upgrades, especially when it comes to harbors and inland waterways. Weighing in this edition on all of that – and more – are three U.S.-based dredging firms; Callan Marine, Cashman Dredging, and Weeks Marine.

Cranford, NJ-based Weeks Marine, Inc. (WMI) is a family-owned company with roots on the New York City waterfront extending back to 1919. Today, WMI has offices and repair yards in the North Atlantic, Gulf of Mexico, Hawaii, and Ontario, Canada. Eric Ellefsen is the President of Weeks. The company has three key divisions – Construction, Dredging and Marine Services – as well as two major subsidiaries, Healy Tibbitts Builders, Inc. and McNally International, Inc.

Jay Cashman is the Founder and chairman of the board at Cashman Dredging. Cashman Dredging's history dates back to the late 1800s. Over time, the company has evolved and began performing marine construction in the 1970s after the Blizzard of '78 destroyed seawalls and jetties throughout New England. Soon, Cashman was performing multi-million dollar projects such as construction of a new marine facility for the Martha's Vineyard Steamship Authority. Today, Cashman Dredging and Marine Contracting provide an array of integrated solutions ranging from navigational, maintenance and environmental dredging, to pond and industrial dredging.

Maxie McGuire is President of Callan Marine, LTD. This Texas-based and family-owned dredging business was founded in 2009. Callan Marine performs dredging projects for both private and public clients by providing services to restore berthing depths for ship docks and navigation channels. This year, Callan is partnering with Great Lakes Dredge & Dock Corporation on the San Jacinto River in Houston, TX. Through the ongoing construction of the *General MacArthur*, Callan Marine will enter into the large dredging market in the areas of major waterways, beach reclamation, and wetland restoration. Separately, the recent acquisition of Bean Coastal and their management team will allow Callan Marine to continue its penetration into the dredging industry, as it establishes new standards for efficiency and effectiveness.

Listen in as the voices of the U.S. dredging industry weigh in on the most pressing issues of the day:

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Dredging Roundtable

Does the United States today have the collective dredging capacity to accomplish all of the maintenance dredging and the increasing number of deepening projects that are being started in the response to the Panama Canal Expansion?

JAY CASHMAN: Yes, we do. The dredging industry is continuously building vessels and equipment. We keep up with demand.

CREDIT: William Doyle, DCA

MAXIE MCGUIRE: Yes, there is adequate fleet capacity as well as a significant amount of new builds in progress and recently entering the market due to the increase in funding for our nation's infrastructure investments. We're able to make investment decisions that will carry based on a level of certainty that we are comfortable with.

ERIC ELLEFSEN: The U.S. industry has proven it is large enough to complete all of the Nation's maintenance dredging and new work dredging in our ship channels. Land reclamation, mostly shore protection on the beaches, has also been a growth market that the industry continues to respond to. In fact, navigation interests will benefit from the ongoing industry investment to better serve the reclamation market. There will always be either unforeseen, or unprepared for, challenges that might produce a short-term hopper dredge shortage on occasion. In the winter, when every entrance channel in the South Atlantic must be maintained over a four-month period due to an environmental window, coupled with a simultaneous rise in the Mississippi River, sometimes puts a little stress on the hopper dredging sector. However, industry works closely with the Army Corps of Engineers (Corps) to mobilize dredges from other projects to address these national needs. Today, the Corps Ready Reserve dredge Wheeler supplies that fire truck response in the Lower Mississippi. In the future, we believe the Corps could save money by using a private sector solution; for example, using a proven ready reserve approach. We are working with the Corps and other interested parties on an industry first solution.

What's your fleet renewal strategy and are you planning any newbuilds in the near term? Tell us about your newest assets and what's coming next.

MM: We are currently building a large market cutter suction dredge, the General MacArthur, for new work, land reclamation, beach renourishment, and maintenance dredging. It is expected to be commissioned in Q2-Q3 2019. Our

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other assets are new, as well, dating back to 2018, 2017, and 2009 respectively. The General MacArthur is currently under construction at C&C shipyard in Louisiana.

EE: Weeks has been making major investments over the last decade, both in dredging vessels and all the support equipment necessary to perform major dredging projects. Ancillary equipment, including boosters, barges, boats and miles of discharge pipeline are an essential component of any dredging operation. Every Weeks dredge makes use of advanced automation, and ever more powerful and fuel-efficient engines to drive both propulsion and pumps. Our newest hopper dredge, MAGDALEN, just went to work on the Atlantic Coast this year (2018). She was built in Eastern Shipyard, Panama City, FL, and is the size of our two existing hopper dredges combined. She is fast, shallow draft, and can pump out over long distances, thereby reducing the need for booster pumps. We are very happy with her early performance and look forward to seeing all that she will do the years ahead. Both the modernized and highly automated BE Lindhom and RN Weeks will continue to be an important part of our workhorse hopper dredge fleet. We are also building another large sea-going pipeline dredge at C&C Marine in Belle Chase, LA. While Weeks has a large fleet of cutter suction dredges, the JS Chatry will be the most advanced. In July 2012, the CR McCaskill entered our ocean-going cutter suction pipeline dredge fleet. For the last six years, she has been working almost non-stop on projects around the country. The Chatry builds on the capabilities built into the McCaskill and will join our fleet sometime next year.

JC: We recently completed major upgrades to our fleet. We are finishing design plans on a new 5,000 cubic yard hopper dredge. We intend to begin construction on the first of two 5000 cubic yard hopper dredges in the spring of 2019. We've already begun machinery acquisition and started the procurement process for long lead-time equipment.

The use, placement and disposal of dredge materials can be a hot issue. Often, that decision has been made during the pre-project EIA and is out of your hands. How, if at all does a commercial dredger get involved in these issues?

EE: Controversies over the placement of dredged material have lessened over the years as the agencies have become more comfortable with beneficial uses of dredged material for environmental enhancement or restoration. The use of sediment beneficially, including the placement of beach quality sand, has had a dramatic impact on our capital investments over the last 20 years. In a competitive market, we have put more power on the dredge and booster pumps and significantly enhanced the capabilities of our fleet of support equipment. These more complicated projects also require more highly trained surveyors and heavy equipment operators at the placement site.

We do not usually get involved in the project planning process. However, if an agency or engineering firm wants to know whether their plan is buildable, or the relative costs of various placement alternatives, they will often call our estimators for advice. We want to help find solutions that work for everyone.

MM: We have relationships with our clients, engineers, and the permitting agencies, so we try to help our customers with education and planning so they are prepared when the time comes to execute their projects.

Describe your fleet and operational equipment mix. Do you specialize in one form or dredging over another?

JC: Cashman is the premier bucket and environmental dredging company in the United States. We have bucket dredge sizes of 4 yards to 50 yards; 2 backhoe dredges of 5 yards to 18 yards; 1 hopper dredge; and five environmental bucket dredges. We're proud to have completed the largest

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environmental remediation dredging project in U.S. History – the Upper Hudson River PCB remediation project for GE. Aside from environmental, Cashman does all types of dredging including navigation (Arthur Kill Channel for access to Port of NYNJ), beach renourishment (Florida) and pond & industrial work (Maryland).

MM: We own 3 small cutter suction dredges (General Pershing (18", 1,565hp), General Patton (16", 3,000hp), and General Eisenhower (12", 1,500hp), sized 18", 16", and 12". Our dredges have the capability to dredge to 56' and have dual dredge pumps for maximizing efficiency. We specialize in deep draft ship dock dredging; both new work and maintenance.

What is the most pressing issue on your plate during this calendar year?

MM: Given the very low unemployment rate, recruiting is a big issue.

JC: We are always looking to innovate at Cashman. We recently developed and presented to industry the Scow Geofence System (SGS). Out split-hull scows will not dump unless they are within the predetermined geofenced ocean disposal area. That's something we've just completed. What comes next is even bigger as we turn our attention to hopper dredge design and construction.

The USACE performs a good portion of U.S. dredging, yet the private sector is a critical part of the overall equation. Where do your projects emanate from – government or commercial?

JC: It's really a combination of all types of dredging depending on the year. For instance, we just kicked off the second phase of the Boston Harbor deepening project and we're using the largest crane and bucket dredge combination in North America. We're also working on the Flushing Bay dredging project cleaning out the southern portion of the East River for the New York City Department of Environmental Protection. We do it all.

MM: Our work is a mixture of government and private work, with private being approximately 75% of our work this year. In 2019, that will shift to a 75% government share, given the size and production capacity of the General MacArthur.

CREDIT: Weeks

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Alphabet Soup

Emissions Monitoring and Reporting means ECA's, EPA VGP, EU MRV's, IMO-DCS, RO's, SEEMP – and You. Fear not: the daunting acronyms can all be managed by employing the right technology.

By John Hathaway

In the past decade, shipowners have faced a raft of new regulations aimed at reducing the pollution from their ships, whether in new environmentally sensitive emis¬sions control areas (ECA) or on the open seas that serve as the primary conduit for 90% of global trade. Limits on sulphur emissions within ECAs such as the Baltic and North seas have been in effect since 2005, and this year the European Union began mandatory monitoring, report¬ing and verification (MRV) of CO2 emissions for all ships over 5,000 GT calling at ports in Europe, including Norway and Iceland.

All of these initiatives have increased to varying degrees the fuel-management challenges and operational costs for shipowners. But perhaps the most ambitious emissions-reduction campaign – at least in scale – will begin with monitoring activities in six short months (January 1, 2019) with the global rollout of the IMO's Data Collection System (IMO-DCS).

Sorting Out the Acronyms

Like the EU MRV, adherence to the IMO regulation is mandatory and is targeted at ships above 5,000GT. Unlike the EU's regional initiative, the IMO DCS is a global regulation. Each scheme imposes different monitoring, reporting and verification requirements. For example, the data from the EU plan's needs to be reported annually to the European Commission (with reports verified by recognized organizations [RO], such as ABS); while the IMO requires their reports to be submitted to the ships' administration or the RO, who then submits them to the IMO database.

Beginning January 1, the IMO-DCS will require ship-owners to present a documented plan to monitor CO2 emissions; they also will need to update their Ship Energy Efficiency Management Plan (SEEMP), an IMO-driven operational mechanism to improve a ship's energy efficiency, to document how they intend to collect and process the data collected, including for fuel consumption, hours underway and distance travelled.

A summary of the differences between the EU and IMO schemes can be seen in the table below.

EU MRV	IMO DCS
Monitoring started on January 1, 2018	Monitoring to start on January 1, 2019
Monitoring plans and emission reports using EC electronic templates	SEEMP amendments to include the data collection and reporting methodology
Reporting of additional information, such as cargo carried, emissions while at berth, total transport work and average energy efficiency	Reporting of fuel consumption, hours underway and distance travelled
Data verification by companies recognized by the European national accreditation bodies.	Data verification by the Administration or R.O.s
Detailed verification activities based on principles of ISO14064 part 3, similar to the one applied in the EU Emissions Trading System (ETS)	Verification activities as defined by the Administrations, taking under consideration the IMO Guidelines
Data will be transferred and stored into THETIS MRV, an automated EU information system	Data will be transferred and stored into an IMO database for further analysis in support of ongoing IMO decisions
By June 30th each year, the EC will make publicly available the information of ship's CO2 emissions and other relevant information.	Identification of a specific ship and Administration will not be possible. Parties shall have access to the anonymized data strictly for their analysis and consideration.

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Data-Collection Challenges

It should come as no surprise that maritime emissions-reduction and other environmental initiatives are increasing the demand for new tools and resources that help crews to accurately collect, collate and report data in a way that adds as little as possible to daily business activities.

If shipowners lack an efficient data-management system for regulatory reporting, their crews will have to populate and maintain multiple spreadsheets for the IMO DCS, EU MRV, ECAs, voyage management, etc, adding to their already considerable workloads. And, no one wants that.

They require an easy-to-use tool that supports the collection and integration of all the required information as a part of day-to-day activities. One such tool is ABS Nautical Solutions' (NS) Voyage Manager software. NS Voyage Manager is a cloud-based, subscription application that supports daily activities and compliance with a range of environmental regulations, including those governing ECAs, the EU MRV and IMO-DCS.

The software integrates the data collected for noon reports – and in tandem with the optional NS AutoLogger, a secure, marine-grade appliance in the NS database – automates and simplifies the compliance-reporting process. (NS AutoLogger captures data directly from sensors and ship systems to improve data accuracy).

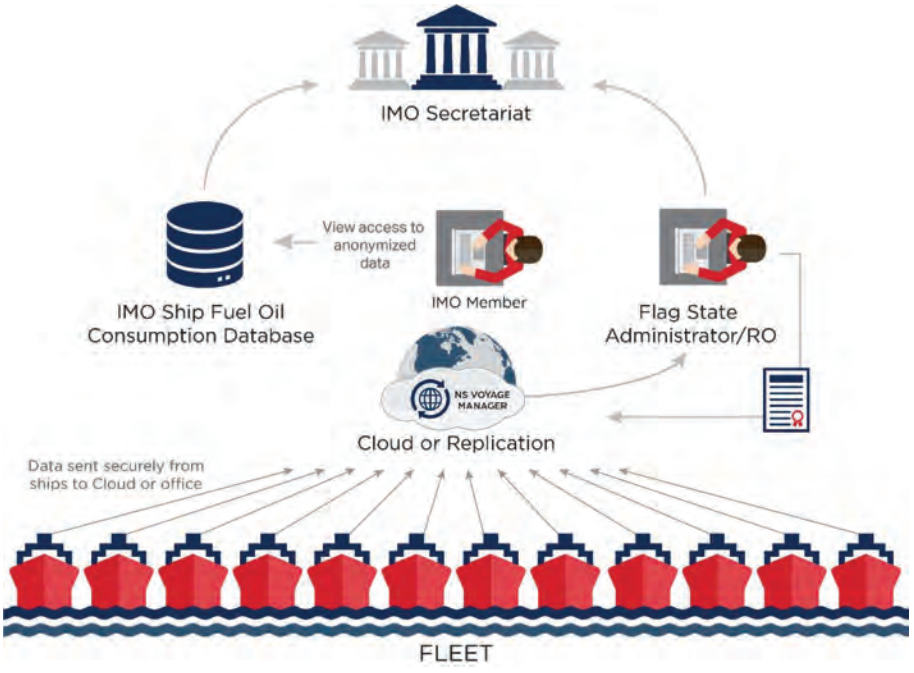
NS Voyage Manager also captures Bunker Delivery Notes (required for MRV compliance) and supports other environmental compliance activities, including Ballast Water Exchange, Fuel Switching (for ECA compliance), Garbage and Oil record books (for MARPOL reporting), and Vessel General Permit (for US EPA reporting). Any data captured can be expanded to support other operational activities, including performance management.

It also can be integrated with other NS software products to support non-fuel-related activities: integration with the NS Vessel Performance system module supports operational cost savings with benchmarking and analysis of vessel-performance data; integration with the NS Maintenance Manager can help to inform equipment, spaces and maintenance plans; integration with the NS Hull Manager for can help monitor structural conditions; and integration with the NS Crew Manager can gives operators a extensive view of voyage history and vessel status.

The VM module is flexible and can be expanded and customized to support any operator requirements and facilitates submission to third-party verifiers and regulators. In the course of a voyage there are events that influence fuel consumption that need to be documented for standard voyage reporting:

- ***Departure from dock***
- ***Shift to go full speed – sea buoying going full speed at middle ocean***
- ***Reaching the end of sea passage and maneuvering to come into port***
- ***Arrival at port***
- ***Stationed at port conducting cargo activities***

NS Voyage Manager has unique templates designed to capture key data for each event and their noon reports. Each template is configured to match the way customers use the software, which includes the minimum amount of information on fuel consumption that is needed for EU MRV and IMO DCS declarations. The crew uses the templates to fill out normal voyage-reporting events that they record as standard daily activities and, in doing so, capture the data that is necessary for MRV and IMO DCS reporting.



Aggregating Data: just one reporting platform

Mandatory emissions monitoring for the EU MRV has been in place since the beginning of this year (January 1, 2018), so many ships trading globally already have a plan in place to comply with the European regulation. Rather than require owners to reinvent the wheel for each regulation, ABS offers an easy-to-use template to help them to fill in the gaps between EU MRV and IMO DCS compliance.

For those without an existing EU MRV plan, ABS offers a simple template to support a compliant SEEMP, as required by the IMO-DCS. Once it has been updated, ABS can assess the SEEMP to

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include the methodology and the processes to collect and report the data and issue a Confirmation of Compliance (CoC).

Below is a schematic that illustrates the process through which ABS – using NS software and the authority of a Recognized Organization – can support ship-owner compliance with the emerging IMO-DCS regulation. NS Voyage Manager works irrespective of what RO the ship-owner chooses to use.

NS Voyage Manager allows the crew to enter information once and it is then used for different purposes and outputted in regulatory reporting formats that are required. Some of NS Voyage Manager's capabilities include:

- ***Extensive capture of noon report data, which can be used for voyage planning, assessing engine and propeller performance, bunkering, navigation, weather and draft metrics***
- ***Cargo operations data capture to inform a wide rang of cargo-event tracking***
- ***Easy capture of voyage event data, with built-in ship-specific data validations***
- ***Reports available in approved regulatory formats***
- ***Addition of custom fields to support ship-owners' specific data requirements***

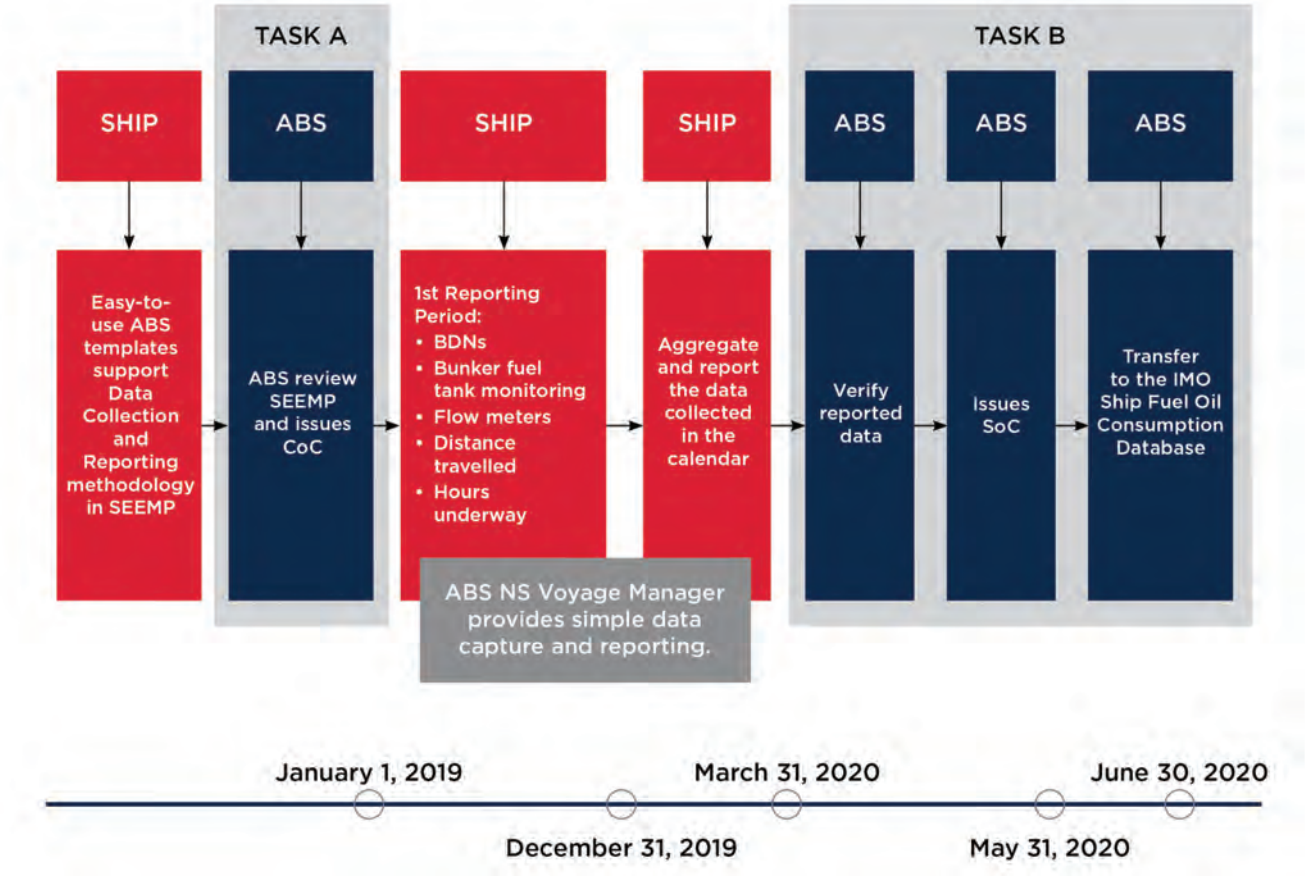
The IMO-DCS regulations require the data to be aggregated into annual values at the end of each year and reported by the company to the ship's Flag Administration or RO for verification and transmission to a central database managed by the IMO. After the data has been submitted and verified, a Statement of Compliance is issued.

The IMO recently set a goal of reducing the emissions from shipping by 50% by 2050. Measuring the industry's consumption of the different fuels it uses and output of greenhouse gases will provide the information it needs to inform an effective global strategy. Measurement and verification of that data is a complex process that places additional responsibilities on already busy crews. NS Voyage Manager can help to manage the process efficiently.

The Author

John Hathaway

is Director of Product Management for ABS Nautical Systems, with overall responsibility for the entire NS Fleet Management Suite. Since joining ABS in 2007, Hathaway has held various roles of increasing responsibility within Nautical Systems. With extensive experience in Corporate IT within the marine and offshore industries, his experience includes Product Management, Executive IT Management, Project Management, Quality System Implementation and both Corporate and Commercial Software Development. Hathaway received his bachelor's degree in Computer Science from The Ohio State University and a Master's in Business Administration from the Weatherhead School of Management, Case Western Reserve University.



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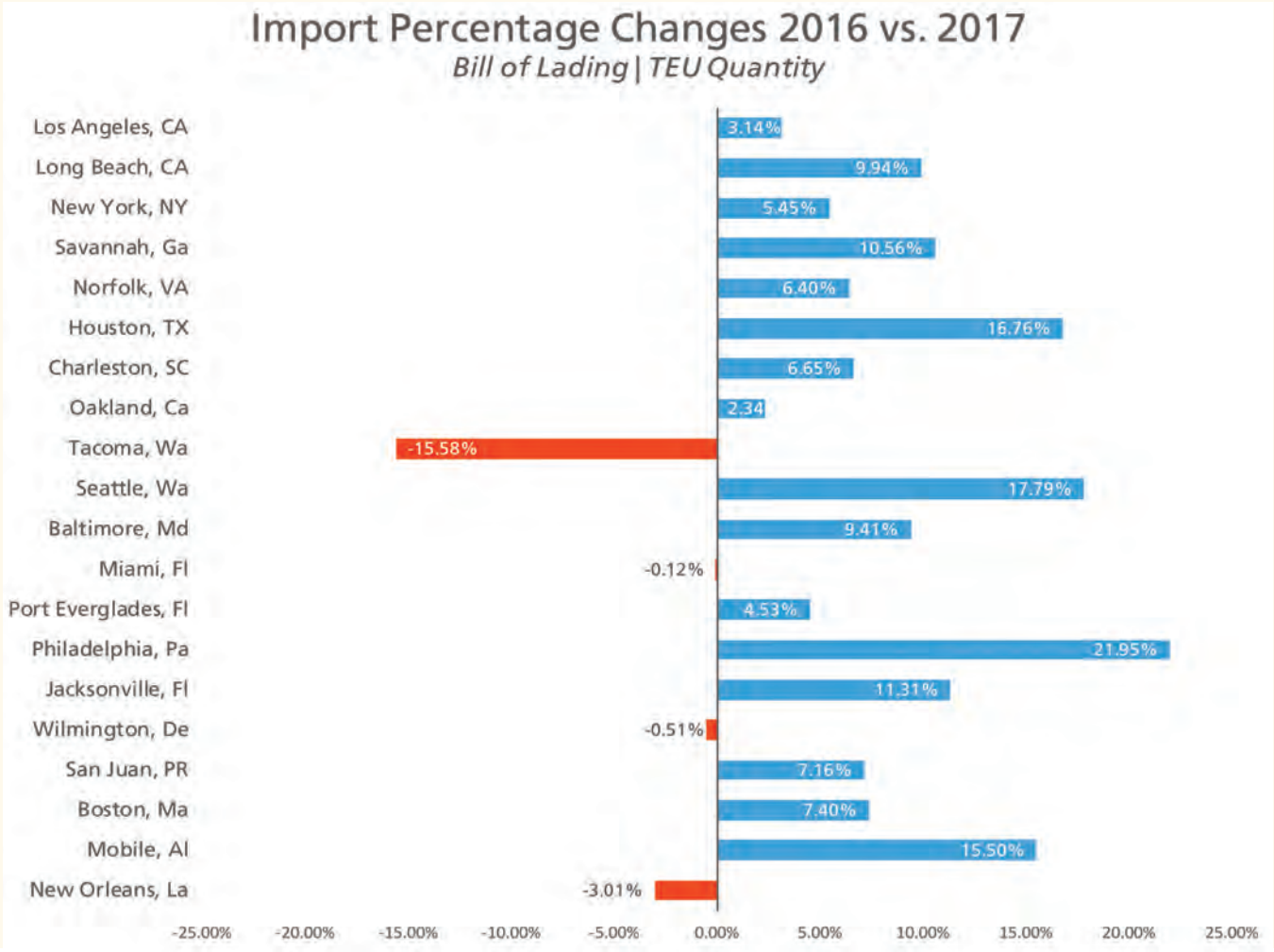
U.S. Ports Defined by Infrastructure,

A look at port development, trade patterns and future outlooks wouldn't be complete without the view from multiple industry sources. A look at the data from firms such as Descartes Datamyne, Moore Stephens LLP and Fitch Ratings provides a unique window into the rapidly evolving dynamics of domestic container ports.

Descartes Datamyne's Annual Ranking of Ports by Volume in Trade, targeting the Top 20 U.S. Ocean Ports, is especially illuminating. Separately, Fitch Ratings latest U.S. Ports Peer Review looks at the situation from a different perspective. Finally, the latest Shipping Confidence Survey from international accountant and shipping adviser Moore Stephens provides a snapshot of what shippers think will happen over the course of the next 12 months.

The latest Descartes Report, issued in June, ranks the top 20 U.S. ports by import volumes, measured by TEU for 2017. As it turns out, infrastructure improvements play a big part in what happened last year, and what's lurking immediately ahead. The Port of Mobile saw its import volume increased 15.5 percent as the port completed Phase 2 of its five-part expansion project. The multi-billion-dollar long-term plan is designed to increase the port's throughput volume to 1.5 million TEUs. The $49.5 million, Phase 3, expansion was approved in late 2017 with specific plans for a 400 ft. dock extension and Post-Panamax crane rails. The Port of Philadelphia saw the largest increase in year-over-year import volume, driven in part by both a $300 million expansion and the deepening of the Delaware River channel. Import volumes there soared 21.9 percent in 2017.

In 2015, the Port of Miami completed an expansion of its Biscayne Bay and the Port of Miami Tunnel Project. We've yet to see the first benefits of that expansion, with import volumes remaining stagnant at 430,000 TEUs in 2017 after only



Tariffs and the Greater Economy

a 2.3 percent gain in 2016. The Port of Houston gained two positions in the top 20 U.S. ports in 2017, importing more than 1 million TEUs in 2017, an increased from 2016 by 16.8 percent. That number could be set to increase even further as the port gets further along into a multi-year, extensive terminal and dock renovation project.

Elsewhere, Fitch's rating criteria for ports identifies five key rating drivers the characteristics of cargo volume, local and transit markets served by the port; contract or tariff mechanisms that allow a port to maintain its revenue base irrespective of throughput levels (price); the port's approach to infrastructure development; the financial risk associated with the port's debt structure; and the level of financial flexibility (debt service).

The latest Fitch U.S. Ports Peer Review, also released in June, warns that both trade policies and related tariffs could spell rating changes for U.S. ports. In fact, says Fitch, commodity exposure and tariff concerns were in part why Fitch kept its Rating Outlook for the Port of Alabama at Negative following its last rating review. As projected in its 2017 peer review, Fitch upgraded ratings for a handful of ports throughout the country over the last year. For example, Fitch upgraded the North Carolina Ports Authority (to A-) reflecting robust financial performance and increased flexibility from state appropriation funds. North Carolina Ports hope to capitalize on the billions of dollars of agricultural trade happening just outside their gates, most of which today goes to other ports. That could change: New USDA rules on where fresh produce can be discharged and Wilmington's rapidly developing 'cold chain' infrastructure bode well for this formerly sedate southeast port.

But Fitch also touches upon infrastructure with a different lens. For example, Broward County's Port Everglades saw Fitch revising its Rating Outlook back down to Stable after a move to Positive in 2016. As Port Everglades is undertakes a significant capital plan that requires additional borrowing in excess of that initially anticipated, Fitch says some uncertainty remains regarding the timing and final amount of debt. To be fair, however, Port Everglades is just one of many southern ports looking to take advantage of the new USDA rules. Separately, Fitch downgraded the Port of Houston's GO bonds to 'AA' from 'AAA', on parity with the Issuer Default Rating.

All that said; the 'A' category remains the most common Fitch rating level for stand-alone U.S. ports, reflecting the sector's relatively low credit risk and the resilience of cash flow despite volume fluctuations during economic downturns. And, says Fitch, approximately 95% of port sector ratings maintain Stable.

But, what's happening now? We asked Descartes Datamyne, who told us that the top 20 U.S. ports are continuing their upward surge, with a collective year-to-date (YTD) increase of almost 750,000 TEUs; an impressive 7%. The ports of Oakland, Savannah, New York and Houston in particular are having a good year.

Drilling down further, the Port of New York is up significantly (YTD) by 40,000 TEU's, some of that probably a function of – you guessed it – the raising of the Bayonne Bridge, which allows for still bigger ships carrying more cargo. Infrastructure wins again. Conversely, the reasons for the YTD increase for the LA/Long Beach complex can possibly be found in what's arrived on the docks this year: significant volumes of furniture, furnishings, machinery and electronics. That suggests that the robust economy is continuing to tick along, or perhaps retailers are stocking up early to beat the possibilities of a tariff trade war. It's probably a little of both. And, don't forget that the first quarter is typically viewed as the 'slack season' for box cargoes.

Another window into what's happening in the box shipping sector comes from Moore Stephens, who report that shipping confidence has held steady in the three months to end-May 2018 according to its latest Confidence Survey. Richard Greiner, Moore Stephens partner, Shipping & Transport, says, "It is two years since our survey reflected any decline in confidence. Net freight rate sentiment was significantly up in all the main tonnage categories. Shipping still has problems to overcome, but it continues to punch above its weight in terms of optimism." The survey was launched in 2008 just months before the Lehman Brothers bankruptcy which was to trigger a protracted global financial recession. Shipping markets were buoyant at the time, with an average confidence level of 6.8 out 10.0.

Importantly, Greiner says, "Ten years is a long time in shipping, and the past decade has doubtless felt a lot longer still to those industry participants who have lived through it, even those inured to the peculiar cyclicality of the industry. Confidence may have fluctuated, but it has never collapsed, and portents for the coming decade can reasonably be expected to be better."

Descartes Datamyne's searchable trade database covers commerce across 5 continents. www.descartes.com/datamyne
Moore Stephens LLP is a shipping, offshore maritime and transport & logistics adviser. www.moorestephens.co.uk
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