

Casualties: High water in Vicksburg leads to another bridge strike, 30-barge breakaway

# PROFESSIONAL MARINER

Issue #245  
May 2020  
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# PROFESSIONAL MARINER

JOURNAL OF THE MARITIME INDUSTRY

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PROFESSIONAL MARINER  
(ISSN 1066-2774)

This magazine is printed in the U.S.

*Professional Mariner* is published in February, March, April, May, June, August, September, October and December, with an annual special issue of *American Tugboat Review* in July and an annual special issue of *American Ship Review* in November for \$29.95 per year by Navigator Publishing LLC, 58 Fore St., Portland, ME 04101.

Periodicals postage paid at Portland, Maine, and additional mailing offices. Postmaster: Please send address changes to *Professional Mariner*, P.O. Box 461510, Escondido, CA 92046.

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Subscription rate is \$29.95 for one year (nine issues) in the U.S. and its possessions. Canadian subscription rate is \$44.95 U.S. funds. Other foreign service is \$49.95 U.S. funds. Overseas airmail is \$94.95 U.S. funds. Multi-year discounts are available, call 866-918-6972 for details.

Distribution: Newsstand distribution, domestically and internationally: Coast to Coast Newsstand Services LTD., 5230 Finch Ave. East, Suite 1, Toronto, ON M1S 4Z9. Phone (416) 754-3900; fax (416) 754-4900.

Contributions: We solicit manuscripts, drawings and photographs. Please address materials to Editor, *Professional Mariner*, P.O. Box 569, Portland, Maine 04112-0569. Unfortunately, we cannot guarantee the safe handling of all contributed materials.

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BY BRIAN GAUVIN

### ON THE COVER

The 92-foot *Mardi Gras*, a z-drive tugboat built by Steiner Shipyard for Crescent Towing in 2016, runs upriver with the tanker *Flagship Sage* on the Lower Mississippi southeast of New Orleans. At the stern of the ship is *Miriam Walmsley Cooper*, one of Crescent's conventional tugs. The powerful *Mardi Gras* delivers nearly 5,500 hp and a bollard pull of 75 metric tons. See story, page 24. Photo by Brian Gauvin



- 20 After fatal fall, pilots urge new scrutiny of ladder arrangements

BY SAM BOJARSKI



# Signals



While there are no reported cases of cargo ship crews bringing coronavirus to U.S. ports, the same is not true for cruise ships. *Grand Princess*, shown arriving in the Port of Oakland on March 9, had 19 confirmed cases among 1,100 crew. Two passengers also were infected. The ship idled for days off the coast as officials set up quarantine procedures.

Port of Oakland photo

## Coronavirus takes toll on port cargoes, global supply chains

American ports have been severely hit by the reduction in shipping from China due to the coronavirus outbreak, with officials reporting that cargo volumes are likely to drop 20 percent for the first quarter of 2020. Combined with the virus' impact on other forms of transportation around the world, supply chains likely will be disrupted for months.

As *Professional Mariner* went to press in mid-March, there had been no reports of coronavirus (COVID-19) among commercial crews arriving at U.S. ports, excluding cruise ships. Ironically, because of the time it takes for sailings from China to

North America, most cases can be detected before the ships arrive in port (see sidebar on page 6).

While non-cruise ship crewmembers have not yet been impacted, the virus has taken a heavy toll on overall container volume. An informal survey of U.S. port officials shows that the average decline will be about 20 percent, according to Aaron Ellis, spokesman for the American Association of Port Authorities.

In Savannah, Ga., where Chinese imports total \$19.8 billion a year, officials expected a 40 percent decline for March, Ellis said. In early March, officials at the Port of

San Francisco said they expected 23 sailings to be canceled in the next five weeks, cutting cargo 25 percent compared to the same time last year.

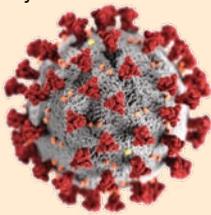
The Port of Virginia anticipated an 11 percent decline in container traffic between February and April, and the South Carolina Ports Authority expected a 15 percent drop in container volume for March and April. Containership operators canceled 40 sailings to the Port of Los Angeles between Feb. 11 and April 1, with most of these voyages originating in China. Cargo volume in the port was expected to decline 25 percent for February.

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## Coronavirus at a glance

Coronavirus is a pathogen that causes respiratory illness. The virus was first detected in the Chinese city of Wuhan in November and had spread to more than 180 countries by mid-March. Physical severity can range from mild illness to pneumonia, and about one in five cases are thought to be severe. The mortality rate for coronavirus to date is recorded at about 3 percent.



**An illustration created by the Centers for Disease Control and Prevention shows the spiked structure of coronavirus disease 2019 (COVID-19). By mid-March, it had afflicted more than 320,000 people worldwide.**

The most common symptoms of COVID-19 are fever, cough, sore throat, fatigue and shortness of breath. Epidemiologists note that human-to-human transmission generally occurs between people in close proximity (less than six feet), and the virus is believed to spread primarily via respiratory droplets dispersed through coughing or sneezing. The incubation period – the time between exposure to the virus and the onset of symptoms – is thought to be between two and 14 days.

There is no specific antiviral treatment available for coronavirus. People with the virus receive supportive care to relieve symptoms, while treatment for severe cases includes care to support vital organ functions.

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container volume that will harm trade. The entire just-in-time supply chain has been disrupted, and it could take several months to recover.

Heavy traffic from China before its two-week new year celebration, followed by a production decline due to the coronavirus, meant that “a substantial number of empty containers” piled up in Europe and North America, Ellis said. As the virus tapered in China in March and factories there ramped up production, goods began building up at Chinese ports as they awaited empty containers to be shipped back.

“It’s going to take a few weeks to clear out the backlogs, and that translates to a ripple effect. (It) could

take months before everything is more or less back to normal,” Ellis said.

Peter Sand, a shipping analyst at the Baltic and International Maritime Council (BIMCO), said the group expected “a gradual recovery only — we do not see a massive boost of cargo coming back to the market” in the near term.

“These are global supply chains,” he said. “There are so many actors involved in this, from the average truck driver to the main global liner. And they all need to make their decisions in order to bring capacity back into place and to get back to work.”

Then there was the question

raised by many of whether the cargo itself can transmit the disease. “Is the virus transmitted by touching a contaminated surface, or is it just person-to-person contact?” said Lawrence Brennan, who teaches maritime law at Fordham University in New York City.

However, according to the federal Centers for Disease Control and Prevention, coronaviruses have poor survivability on surfaces. “There is likely very low risk of spread from food products or packaging that are shipped over a period of days or weeks at ambient, refrigerated or frozen temperatures,” the CDC states on its website.

*David A. Tyler*

### Outbreak has West Coast pilots on edge

West Coast ports are often the first stops for ships sailing from China, Japan and other Asian countries affected by the coronavirus outbreak. Not surprisingly, many pilots are wary of encountering sick crew aboard these ships.

“The pilots are very concerned,” Capt. Eric vonBrandenfels, president of the Puget Sound Pilots, said in late February. “We are the first people on the ships, and some of them are coming from China where the virus originated. (The pilots) are concerned about the different threats the virus poses to their health.”

Pilots are accustomed to boarding foreign-flagged ships with one crewmember or another battling a minor cold or cough. But the outbreak that began earlier this year in central China and caused more than 15,000 deaths world-

wide as of mid-March has raised the stakes. Pilots are rightly worried about getting sick.

VonBrandenfels, who spoke to *Professional Mariner* aboard a Crowley tugboat after guiding a bulk carrier out of Seattle’s Duwamish River, stressed the many unknowns about the virus. In late February, there was still tremendous uncertainty about how the virus spreads and how long it can survive on surfaces.

“(I had) to answer a concerned pilot’s questions about being on a ship with sick crew last night,” vonBrandenfels said, adding that there was a lot of paranoia among mariners. The sick crew “might have a common cold, but now who knows the difference?”

The Coast Guard has taken a series of steps to prevent mariners from spreading the virus. For

instance, crew working aboard vessels arriving in the U.S. within 14 days from calling in China, Japan, Iran, Italy or South Korea are not permitted to leave the ships, according to Michael Clark, a Coast Guard spokesman in Seattle.

The service also has expanded the window for reporting sick crew on inbound foreign-flagged ships. The historical standard required ships to report any sick crew at least four days before arriving at a U.S. port. The new standard in place during the coronavirus outbreak requires ships to report any mariner who has been sick within the past 15 days.

“We are assessing all advanced notice of arrival reports from inbound vessels to determine if the vessel has visited a country impacted by COVID-19 within

the last five ports of call,” Clark said. “Vessel representatives are required to report sick crew or passengers within the last 15 days to the (Centers for Disease Control and Prevention).”

Concern about contracting a virus of unknown or exotic origin goes both ways. VonBrandenfels recalled another recent piloting job bringing a foreign bulker out of the Duwamish River. The bridge crew all wore masks due to concern they might contract something from American longshoremen or pilots.

The masks made it nearly impossible to understand the crew, he said. They agreed to remove them at vonBrandenfels’ request, but he noticed they put them back on as soon as possible.

*Casey Conley*

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## Coronavirus masks effects of IMO's low-sulfur fuel mandate

As the coronavirus disrupted global trade in the first few months of 2020, the International Maritime Organization (IMO) reported a “relatively smooth” transition to its 0.5 percent sulfur cap for fuel. At major bunker ports, supplies of very-low-sulfur fuel were sufficient, and large operators had contracts with trusted suppliers.

As of Jan. 1, vessels are required to burn fuel with 0.5 percent sulfur content under MARPOL Annex VI, or they can continue to use 3.5 percent fuel if an exhaust gas cleaning system (scrubber) has been installed. Operators in Emission Control Areas (ECAs), including most of the United States, have been required to use 0.1 percent fuel since Jan. 1, 2015.

Prices for low-sulfur fuel ramped up sharply in the first week of the new IMO 2020 regime, but they

Problems with sediment in low-sulfur fuel were noted in Singapore, in Amsterdam and Rotterdam in the Netherlands, and in Antwerp, Belgium.

fell during the next several weeks as shipping demand declined amid efforts to contain the coronavirus outbreak. Consequently, there were few reports of fuel shortages or enforcement actions. The most common complaint was poor quality from organic contamination that left sediment in the fuel, making it difficult to burn.

“In the first month or so, it was pretty quiet on the enforcement front,” said Beth Bradley, a London-based partner at maritime law specialist Hill Dickinson. “However, it’s difficult to tell whether that’s because there’s been a very high incidence of compliance, or whether some port state controls have not yet got fully up to speed to start investigating and enforcement. I suspect there’s an element of both.”

Since March 1, vessels also can no longer carry high-sulfur fuel on board if they are not outfitted with scrubbers. Ships without scrubbers carrying noncompliant fuel are considered to be in violation of MARPOL Annex VI.

Bradley said there have been some compliance issues due to the margin of error in testing the sulfur content of fuel. Under the specifications of ISO 8217, any fuel tested after purchase with up to 0.53 percent sulfur should still be commercially acceptable, but MARPOL Annex VI stipulates 0.5 percent as the limit. Because of this, some operators have had to unload fuel if it tested close to 0.53 percent due to the risk

**In addition to the 0.5 percent sulfur cap for fuel burned by vessels under IMO 2020, they also can no longer carry high-sulfur fuel on board if they are not outfitted with scrubbers.**

Courtesy: Harbig Lloyd



of enforcement action against the vessel, she said.

Problems with sediment in low-sulfur fuel were noted in Singapore, in Amsterdam and Rotterdam in the Netherlands, and in Antwerp, Belgium. The sediment can clog filters, cause engine damage and even lead to blackouts.

The coronavirus that has spread around the world from China cut shipping demand in late January and February as factories and other businesses closed. Demand for low-sulfur fuel also dropped, offsetting any potential shortages. When the virus passes and commerce returns to normal, supply problems could surface.

Operators in U.S. waters may be aware of the Coast Guard's reputation for enforcing MARPOL fuel regulations, particularly in the Gulf of Mexico, which could cut down on the number of enforcement actions there.

"(The operators) may be a little more honest in terms of compliance, because they will go the extra mile to make sure they are not hammered with sometimes eye-watering fines like in the past," Bradley said.

Globally, enforcement varies by port state policy. Some countries have publicized how aggressive they will be in enforcing the 0.5 percent cap, but some countries have made it clear they don't support the rule and they don't want to enforce it, Bradley said. The IMO will monitor enforcement actions to ensure no countries ignore the regulations.

Because the effects of the coro-

navirus may be influencing bunker volumes, it is likely too early to call the transition an unqualified success.

"I wouldn't rush too quickly to the conclusion that there's been

high compliance and high enforcement everywhere," Bradley said. "It's likely to be more of a developing story over the next six to 12 months."

*Gary Wollenhaupt*

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## Shipping proposes \$5 billion research program to cut CO2 output

**A** global shipping consortium is proposing a levy of \$2 per metric ton of bunker fuel for research and development to help eliminate carbon dioxide (CO2) emissions from the industry.

The proposal, which would raise \$5 billion over 10 years, will be considered at the next meeting of the International Maritime Organization's Marine Environment Protection Committee (MEPC). The goal is to accelerate funding

for commercially viable zero-carbon shipping by the early 2030s.

The industry is hoping the new International Maritime Research and Development Board will jump-start research that will be useful for ships that enter service in the late 2020s or 2030, and also identify transitional fuels for existing vessels, said Kathy Metcalf, president and chief executive officer of the Chamber of Shipping of America. The CSA is a member

of the International Chamber of Shipping, one of the backers of the research program.

"We need to have a globally coordinated research and development effort to address the issue of transition fuels and plan for what comes next," Metcalf said.

The program is part of an industry-wide effort to ensure that shipping meets the ambitious carbon-reduction targets agreed to by IMO member states in 2018. The goals include cutting greenhouse gas emissions by 50 percent by 2050, regardless of shipping volumes. Meeting that goal would require improving carbon efficiency by 90 percent, which is impossible using fossil fuel. The research program could be put in place by 2023 by amending the International Convention for the Prevention of Pollution from Ships (MARPOL).

A number of transitional fuels for existing ships are under consideration, including liquefied natural gas (LNG). The research program would identify the most promising ideas and fund those for further development.

"It would be great to fund all of them, but you're not going to be able to do that, so this program will sort out the ones that show the most promise," Metcalf said.

The program would not be a substitute for market-based carbon emissions taxes or trading fees that may be levied in the future.

"The industry prefers a bunker levy (for research and develop-



Maritime shipping transports 90 percent of the goods traded globally and is responsible for about 2 percent of the world's human-produced CO2 emissions, according to the International Maritime Organization. That percentage could rise to 20 percent by 2050 if no action is taken.

OWI/Asauro

ment) because it's easier to manage, and it's a totally different issue than market-based measures," Metcalf said.

Current efforts to reduce carbon emissions include the IMO's 0.5 percent sulfur fuel cap that went into effect Jan. 1. Some compliance options, however, are coming under fire. Some states have banned discharges from open-loop scrubbers, which are used to capture emissions on vessels that do not use low-sulfur fuel. Ports in Malaysia and China have banned dumping the fluids containing pollutants into the water, and the Suez Canal has prohibited dis-

The initiative could be considered the industry's moon shot, a high-stakes effort to create technology that's unimagined at the moment.

charges during transit. That means vessels must switch to a closed-loop operation, store the discharge or switch to the 0.5 percent fuel.

Beyond LNG, zero-carbon

options that show promise include hydrogen and ammonia fuel cells. Electric vessels are performing well in closed-loop runs, and biofuels are also a possibility. Biofuels face engineering challenges, however, based on their composition.

The \$5 billion initiative could be considered the industry's moon shot, a high-stakes research and development effort to create technology that's unimagined at the moment.

"There is no such thing as an intelligent guess on this, because there are things out there that we don't even know about now," Metcalf said.

*Gary Wollenhaupt*




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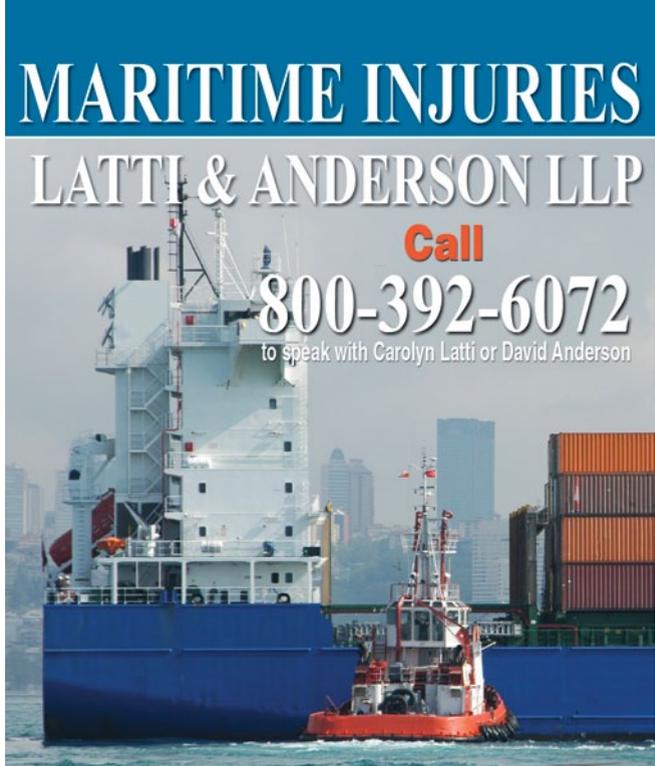
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## NMC announces testing changes, eliminates walk-in exams

The U.S. Coast Guard's National Maritime Center (NMC) has announced changes for test procedures at its Regional Examination Centers (RECs), the biggest of which will be the elimination of walk-in exams without prior registration.

approval to take a test, mariners can schedule an appointment by using the "Schedule Exam/REC Appointment" link on the Examinations page of the NMC website ([www.dco.uscg.mil/national\\_maritime\\_center](http://www.dco.uscg.mil/national_maritime_center)). They can also call the NMC Contact Center at

time to complete the extra modules. Requests for additional modules during a session can be coordinated with the REC staff at the time of examination.

"Based on audits of our internal processes, we found differences in how Regional Exam Centers and Monitoring Units (MUs) were carrying out mariner examination operations," Capt. Kirsten Martin, commanding officer of the National Maritime Center, told *Professional Mariner*. "To ensure we maintained our high level of customer service, and also to provide for a consistent customer experience and for more efficient operations at our locations, we implemented the changes."

Previously, the NMC website advertised a three-day scheduling requirement for examinations, Martin said. "However, some RECs/MUs serviced walk-ins and others did not," she said. "Of those that did not, some were due to security restrictions in place at the base or government facility where they are located."

Martin said the change "reduces that scheduling time to two days and eliminates walk-ins. Also, for better recordkeeping and examination-room flow management, the NMC is now fully utilizing the web-based Exam Scheduling application. This will allow our locations to know exactly (who) will be testing each day, allow staff to be fully pre-



Beginning April 6, Regional Examination Centers across the U.S. will have two exam periods daily: a 3.5-hour morning session and a 3.5-hour afternoon session separated by at least a half-hour break.

U.S. Coast Guard photo

The center, based in Martinsburg, W.Va., announced the changes in January, saying they were "an effort to provide consistent, quality customer service to all mariners."

Beginning April 6, all licensing tests at RECs must be scheduled at least two business days in advance. After receiving a letter from the NMC indicating

1-888-IASKNMC (427-5662), or reach out by online chat.

All RECs will have two examination periods daily: a 3.5-hour morning session and a 3.5-hour afternoon session separated by at least a half-hour break.

Applicants who finish a module early may take additional modules during a session, but they will not be given additional

pared for (other) incoming customers, and allow us to provide the best testing experience for each and every mariner.”

According to Martin, it was impossible to determine how many mariners might walk in for testing on any given day. “There is a lengthy examination prep process, and unplanned arrivals threw an unknown variable into exam room operations,” she said. “Further, most federal and state testing facilities use application scheduling software, and this change aligns Coast Guard operations with other entities responsible for certification of those individuals working in the transportation sector.”

The Coast Guard considered standardizing REC operating hours at all locations but chose not to due to variations in local traffic patterns, employee staffing schedules and building access hours. The centers will be open 30 minutes prior to the start of examinations, and mariners should arrive early to complete registration.

“The change to two distinct time blocks (3.5-hour a.m. and p.m. sessions) was instituted to normalize examination room hours by providing a consistent testing block at each REC/MU,” Martin said.

There will be no changes to first-class pilot examinations at this time. “We have a longer-term goal to work with our maritime industry stakeholders and local Coast Guard sectors to standardize the process for administering

pilotage examinations,” she said. “We have and will continue to update various NMC, REC and MU webpages as needed.”

Martin said the NMC welcomes mariner and industry

feedback about the changes. Comments can be emailed to [iasknmc@uscg.mil](mailto:iasknmc@uscg.mil) with the subject title “Exam Process Change Comments.”

*Bill Bleyer*



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## Coast Guard, ABS approve wireless helm for ATB tugboats

A wireless helm developed by Sea Machines has received approval for use on a class of U.S.-flag tugboats that support articulated tug-barge (ATB) sets, a new way of doing business that is bound to generate comment among mariners.



The Sea Machines SM200 control unit enables wireless steering and propulsion control, allowing mariners to leave the wheelhouse to conduct operations from any location that offers the greatest visibility and safety.

The SM200 system frees the primary operator of a vessel from remaining at or near a fixed control position (e.g., the bridge or pilot-house). Through a wireless connection, the individual can control steering and propulsion as well as auxiliary equipment including pumps, winches and anchor windlasses.

According to the company, the specific advantage for ATB operations comes in the tricky process of connecting the tug in the barge notch. The operator can retain full control of the tug while overseeing placement of the connecting pins from outside the wheelhouse.

While touted as a groundbreaking development for operations on the water, similar technologies began to be deployed in some railway operations in the 1980s. By the early 2000s, nearly all major North American railroads had adopted belt-mounted operator control panels to allow yard personnel, not engineers, to conduct low-speed switching and shunting operations to make up freight trains. Although initially there were doubters, the systems have become part of standard operating procedures.

Sea Machines announced approval in early January of the SM200 by the U.S. Coast Guard and American Bureau of Shipping. The company declined to provide details of the process, as did public affairs contacts at both the Coast Guard and ABS.

The Boston-based developer of autonomous marine systems said approval was granted “after an exhaustive review of Sea Machines’ technology and the SM200’s applications aboard these tugs, deeming the system satisfactory for shipboard installation and trials.” The company said it managed the review process in partnership with its dealer, Rio Controls & Hydraulics of Houston.

“This approval will unquestionably be the first of many to come for a wide variety of vessel types and is already fostering greater industry acceptance for this new realm of marine technology that boosts the capability, productivity and safety

of vessel operations,” said Michael Johnson, Sea Machines’ chief executive officer.

The SM200 is commercially available and can be installed on any workboat or mid-size spill response vessel, company spokeswoman Amelia Smith told *Professional Mariner*. “It just so happened that we got approved for articulated tug-barges first,” she said.

Regulatory approval of the SM200 for ATB tugs was important due to the visibility challenges on the vessels and the need to prevent spills, Smith said. The signal range for the system is more than a half-mile, but someone must still be on board at all times.

“We look at this as supervised autonomy,” she said. “We believe the big takeaway is that this introduces flexibility — you aren’t locked into the wheelhouse.”

Smith said the system is designed to be intuitive, but Sea Machines also will provide training.

She said ABS conducted an exhaustive review of the technology from every possible angle, understanding that the vessel would still be manned. The bureau approved the system because it believed it would be good for the industry, she added.

“We can’t reveal exactly how we secure our systems from hacking,” Smith said. “I can assure you that we have protection in place, but discussing the methods could expose us and make the system vulnerable.”

Alan R. Earls

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# Towing

by Casey Conley



Casey Conley photo

## Newly christened Centerline moves forward in post-Harley era

**A**fter years of debt-fueled growth and rapid expansion into new markets, followed most recently by a very public breakup with its founder, the company formerly known as Harley Marine Services is getting back to its roots.

Over the past 18 months, the Seattle-based firm with more than 700 employees has shifted its focus to three core areas:

supplying bunker fuel, transporting petroleum products, and ship-assist services in busy California ports. The bunkering and terminal transport businesses date back to the late 1980s when the company launched.

Meanwhile, the firm rebranded as Centerline Logistics in January to reflect the new path forward. The new name follows management chang-

es, resolution around the company's ownership, and other steps to solidify the business and restore its reputation.

"Ultimately, for us it is a redemption story more than anything," Matt Godden, Centerline's president and chief executive, said in an interview from his office overlooking downtown Seattle and Harbor Island's container terminals. "There was so

**Centerline Logistics, formerly Harley Marine Services, has about 100 tugboats and barges in its nationwide fleet. Above, the 4,000-hp tug C.E. tows the tank barge Professor Karen Ann Brown in Washington's Elliott Bay in February. The tug retains its former Harley Marine livery for the time being.**

much about the company being at its death knell or final stages, and everyone looking at it and thinking, 'Oh, that thing's a mess.' It is quite the opposite."

Godden readily admitted that the past couple of years have been challenging. They've been hard on him personally, hard on employees and hard on the company.

Rampant rumors haven't helped. Neither has the ongoing, and at times public, legal battle with Harley Franco, the founder of Harley Marine Services and its former CEO.

"Changing the name became more about being able to communicate that the company is here to stay, that this wasn't the final chapter," Godden said. "It is just the next chapter."

Franco started Olympic Tug & Barge in 1987 with a single tugboat and barge, and in the early years the company focused on fuel transport and bunker services in the Pacific Northwest. Harley Marine Services formed in 1998 as a holding company for a series of acquisitions that expanded its reach within the maritime industry. The company later launched ship-assist services in numerous West

Coast ports, established a brownwater unit, and expanded fuel services to the Gulf of Mexico and East Coast.

Harley Marine borrowed heavily to update its fleet of tugs and barges, most recently with a surge in new construction late in the past decade.

Between Jan. 1, 2017, and June 1, 2018, the company took delivery of four articulated tug-barge (ATB) units and three ship-assist tugs, including *Earl W. Redd*, one of the first Tier 4 tractor tugs in the United States.

Harley Marine later shuttered its Pacific Northwest ship-assist unit, eliminating about 10 positions, while other employees shifted to other units, Godden said. Foss Maritime and its subsidiaries now operate five former Harley Marine vessels, including *Earl W. Redd*, *Rich Padden* and *Dr. Hank Kaplan*. The company sold its brownwater equipment and left that market.

"When you have so much unnatural growth,

it can catch up with you," Godden said. "The company that exists now from a stability standpoint is very much what it would have been in the early 2000s (if) it was not adding new pieces of equipment, not trying to expand ... not trying to open up too many things at once and just trying to focus on the core fundamentals of the business."

These days, Godden said, Centerline is trying to excel in a few business areas rather than spreading itself too thin or pursuing growth at the expense of other units. For the foreseeable future, he expects the company will focus on its strengths. Historically, that includes bunkering, moving petroleum and docking ships, which it



**Matt Godden, above left, Centerline's president and chief executive, was chief operating officer at the company when Harley Franco, left, was fired as CEO in 2019. Godden acknowledges the values that Franco brought to the company, including philanthropy and a commitment to the environment. At right, *Earl W. Redd* arrives at the headquarters of Harley Marine Services in Seattle in February 2017. The Tier 4 tractor tug, built by Diversified Marine, is among the most powerful in the Centerline fleet.**



Photos courtesy Centerline/Harley Marine Services

started doing in California in 1999.

That's not to say the formerly growth-obsessed company is standing still. Centerline recently moved the tug *Eagle* and the barge *Dugan Pearsall* to Honolulu to supply bunkers, encroaching on turf that Kirby Corp. has dominated for a generation. Centerline is seeking bids to build two new 4,000-hp model-bow tugboats for bunker work, and it has leased two 2,600-hp pushboats to provide bunker in Houston and Galveston, Texas. A third will soon begin working in New Orleans.

"We don't want to try and complicate things at this point," Godden said, ruling out major expansions at least in the near term. "But at the same time, if there are things that we do well ... that squarely fit with our (core focus), we will do that all day long."

The company also is actively working to win back business lost during its battle with Franco. The situation, well documented in the Seattle press and across the maritime



industry, exploded into public view in mid-2018. Dueling lawsuits included allegations against Franco, Godden and the Australian financial services giant Macquarie Group. Godden at the time was chief operating officer of Harley Marine, while

Franco ownership piece has been resolved for more than a year. Boxwood Merger, under the leadership of Stephen Kadenacy, former chief operating officer of AECOM, now controls the 53 percent stake that Franco formerly

lic drama that befell the company in 2018 and 2019.

"We did not lose an oil customer or contract in 2019. That was really us going to (customers) in the beginning of the year and saying, 'Hey, it is going to be OK, just hang in



Courtesy Centerline

Macquarie was then and remains today a large equity partner in the company.

The company fired Franco in early 2019 after an extended period of public tension. Five lawsuits stemming from the internal dispute are still pending. Attempts to reach Franco for comment were not successful.

The company's post-

owned. Kadenacy joined Centerline's board of directors in late 2019, and Godden considers him as an asset to the company.

With finance and management pieces in place, Harley Marine — and now Centerline — has tried to stay under the proverbial radar. It has continued its focus on safe, reliable operations, Godden said, while avoiding the pub-

**The 4,800-hp z-drive tug *John Quigg* sports Centerline's new logo in the Port of Los Angeles. The lion is featured prominently on the company's website, and internal communication about new business often includes the hashtag #FeedTheLion.**

there," he said. "We have built up this trust with them that, even though the company has gone through this momentous change, the quality and the safety of the operations has not degraded."

It's impossible to know how the legal battle and related uncertainty has affected the company's mariners. Centerline currently employs about 550 mariners, a figure that has held steady in recent years despite the public wrangling. Centerline currently has about 100 tugboats and barges in its fleet, and as of early March was hiring for about 20 positions.

The Harley Marine name continues to live on, for a little while longer, in several places — including the company's gleaming, modern headquarters on Harbor Island. Several of its boats also retain the old livery, although that is starting to change. The new ves-

sels will be orange and navy blue.

Centerline, a name with a distinct maritime connotation, emerged with help from a branding firm, as did the prominent lion logo that now adorns updated tugboats and other messaging. For a company some had written off as prey about to be gobbled up by another company, the lion's status as an apex predator had special appeal. Within the company, communication announcing new business often ends with the hashtag #FeedTheLion.

Godden is quick to acknowledge Franco's gifts as a businessman, and the approach and values he brought to the company

— including philanthropy and a very public and genuine commitment to the environment. Godden said he also learned a lot from his former boss. But in an industry as prideful as towing, the Harley name itself started to mean different things to different people. It carried baggage that caused some people to think twice about the company.

"I am proud of Harley Marine Services. I am proud of my years there," Godden said. "I still interchange the Harley Marine name and Centerline. But to me it is more about past versus future, and (the new name) is just to make sure the organization has an identity for the next step forward." •

“Changing the name (to Centerline) became more about being able to communicate that the company is here to stay, that this wasn't the final chapter. It is just the next chapter.”

Matt Godden,  
president and  
chief executive,  
Centerline Logistics

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## After fatal fall, pilots urge new scrutiny of ladder arrangements

by Sam Bojarski

**Proper ladder arrangement is critical to pilot safety when boarding a ship. Above, Gunner's Mate 1st Class William Hackney ascends a pilot ladder on the guided-missile destroyer USS Bainbridge in the Gulf of Aden.**

**A** fatal accident in December in New York Harbor underscores the safety risks maritime pilots face when boarding vessels.

The Dec. 30 accident that claimed the life of Sandy Hook pilot Capt. Dennis Sherwood prompted the International Maritime Pilots' Association (IMPA) to address the International Maritime Organization (IMO), highlighting the dangers of a particular pilot ladder arrangement called

the trapdoor. Pilots from other organizations also have called for enhanced pilot safety measures from the IMO and member states, particularly in regard to the trapdoor arrangement like the one on *Maersk Kensington*, the containership from which Sherwood fell.

Trapdoor arrangements require a pilot to ascend a ladder to a platform, then climb to the deck via a separate accommodation ladder. The pilot ladder arrangement used on *Maersk Kens-*

*ington* "involved a trapdoor ... with the pilot ladder hanging from a bar near the bottom of the platform, and the top step of the pilot ladder significantly below the level of the platform," said IMPA President Capt. Simon Pelletier in an address to the IMO on Jan. 17.

"This controversial trapdoor arrangement has long been considered unsafe by pilots," Pelletier also said in the statement.

An IMO media representative directed questions

about proposed pilot safety regulations to the IMPA. Current safety guidance on pilot transfer arrangements, enforced by IMO member states and contained in SOLAS Chapter V, Regulation 23, entered into force in July 2012.

Since January 2015, the U.S. Coast Guard has investigated seven incidents involving pilot ladders. These incidents resulted in seven injuries and one fatality, according to Coast Guard spokeswoman Lt. Amy Midgett.

Midgett told *Professional Mariner* that the Coast Guard was still collecting evidence regarding the *Maersk Kensington* incident. A representative for Maersk North America did not return a message requesting comment.

Sean Kline, director of maritime affairs with the Chamber of Shipping of America, said his organization briefs members at policy meetings after incidents like



Whichever ladder arrangement is used, pilot safety is largely in the hands of crewmembers on the ship being boarded, who are responsible for affixing the ladder.

**Capt. Dennis Sherwood, left, of the Sandy Hook Pilots Association fell while boarding *Maersk Kensington* on Dec. 30 in New York Harbor, landing on the boat that transferred him. He later died from his injuries. The photo at right from 2010 shows the ladder arrangement on the containership.**

the one in New York Harbor. Members are encouraged to inspect equipment and practice due diligence to prevent future accidents.

“These ladders take a beating from the elements and nature of their use, and

for ships built after July 1, 2012, it bans a particular configuration where the pilot ladder does not extend through the platform. The U.S.-flagged *Maersk Kensington* was built in 2007 in South Korea.



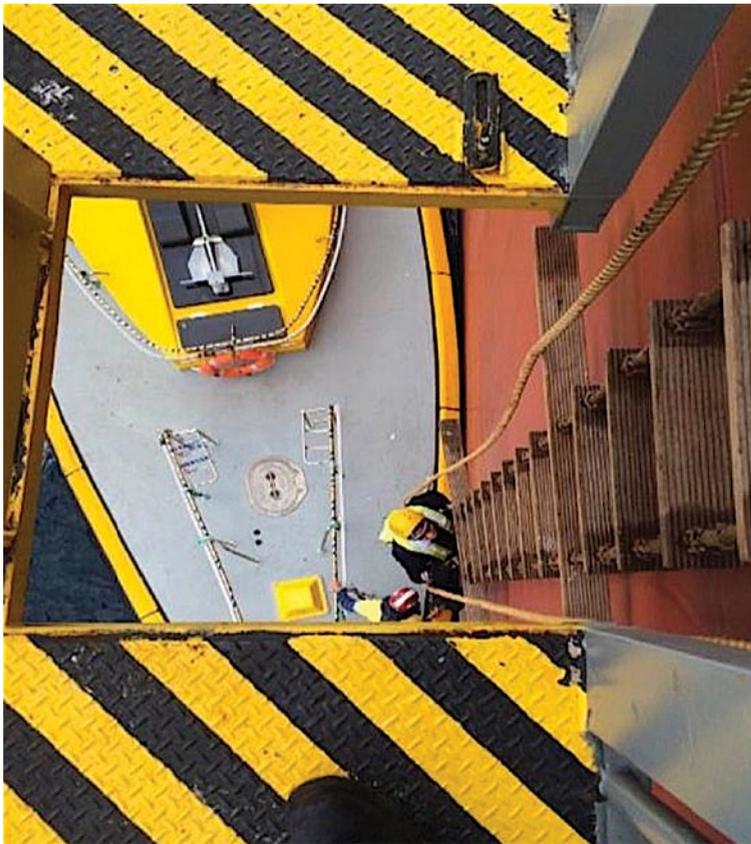
Photos courtesy Sandy Hook Pilots Association/Derek Lilly

ship’s crew should keep a close eye on their condition,” Kline said. “Embarking a pilot is an extremely dangerous evolution, though it may appear as routine, because ships and pilots must conduct this evolution on a consistent basis, sometimes in the dark, wind, rain, snow, etc., with few other options.”

According to pilots, the trapdoor arrangement can make boarding a ship even more difficult. Regulation 23 allows trapdoors, but

Trapdoor arrangements like the one employed on *Maersk Kensington* take boarding a ship “into the realm of unacceptable risk, as evidenced by the recent tragic loss of Sandy Hook Pilot Capt. Sherwood,” said Capt. J. Stuart Griffin, a pilot who works on the Delaware River. “I strongly believe the (Coast Guard), the IMO and other regulatory bodies should move to outlaw them at once.”

According to Capt. Jorge Viso, president of the Amer-



Photos courtesy Adam Roberts-AMPI/Parts of Auckland Ltd

ican Pilots' Association, the regulation stating that a pilot ladder must extend through the platform has been "grandfathered," endangering pilots.

"Some of those things shouldn't be allowed to be grandfathered," he said.

### Types of ladder arrangements

Ships with a freeboard height of less than 9 meters (29.5 feet) generally use a single pilot ladder that extends up to the deck or a side door. IMO regulations stipulate that vessels with a higher freeboard height must use a combination arrangement, which involves a pilot

ladder and accommodation ladder.

While safety issues exist with all transfer arrangements, the trapdoor is the biggest concern for most pilots. When the pilot ladder extends through the platform, it allows the pilot to easily step off. When this is not the case, "the pilot cannot maintain contact with a single climbing surface, and furthermore is forced to lean back away from the ship's hull to transition in (a manner) that is not vertical," Griffin said.

The most common type of combination arrangement involves a pilot ladder placed beside an accommodation

ladder that contains a platform. "You climb up the ladder and when you're even with (the platform), you just step onto it horizontally," Viso said.

Regardless of a ship's freeboard height, the manner by which crewmembers attach a pilot ladder has major safety implications. According to SOLAS, rope lashings at the top of a ladder must be affixed to a strong point on deck.

Viso said pilots frequently witness improperly secured ladders and that SOLAS does not govern how to affix a ladder when it is not deployed at its full length — which often occurs when a ship is weighed down by cargo. He voiced doubts about the widespread use of shackles to attach ropes to the deck and called for more detailed regulation governing how to affix a pilot ladder when it cannot extend to its strongest point.

Whichever ladder arrangement is used, pilot safety is largely in the hands of crewmembers on the ship being boarded, who are responsible for affixing the ladder. Typically, pilots cannot accurately gauge the safety of a ladder before boarding.

Viso added that a single pilot ladder is the most common arrangement. Some pilots rarely see trapdoors, which are mostly employed on large, oceangoing vessels.

**A trapdoor arrangement with the pilot ladder extending through the platform opening is shown at left. A more hazardous trapdoor arrangement, with the pilot ladder rigged to the bottom of the platform, is shown below right.**

## Ensuring pilot safety

When it comes to improving pilot safety at the national and international levels, IMPA Secretary-General Nick Cutmore called for stronger enforcement of existing regulations. He said that while IMPA does not seek to rewrite SOLAS, it wants ship operators “to offer what is in a (supposedly) binding international convention that the whole planet is signed up to.”

Port state authorities like the Coast Guard verify the compliance of ladder arrangements during vessel inspections. Midgett said the Coast Guard cited 64 deficiencies involving pilot ladders in the past five years. Common issues included lack of maintenance records, material condition, control cable or electrical issues, and failure to follow ship-board testing and inspection procedures. Nearly 70 percent of these deficiencies

Trapdoor arrangements like the one employed on *Maersk Kensington* take boarding a ship “into the realm of unacceptable risk,” says Capt. J. Stuart Griffin.

involved a deep-draft vessel, she said.

The Coast Guard also shares responsibility for verifying safety compliance during vessel construction. Pilot ladders on ships built in the United States typically must be approved by the Coast Guard under Title 46, Subpart 163.003 of the Code of Federal Regulations (CFR).

The service is collaborating on revised pilot ladder standards as part of the International Standardization Organization (ISO) Ships and Marine Technology Technical Committee. This panel published ISO 799-1, which governs ladder design and specification, in 2019. ISO 799-2 and 799-3, which together govern maintenance, use, survey, inspection and attachments for pilot ladders, are under development.

“This effort is in response to the international concern for pilot boarding arrangements and will be the basis for future Coast Guard policy and regulations,” Midgett said.

When it comes to compliance, Viso said the Coast Guard can increase its scrutiny of safety regulations during the construction process, even if a classification society has already given its approval. For vessels built in the U.S., the Coast Guard either conducts its own inspection

during construction or oversees a third party.

“Certain third-party oversight programs permit the classification society to use (its) own rules instead of the Code of Federal Regulations,” Midgett said.

According to pilots, ladder arrangements have been approved that do not comply with SOLAS. Citing conversations with colleagues, Viso said he has heard reports of arrangements “that have been passed by class and OK’d by the Coast Guard” that violate the SOLAS trapdoor regulation that entered into force in 2012.

Cutmore said the IMPA expected a more rapid phasing out of the arrangement where the pilot ladder does not extend through the trapdoor. The group initially agreed to the grandfathered provision to avoid industry pushback, expecting that more ladder arrangements would come up for renewal and require adjustment.

“There seem to be a remarkable number of vessels whose arrangements have not required renewal or adjustment since 2012,” Cutmore said. “The accommodation ladder platform is not a complex item, nor is it part of the ship’s structure. It’s relatively easy to change to meet the SOLAS 2012 requirements.”



# At Work



## High water brings out the beast in Crescent Towing z-drive

Story and photos  
by Brian Gauvin

**O**n a sun-splashed February morning, the Crescent Towing tugboat *Mardi Gras* met the 751-foot tanker *Flagship Sage* south of New Orleans on the Mississippi River. As was the case a year earlier, high water was coming early in the season and the river had swollen to 15 feet on the levee at the Carrollton Gauge. With flood stage at 17 feet, the current was showing its muscle.

The 92-by-38-foot *Mardi Gras* is an azimuthing stern drive tug designed by Jensen Maritime of Seattle, one of three sister vessels built at Steiner Shipyard in Bayou La Batre, Ala., in 2016 and 2017. Two General Electric Tier 3 main engines, shafted to Rolls-Royce z-drives, produce 5,496 horsepower, impressive for eight-cylinder power plants.

The sister tugs, *Arkansas* and *South Carolina*, are part of Crescent

Towing's fleets in Savannah, Ga., and New Orleans, respectively. The high-horsepower, deep-draft escort tugs answer the call to handle the ever-increasing size, tonnage and draft of ships calling at the company's ports in New Orleans, Savannah and Mobile, Ala.

"Horsepower is needed to better control these ships in order to avoid accidents and environmental casualties," said Keith Kettenring, Crescent Towing's executive vice president.

Three other Jensen-designed tugs with similar dimensions to *Mardi Gras* but powered by six-cylinder GE engines were built by C&G Boat Works for Crescent in 2010 and 2011. *Lisa Cooper* and *J.K. McLean* are in the Mobile fleet, and *David J. Cooper* is in New Orleans.

"We wanted to increase the horsepower and accommodate a

2,800-millimeter (110-inch) propeller on the outrides to increase our overall bollard pull," Kettenring said. The changes increased it from 65 to 75 metric tons.

Another change was fitting the bow staple 6.5 feet back, closer to the JonRie escort winch, from its location on the earlier tugs. This changed the center of gravity when towing, improved maneuverability and increased the vessels' stability.

Capt. Roy Helmstetter, at the helm of *Mardi Gras*, maneuvered the tug to the bow of *Flagship Sage* and watched deck hand Christian Breithaupt put a line up to the ship. Helmstetter ran with the tanker, slack line, upriver against the robust current to the Valero Meraux refinery. A second tug, the twin-screw *Miriam Walmsley Cooper*, was tethered to the stern of the ship.

Helmstetter said adapting to the complexity of operating z-drives was a hard transition at first.

“After learning what not to do over all those years on conventional tugs, on this one you can do them,” he said. “The possibilities are only confined to the imagination.”

It took an hour and half to dock *Flagship Sage* because of the high water and the need for extra lines. Then began a two-day hold in assignment, but not for *Mardi Gras*. Crescent Towing’s twin-screw *Angus R. Cooper* was called in to relieve the ASD tug, much too valuable of an asset to be out of pocket for that long with the current up. ●

## Mardi Gras

### SPECIFICATIONS

Owner/operator: Crescent Towing, New Orleans, La.  
Designer/builder: Jensen Maritime, Seattle, Wash./  
Steiner Shipyard, Bayou La Batre, Ala.  
Dimensions: L: 92' B: 38' D: 19.5'  
Mission: Harbor tug  
Crew size: Four

### PROPULSION

- (2) General Electric eight-cylinder L250 Tier 3 main engines, 2,748 hp each
- (2) Rolls-Royce US 255 FP z-drives
- (2) John Deere 4045AFM85 99-kW auxiliary generators
- Bollard pull: 75 metric tons
- Speed: 13 knots

### DECK EQUIPMENT

- JonRie InterTech Series 230 escort winch with 550 feet of 9-inch Samson AmSteel-Blue line
- JonRie 424 hydraulic capstan
- Schuyler Cos. fendering

### NAVIGATION/COMMUNICATIONS

- Furuno FR-8125 radar system
- Furuno NavNet TZTL12F chartplotter
- Furuno FA150 AIS
- Furuno GP1850W chartplotter with WAAS/GPS
- Cassens & Plath IOTA 2 compass
- (2) Standard Horizon GX550 VHF radios

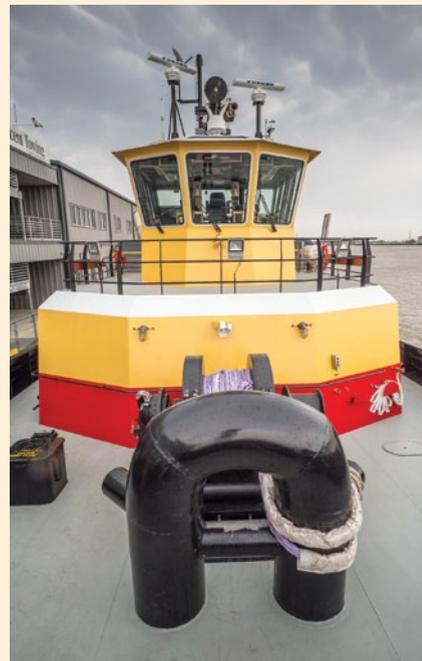
Opposite page: *Mardi Gras*, built by Steiner Shipyard for Crescent Towing in 2016, runs up the Mississippi River alongside *Flagship Sage* to the Valero Meraux refinery southeast of New Orleans. At right, the tug displays its power as it assists the tanker into the refinery dock at mile marker 87.



Two GE L250 eight-cylinder main engines, left, deliver nearly 5,500 horsepower. The bow staple on *Mardi Gras*, below, is set closer to the escort winch than usual, improving the tug’s maneuverability and stability while towing.



The tug’s crew: chief engineer A.J. Campbell, left, Capt. Roy Helmstetter, center, and deck hand Christian Breithaupt. “After learning what not to do all those years on conventional tugs, on this one you can do them,” says Helmstetter, below, relaxing in the wheelhouse between jobs.



# Casualties



## High water in Vicksburg: Another bridge strike, another breakaway

**P**ilot error was the primary cause of a bridge strike in Vicksburg, Miss., during high water in February 2019 that caused 30 grain barges to break away, according to federal investigators.

The 10,000-hp, twin-screw *Chad Pregracke* was downbound with its tow when at least one barge hit Pier 3 of the Old

Highway 80 Bridge. The impact occurred at 0704 on Feb. 27 when the Lower Mississippi River was in flood stage. One barge sank and three others were damaged.

National Transportation Safety Board (NTSB) investigators determined that the pilot helming the 3-year-old vessel misjudged how the current would

affect the tow after navigating around Delta Point, about a mile upriver from the bridge. The tow measured 210 feet wide and 1,173 feet long in a six-across, five-long configuration.

“Although the tow configuration and the pilot’s high-water experience met the Coast Guard’s recommended guidelines for mitigating the risk of

a bridge strike, the pilot could not overcome the effect of the current on the tow,” the NTSB report said.

Marquette Transportation operates the towboat, which at the time of the incident was owned by the U.S. Bank National Association. The company did not respond to a request for comment.

The pilot at the helm was not identified. However, the NTSB said he had 18 years of experience operating tows on the Mississippi River and had developed a specialty working in high water. He passed through the Vicksburg bridges — the 89-year-old Old Highway 80 Bridge and the Interstate 20 Bridge — without incident two weeks earlier.

The bridges span an unusually challenging section of the Lower Mississippi. The passage is char-

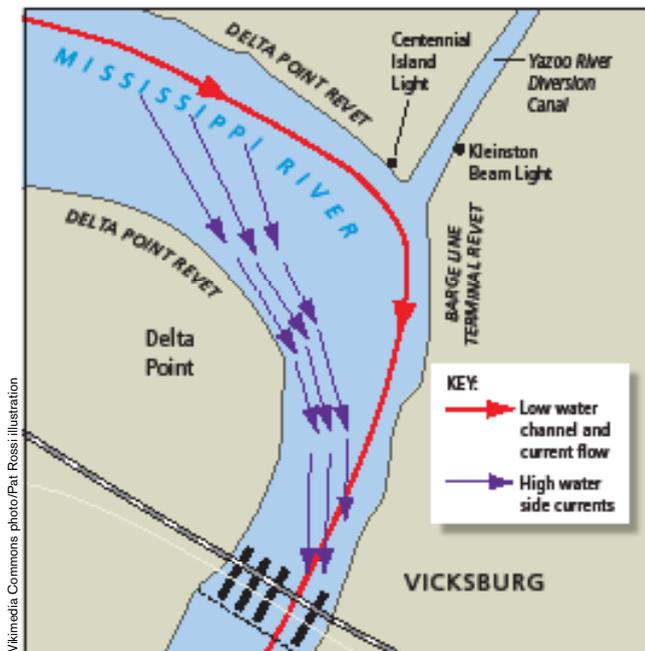
acterized by the 121-degree turn at Delta Point and the convergence of the Yazoo River, leading to cross-currents and eddies that change frequently. The Interstate 20 Bridge is located just downriver from the Old Highway 80 Bridge. Their piers align, creating an 820-foot-wide channel.

Conditions in this area are even more challenging in high water. The river gauge at Vicksburg measured 48 feet on the morning of the incident, with the current running at about 4.5 knots. Flood stage begins at 43 feet.

“The problem with this (section of river) is the current and being in close proximity to the Delta Point Bend,” Herman Smith, bridge commissioner for Warren County, Miss., told *Professional Mariner* in 2019.

“These pilots know it, but the

Changing currents during high water greatly affect the approach to the Old Highway 80 Bridge, opposite page, and the Interstate 20 Bridge in Vicksburg, Miss. The railroad bridge, located just upriver from the I-20 span, has been hit at least 19 times in the past five years. The *Chad Pregracke* tow hit Pier 3, which is closest to the left descending bank.



Wikimedia Commons photo/Pat Rossi illustration

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problem is the current is different almost every time they come down.”

The Old Highway 80 Bridge carries railroad traffic between Mississippi and Louisiana just south of downtown Vicksburg. Historically, tows hit the bridge once or twice a year, although Smith said the frequency has gone up in recent years. There were five strikes in 2016, two in 2017, seven in 2018 and four in 2019. There has been one strike thus far in 2020, according to

data Smith provided in early March.

“The higher the water, generally 34 feet and rising, the more chances we have of being struck by southbound tows,” he said in an email, noting that strikes also occur from northbound tows, albeit with less frequency.

Authorities and industry groups have recognized the challenges associated with the Vicksburg bridges for some time. Recent steps to address the issue include capping the number of

loaded barges in a tow, requiring towboats to have certain horsepower ratings per barge, and limiting transits to daylight hours. The requirement called for 280 hp per barge at the time of the incident, but a week later the Coast Guard called for 300 hp for each barge in tow.

Two days before the incident, as the level of the Lower Mississippi rose, the Coast Guard reduced the number of loaded barges allowed to pass under the bridge to 30 from 36.

## CASUALTY BRIEFS

### **Cooperative Spirit involved in Louisiana bridge strike, breakaway**

Twenty-nine barges broke free from the towboat *Cooperative Spirit* after the tow struck a support pillar for the Hale Boggs Memorial Bridge in Luling, La.

The incident occurred March 15 at 0130 at mile marker 121.6, less than two miles from where *Cooperative Spirit* collided with a downbound tow pushed by *R.C. Creppel* on Jan. 26. Three mariners were killed in the incident, which remains under investigation.

All 29 barges pushed by the 10,500-hp *Cooperative Spirit* broke free when the lead port barge struck the bridge. Two barges sank in the waterway, and a third initially unaccounted for turned up at a fleeting area in St.

Rose, La., Coast Guard spokesman Travis Magee said. The tow was within the navigation channel when it hit the bridge.

No one was injured and there was no pollution. The sunken barges were loaded with corn. The bridge also was not damaged, Magee said.

*Cooperative Spirit* and other towboats operating near Luling helped retrieve the drifting barges. It's not clear where the barges sank, although the Coast Guard closed the river between mile markers 115 and 122 after the bridge strike.

*R.C. Creppel* crewmembers Shawn Pucheu of Bay St. Louis, Miss., Matthew Brigalia of Plaquemine, La., and Lester Naquin of Pointe-aux-Chenes, La., died in the collision with *Cooperative Spirit*. *R.C. Creppel*

sank soon after impact. A good Samaritan vessel rescued a fourth crewmember from the river.

Archer Daniels Midland subsidiary American River Transportation Co. (ARTCO) operates the 45-year-old *Cooperative Spirit*. The company did not respond to a request for comment on the bridge strike.

### **Dye at Golden Ray site tracks potential pollution**

Authorities overseeing the *Golden Ray* salvage conducted a dye test to gauge the effects of contaminants within the St. Simons Sound system. The test was a precursor to more advanced stages of the operation that could inadvertently release oil or fuel into the waterway.

The test, conducted on

March 17, involved a greenish dye similar to those used in Boston and Tampa, Fla., during St. Patrick's Day celebrations, according to the unified command established after the ship capsized on Sept. 8. The dye made from fluorescein disodium salt is nontoxic and water-soluble. It will not leave any lasting impacts on the waterway.

“This exercise is meant to give a representation of the path any potential oil discharges may take when *Golden Ray* is cut into sections during the operation's next phase,” the unified command said in a prepared statement, referring to the removal of the cargo ship and thousands of vehicles inside.

“The use of this dye is important because it will allow us to see where we need to

*Chad Pregracke's* pilot pushed against the left descending bank at 0400 to await sunrise before passing under the two bridges. Before getting underway, the pilot discussed the transit with Marquette's port captain. *Chad Pregracke's* captain, who was on watch, did not have experience with high water in Vicksburg.

"The pilot stated that as the tow moved downriver, the current set the tow to the left side of the river despite his efforts to head toward the right side of the

span," the report said. "The pilot told investigators that he experienced the set to the left earlier and harder than he anticipated."

The NTSB said the pivot point for the tow was roughly 400 feet from *Chad Pregracke's* stern. That meant "the force acting on this smaller lever to steer the tow was not enough to overcome the force of the cross-currents acting on the larger lever of the tow." Because of this, the current "turned the head of the tow and pushed it to port."

The tow made contact on its port side between the third and fourth barges in the string, causing all 30 of the vessels to break away. None of the nine crewmembers aboard *Chad Pregracke* were injured.

The crew gathered the barges with help from other local towboats. Three damaged barges were taken to a local shipyard, and as of press time the sunken barge remained at the bottom of the river.

Casey Conley

pre-position oil spill response equipment in the most efficient way," said Jason Maddox of Gallagher Marine Systems. Gallagher Marine is representing *Golden Ray* operator Hyundai Glovis.

The 656-foot ship rolled onto its side in St. Simons Sound at about 0200 on Sept. 8 after departing the Port of Brunswick. Nineteen crew and a Brunswick bar pilot on board escaped soon afterward, but four engineering crew were stuck below deck for up to 36 hours in darkness and extreme heat.

Authorities announced last fall that the ship would be disassembled where it came to rest after salvage experts concluded it couldn't safely be refloated. The cause of the capsizing has not been released.

***Nova* broke free from its mooring on Feb. 23 and sank in the Columbia River near Umatilla, Ore., after strong winds pushed the vessel about a mile upriver.**

### **Columbia River tug sinks after mooring breakaway**

A small tugboat used for construction work sank after breaking from its mooring in strong winds that pushed the vessel nearly a mile up the Columbia River.

The 38-foot *Nova* sank during the night of Feb. 23 near Umatilla on the Oregon side of the river, according to the Oregon Department of Environmental Quality. No one was on board at the time.

The agency said the tug sank with about 750 gallons of fuel on board, although it was unclear if any escaped into the



Courtesy HME Construction

river. Divers plugged vents on the vessel and response crews laid boom around it within 18 hours of the sinking.

HME Construction of Vancouver, Wash., owns the tug. Accord-

ing to the company's website, *Nova* was built in 1963 and is powered by two 400-hp Detroit Diesel engines. Salvage crews raised it from the river on Feb. 27.

Casey Conley

## NTSB: Hull leaks reported but ‘not resolved’ before towboat sinking

**T**om Bussler was upbound on the Tennessee River when the captain noticed the bow riding low in the water. He steered toward the riverbank but didn’t get there before the 58-foot towboat sank.

The captain and deck hand barely had time to escape. Both spent more than 20 minutes in the frigid, dark river. Crew from the good Samaritan vessel *George Leavell* ultimately rescued them.

The sinking occurred Jan. 7, 2019, at 2030 at mile marker 15

near Calvert City, Ky., on a relatively calm night with good visibility. The 1,000-hp vessel, worth nearly \$300,000, sank within the channel. It was scrapped after salvage.

National Transportation Safety Board (NTSB) investigators determined that flooding into *Tom Bussler’s* hull voids through numerous fractures caused the sinking.

“Throughout 2018, multiple issues with the hull were reported by crewmembers,” the NTSB report said. “However, attempts to find the leaks were unsuccessful, and the reported issues were not resolved. Instead, portable pumps were used to control the water ingress. ... The lack of hull repair evidence and daily pumping of the towboat’s voids indi-



NTSB photo (below)/Jeff L. Yates photo (right)



Photos from the NTSB report, left, show pre-existing corrosion on *Tom Bussler*, including on the bow deck near the port tow knee and in the hull of the bow void. The towboat is also shown underway in 2013.

cated that management did not address issues with the vessel’s watertight integrity in a timely manner.”

McGinnis Equipment Co. Inc. of South Point, Ohio, owned the 51-year-old *Tom Bussler*, and its subsidiary National Maintenance & Repair of Kentucky operated the vessel. Neither firm responded to requests for comment on the NTSB findings.

*Tom Bussler’s* two crewmembers reported for their 12-hour shift at 1700 on the day of the incident, and 30 minutes later they got underway at mile marker 4. The

first job called for retrieving an empty barge from Arkema Chemicals about 12 miles upriver.

The first sign of trouble occurred shortly after 2000 at mile 11 when the captain noticed the bow sitting heavy in the water. The situation worsened over the next 15 minutes, and at about 2025 the deck hand reported the bow was underwater.

As the captain steered toward the left descending bank, the towboat developed a pronounced starboard list, and moments later it lost power when the generator shut down. Crew never issued a distress call.

“The deck hand escaped the vessel through the starboard

door of the wheelhouse. The captain grabbed his life jacket but was only able to get one arm through before water began to fill the wheelhouse. He ran to the wheelhouse's starboard door and escaped just as *Tom Bussler* capsized to starboard and sank, bow first," the report said.

Both men swam toward a nearby coal dock but couldn't reach it. They spent between 20 and 25 minutes in the 45-degree water until Wepfer Marine's *George Leavell* rescued them. The two spent the night at a hospital and were released the next day.

Salvage crews raised the tow-

boat 11 days later. A surveyor identified numerous hull fractures present before the vessel went down. Several fractures were more than a foot long and a quarter-inch wide. There were almost 30 inches of fractures just on the port bow quarter plating. *Tom Bussler's* last dry dock was about a year before the incident, at which time there were no repairs focused on improving watertight integrity.

The captain and deck hand told investigators about a pre-existing crack in the bow centerline void just above the waterline. Documents also indi-

cated the operating company learned of various deficiencies throughout 2018, including the presence of unidentified leaks that required void spaces to be pumped regularly. These issues were never resolved, according to the NTSB.

"The lack of action by the operating company to repair these several known hull deficiencies in a timely manner, once identified by the vessel's crew, was counter to the guidance outlined in their SMS (safety management system) and was directly related to the flooding."

*Casey Conley*

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## Attempted pass in high water leads to \$3.3 million terminal strike

**B**etty M. Jenkins was upbound with two barges when its captain turned the tow broadside into the flooded Lower Mississippi River with the intention of crossing to calmer current along the right descending bank.

The captain initially planned to pass ahead of another upbound tow, guided by *Clark Todd*, on that side of the waterway. Instead, *Betty M. Jenkins* bogged down in the strong current and was pushed downriver behind *Clark Todd*. At about 0140 on Feb. 15, 2019, *Betty M. Jenkins*' lead barge struck the conveyor pier at the Bunge grain facility at mile marker 361 near Vidalia, La.

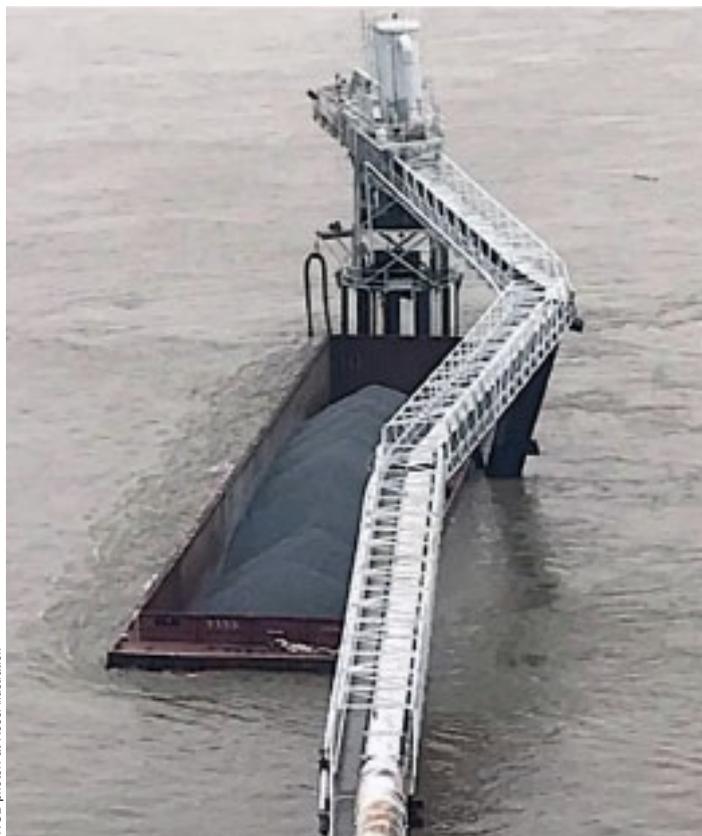
The impact caused the barge to break free and drift downriver into pilings at the site. The terminal sustained extensive damage that prevented loading for almost six months. Repairs cost

roughly \$3.3 million. No pollution or injuries were reported.

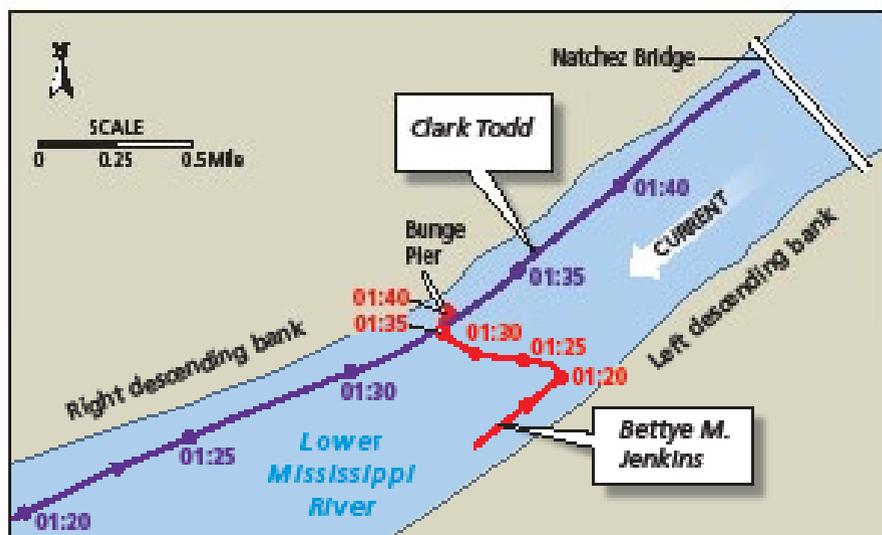
National Transportation Safety Board (NTSB) investigators

determined the attempt by *Betty M. Jenkins*' captain to come in front of the upbound tow while crossing the river in high-water

Four days after the accident, barge T9353 was still pinned against the conveyor at the Bunge grain facility near Vidalia, La. An illustration from the NTSB report shows the tracklines of *Betty M. Jenkins* and *Clark Todd* before the impact.



NTSB photo/Pat Rossi illustration



conditions was a leading factor in the incident.

"*Betty M. Jenkins* attempted to turn upriver after *Clark Todd* passed ahead of it, but because they had to wait for *Clark Todd* to clear ahead of them, they turned later than originally planned," the agency said in its accident report. "The captain of *Betty M. Jenkins* stated that along with the difficulty of turning the tow into the high current, his turn was slowed by

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## maritime casualties

*Clark Todd's* wheelwash. The late turn left the tow too close to the Bunge facility, which the lead barge contacted, parting the tow's lines."

The 56-foot, 1,200-hp *Bettye M. Jenkins* primarily works as a fleet towboat moving barges short distances between and within fleeting areas. The towboat left a fleeting area downriver from the Bunge facility at about 0100 with two crew and two barges loaded with crushed stone.

The tow hugged the left descending bank as it began its transit to Vidalia Dock & Storage, located upriver on the opposite bank just above the Natchez Bridge. The company owns and operates the towboat, which was built in 1959.

The river measured 49.1 feet, or 1.1 feet above flood stage, at the Natchez gauge at the time of the incident. The speed of the current at the time is not known. The Lower Mississippi was in flood stage from Dec. 28, 2018, through Aug. 10, 2019 — the longest stretch on record.

*Bettye M. Jenkins* and *Clark Todd* each planned to pass under the west span of the Natchez Bridge, where the current was calmer. *Clark Todd* was already pushing along the right bank, while *Bettye M. Jenkins* had to cross to the river to line up ahead of the bridge.

*Bettye M. Jenkins's* captain contacted *Clark Todd's* pilot shortly before the incident. He

requested to pass ahead of *Clark Todd* and both agreed. *Bettye M. Jenkins* began turning perpendicular to the current at about 0120. The tow struggled to make the crossing and reportedly "lingered" in the middle of the river, according to *Clark Todd's* pilot. *Clark Todd* passed ahead of the crossing tow at about 0136.

"*Bettye M. Jenkins* had difficulty making the turn upriver (to starboard) as it was against/into the high current and because the tow was in *Clark Todd's* wheelwash (reducing propeller thrust)," the report said. "As the vessel attempted the turn, the river current set the tow farther downstream (to port)."

The grain conveyor at the Bunge facility extended 700 feet into the river and was lighted in several places. *Bettye M. Jenkins's* lead barge, *T9353*, hit the structure, broke free, and knocked dolphins that support the conveyor up to 15 feet out of alignment. *T9353* remained stuck against the loading infrastructure for several days after the impact.

The NTSB noted that *Bettye M. Jenkins's* captain could have avoided making such a sharp turn to line up for the Natchez Bridge by crossing at a shallower angle "instead of his normal track perpendicular to the river."

Vidalia Dock & Storage did not respond to an inquiry about the NTSB's findings.

*Cassey Conley*

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## Clutch failure, poor upkeep cited in New Orleans tow collision

Federal investigators said an ineffective maintenance regime that failed to identify wear on an aging towboat's port-side clutch likely caused a collision in 2019 between two tows on the Lower Mississippi River.



AEP 7235, the lead barge in D. & R. Boney's tow, lies atop 005492, the lead vessel in Miss Dixie's tow, after the collision on Feb. 13, 2019. Damage to the port bow of AEP 7235 is shown at right. The map shows the location of Miss Dixie, D. & R. Boney and Mary Parker about 17 minutes before the incident, along with tracklines leading to the star marking the collision site.

Miss Dixie was downbound with five barges when its lead barge struck the first of nine barges pushed by the upbound towboat D. & R. Boney. The collision happened at 1917 on Feb. 13, 2019, at mile marker 104 near Carrollton Bend in New Orleans.

Four barges were damaged, resulting in repair costs that reached almost \$300,000. Several barges broke away and were retrieved by the crews of the two towboats. No injuries were reported on either vessel, and there was no pollution.

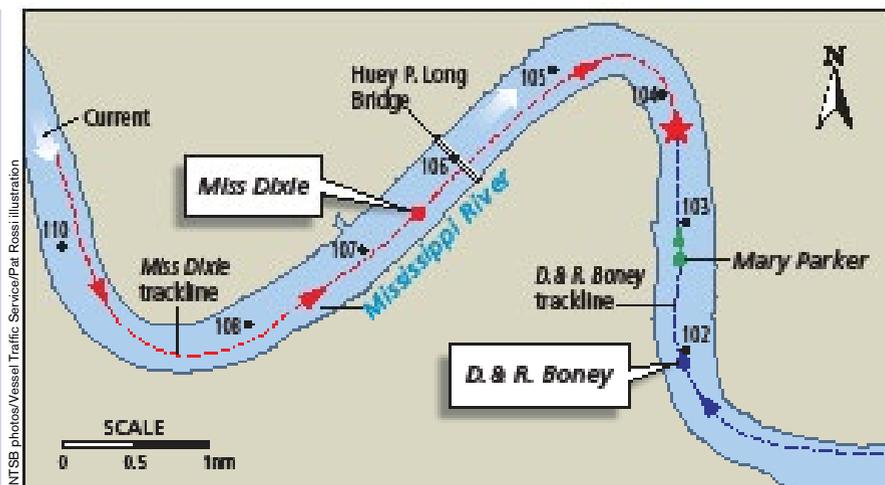
JRC Marine acquired the 58-year-old Miss Dixie about six

months before the collision, and during that time the company did not inspect the clutches or establish a maintenance plan to ensure they were in good condition, the National Transportation Safety Board (NTSB) determined.



Boney and operated it through a subsidiary, Inland Marine Service, declined to comment on the findings.

Miss Dixie left Baton Rouge, La., on the morning of the incident pushing five barges loaded with rock. The tow was arranged with three barges on the port side and two on the starboard side. That same day, D. & R. Boney left a fleeting area near Poydras, La., with nine barges carrying fertilizer, aluminum and diesel fuel. The port string was five barges long and the starboard string was four long.



The probable cause of the collision "was the lack of an effective maintenance program aboard Miss Dixie, resulting in excessive and undetected wear of the port clutch, which compromised the vessel's maneuverability," the agency said in its report.

JRC Marine and vessel owner Hex Stone could not be reached for comment. American Commercial Barge Line, which owned D. & R.

Miss Dixie passed under the Huey P. Long Bridge at mile marker 106 at 10 knots. The captain prepared to meet the oncoming Mary Parker tow "on two whistles," meaning starboard to starboard, a maneuver considered common around the hairpin turn at Carrollton Bend.

Miss Dixie and D. & R. Boney, which was behind Mary Parker, hadn't yet agreed to a passing arrangement when Miss Dixie's cap-

tain noticed the vessel's steering and propulsion systems weren't responding around Carrollton Bend. Meanwhile, a deck hand noticed smoke and possible fire in the engine room. Investigators said the captain rang the general alarm and requested to meet *D. & R. Boney* port to port.

"The captain of *D. & R. Boney* repeated the request and said, 'It don't look good for that' and 'I sure wish you'd go for the two, but all right, I'll shoot her over,'" the report said. "Five seconds later, *D. & R. Boney's* captain said that he was going to stop his vessel because the vessels would collide if they attempted to meet port side to port side."

*D. & R. Boney's* captain put the engines full astern while *Miss Dixie's* captain reported over radio that he "lost an engine." About 30 seconds later, the lead barge in each tow collided. *Miss Dixie's* deck hand later reported to the captain that the port-side clutch "burned up."

Authorities determined that the clutch caused the smoke in the engine room. A service technician who examined the clutch after the incident identified "excessive wear" that would cause slippage. The clutch, the technician estimated, was 40 percent operational.

"After the accident, based on the location of the smoke and the reduc-

tion of power from the port propeller, the crew believed that the clutch had been slipping and overheating, which reduced thrust to the port propeller," the NTSB report said. Such a failure aligned with the captain's reported loss of steering and propulsion around Carrollton Bend.

JRC Marine told investigators *Miss Dixie's* engines were overhauled before the firm bought the vessel. There was no indication the clutches were inspected or maintained during the company's six months of ownership, and the owner later admitted the manufacturer's recommended protocols were not followed. •

Casey Conley



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# Correspondence

by Hasso Hoffmeister

## Wind ships ahead: Technology pulling more power from sails

**W**ind has never been entirely dead. But now that we have realized the ecological consequences of burning fossil fuels, and the International Maritime Organization (IMO) has imposed binding global emission restrictions, wind-assisted shipping is attracting attention again. Two French companies have shown how to use aerospace technology to double the propulsion power of wind.

The physical principle is the same one humans have used on sailing boats since eons ago: The wind hits the leading edge of the sail and splits into two flows that are redirected and travel at different speeds toward the trailing edge, causing a pressure difference that simultaneously pulls and pushes the sail and the craft forward. What has changed is the efficiency. Advanced science has doubled the amount of propulsion power per square meter of sail

The OceanWings concept has been tested successfully on yachts including Energy Observer, launched in France in 2017. The 100-foot catamaran is powered solely by solar panels, wing sails and a hydrogen fuel cell.

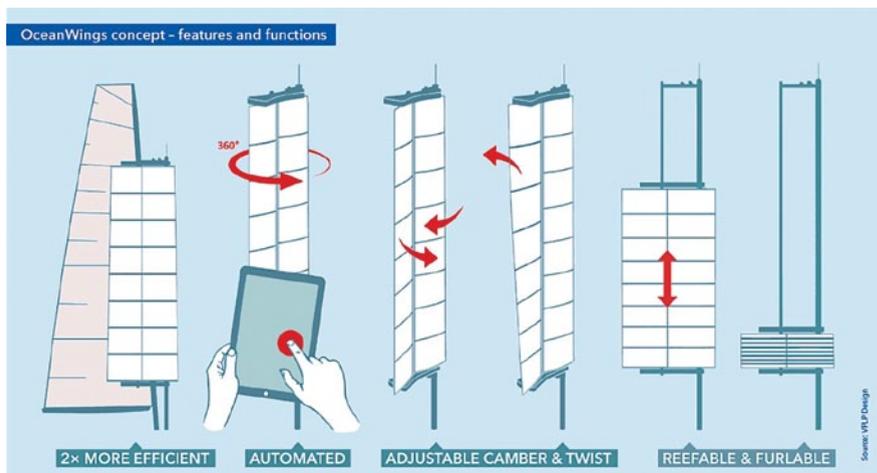


surface, said Marc Van Peteghem, naval architect and co-founder of VPLP Design. Together with the French engineering firm CNIM, VPLP has developed a new wing-sail concept they call OceanWings, based on an existing VPLP idea.

### From plane to ship

In recent years, a number of attempts have been made to combine the propulsion principle of traditional sailing boats with the aerodynamic efficiency of an airplane wing with the trailing edge flap extended for taking off or landing. “There is a slot between the two elements of the wing, and the air going through the slot accelerates the flow and pushes the turbulence toward the trailing edge,” Van Peteghem said.

In the case of an airplane, the thrust created by the engine moves the craft against the air, causing the airflow to divide at the wings and generate the uplift force. The principle is reversed



in the case of a sailing boat: The wind hits the sail rather than the sail being pushed against the wind. The physics is the same, however. Transferring the two-part concept of the plane wing and flap to a sailing boat results in a wing sail, which consists of two vertical, more or less symmetric, parallel “blades” or “wings” with a narrow gap between them. The gap splits and redirects the airflow again, reinforcing the aerodynamic effect and producing additional thrust.

The concept has been the subject of various experimental designs for some time, including inflatable as well as rigid or segmented hard-shell prototypes. While significant efficiency improvements have been achieved, controlling and reefing the sail has been complicated, requiring exceptional skill and experience.

### Automated handling

The OceanWings design takes a slightly different approach. Each of the two straight blades has a mast of its own and consists of several horizontal segments, the “body” of each segment formed by a flexible fabric. Raising or lowering these segments along the mast allows the surface of the sail to be increased or reduced, or “reefed,” and lowering all segments to the lowermost position “furls” the sail entirely. The angle between the two parts of the sail can be adjusted as desired; each blade can rotate 360 degrees around its mast.

The second key element of the OceanWings concept is that

the complications associated with finding the proper position for the given wind condition and desired direction of travel are eliminated, as the entire wing sail is fully computer controlled. All the operator needs to do is choose the heading, and the computer will position the two parts of the sail to achieve optimum thrust, adjusting the camber and twist as required. The sail has been tested successfully on VPLP yachts — including

“It is time to transfer the technology we have developed in the yachting industry to the shipping industry. A wing sail could be installed on any ship where it is freely exposed to the wind.”

Marc Van Peteghem,  
VPLP Design

the hydrogen fuel-cell catamaran *Energy Observer* launched in 2017 — and is commercially available. According to Van Peteghem, OceanWings sails can reduce fuel consumption by 18 to 42 percent, depending on ship type, route and sail arrangement.

But VPLP has far more ambitious goals than yachting. “It is time to transfer the technology we have developed in the yachting industry to the shipping industry,” Van Peteghem said. “A wing sail could

be installed on any ship where it is freely exposed to the wind.”

His company advertises its OceanWings wind propulsion technology as an auxiliary source of propulsion power for merchant ships to help achieve the desired EEDI. Looking further into the future, hybrid vessels combining an eco-friendly engine fuel with wing sails and solar panels on board could one day be an option for GHG-neutral, sustainable shipping. Of course, not every sea route has the right wind conditions for such a solution, but on those routes that do, taking advantage of the wind as an inexhaustible energy source certainly makes ecological and economic sense.

### Certification services

Once a new wind propulsion concept enters the commercial stage, it is the responsibility of class to ensure the system is safe and reliable, Van Peteghem said. Projects like the recent successful rotor sail installations by the MariGreen consortium and Norsepower, both with DNV GL certification, as well as OceanWings and other sail types have delivered encouraging results. To support these efforts, DNV GL published its new class notation “Wind-assisted propulsion systems” in 2019. What the industry needs now is substantial capital investments in these proven wind technologies so they can enter the mainstream and unfold their carbon abatement and fuel-saving potential. •

*Hasso Hoffmeister is senior principal engineer at DNV GL.*



Casey Conley photo

## Latest training melds new technology, proven tactics in fight against fire

by Casey Conley

Seemingly out of nowhere, word spread of a fire in the galley and a missing crewmember. A firefighting team wearing turnout gear and self-contained breathing apparatus mobilized quickly and stepped into the dark, smoky space.

Before reaching the flames, the

responders found what appeared to be an unconscious crewmember on the floor. The hose team briefly split in two. Half carried the wounded person to safety while the others advanced toward the fire.

The firefighters shouted back and forth, relaying information as they attacked the flames coming

Trainees at MITAGS in Seattle experience a fire rollover, where gases collecting along the ceiling ignite. The temperature at the floor is close to 200 degrees Fahrenheit, while at the ceiling it can exceed 800 degrees.

from a vent above the stove. The fire receded or grew depending on their technique. Eventually, their efforts paid off.

“Fire’s out!” one firefighter shouted.

“Fire’s out!” another firefighter echoed as word moved to the rest of the hose team.

This training scenario played out repeatedly on a February afternoon at the multilevel firefighting facility operated by the Maritime Institute of Technology and Graduate Studies (MITAGS) north of downtown Seattle. Propane gas fed real flames coming from the replica galley, and smoke machines created a haze within the small room. Veteran firefighters moved with the trainees every step of the way, providing tips and guidance as they fought the flames in a controlled environment.

Randy Hyde, a retired federal fire service captain who served for many years at Puget Sound Naval Shipyard, said the basic firefighting course has a few key objectives. Instilling confidence is a big one. Getting acclimated to fire, and the equipment needed to adequately respond to a fire, is another.

“I want them to learn tactics, and that is basically what we are teaching them in this scenario,” Hyde said. “How to be a member of a hose team and learn those different hose tactics, and that is what the Coast Guard wants for competency.”

A fire is one of the most severe



Students enrolled in a Compass Courses basic fire training program prepare to enter MITAGS' fire training facility in Seattle. Compass hires MITAGS for its live-fire training.

Casey Cahill photo

high-profile fires in recent years have caused the entire industry to take notice. These include cargo fires aboard foreign-flagged containerships, the *Sincerity Ace* fire in the North Pacific Ocean in early 2019, and the *Conception* dive boat fire last fall. Five mariners aboard *Sincerity Ace* died, and 34 people died aboard *Conception*.

Fires on towboats operating on inland waterways occur with some regularity. Within a month in early 2018, engine room fires aboard *George King* and *Leland Speakes* spread throughout the vessels, effectively gutting them. In September 2018, *Jacob Kyle Rusthoven* was destroyed by fire while underway on the Lower Mississippi River.

emergencies a mariner will ever encounter. Flames can rapidly spread, and toxic smoke can overwhelm a wheelhouse crew within seconds. Fires in confined spaces

are challenging to extinguish, and they put the entire vessel, its crew and cargo at risk.

Despite steady overall improvements in maritime safety, several

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XVR software allows the Delgado Maritime and Industrial Training Center to simulate a specific port, refinery or ship for response training based on the customer's needs.

In each case, National Transportation Safety Board (NTSB) investigators identified challenges associated with fighting fires aboard towboats. The lack of firefighting gear on many of these vessels — it is not required by the Coast Guard — limits what crews can reasonably do to combat the flames.

“The small confines of the engine room and the location of firefighting equipment inside that space demonstrate a risk to crews fighting engine room fires,” the NTSB said in its report on the *Leland Speakes* fire, in which mariners were hindered by an inoperable fire pump in the room. “Had the fire pump operated, the sole means to try to control and extinguish the fire would have been to place hoses through an engine room door or window.”

The report noted that these limitations are a key reason for fixed fire suppression systems and other “means for shutting down ventilation to the engine room.” But these tactics require crew to be familiar with them and know how to use them during moments of extreme stress. Aboard *Jacob Kyle Rusthoven*, for instance, the NTSB determined that “lack of crew measures to activate the engine fuel supply shutoffs and secure open doors ventilating the engine room” contributed to the severity of the fire.

Maritime academies and training centers generally offer two



types of firefighting courses: basic and advanced. Basic firefighting courses typically last a couple of days and split time between the classroom and the field. Most centers tailor their programs to meet Coast Guard or International Maritime Organization (IMO) requirements. Current regulations do not require most mariners who operate within harbors or inland waterways to have firefighting training.

In practice, basic firefighting courses provide an understanding of sources of ignition, a primer on how fires spread, and explanations of firefighting and rescue tactics. Students also learn how to don protective clothing, including self-contained breathing apparatus, and work as a team to fight fires. Most programs also offer potentially life-saving tips on fire prevention.

Advanced firefighting courses typically last four or five days and build upon what mariners learned in basic courses. Masters, mates and engineers who possess a basic grasp of firefighting take advanced

training to learn command and control tactics during a fire emergency. The training acknowledges these crewmembers likely won't be holding hoses during an emergency.

Capt. Jon Kjaerulff, who formerly ran Fremont Maritime Services and now works in business development for MITAGS, said advanced training primarily focuses on tactics, hazardous materials, effects of firefighting on vessel stability, and equipment maintenance. The program also emphasizes running effective fire drills for crew.

“The people fighting the fire depend on their officers to make sure they have water to their hose, that the equipment they are using is in good order, and there is a reserve of people backing them up as far as tending hose, setting boundaries, isolating fuel and electrical systems, and preserving their exit if the fire attack is unsuccessful,” Kjaerulff said.

Delgado Community College in

New Orleans recently introduced a new way to obtain advanced firefighting credentials. In addition to live firefighting, the school now offers a virtual-reality simulator course intended to mirror the stressful, ever-changing environment that masters and supervisors might experience during a fire. About 100 people have completed advanced training using the simulator program, which received Coast Guard approval last fall. Delgado also offers a lectured class that incorporates a virtual-reality component to simulate real-life exercises.

Trainees using the simulator see the action unfolding in front of them. They can walk around and respond to sounds as the event takes shape. “We give you basically everything but the smell,” Albert Faciane, a New Orleans fire chief and Delgado instructor, said of the program.



Casey Conley photo

“Alarms are going off, you’ll see smoke and hear a report of a fire in a certain part of the vessel,” Faciane said. “That student has to implement the fire control plan and develop a strategy for fighting the fire, as well as (show) the ability to accurately account for personnel in the fire.”

The scope of the emergency changes, in real time, based on how the student responds to different scenarios. Failure to communicate or failure to activate the general alarm can make a bad situation worse.

“Simply put, we can constantly keep changing the environment. Fires get larger or smaller, vessels can sink or take on water,” Faciane said. “Mostly what we can do is add stress to see how you follow or adapt the plan to whatever the most reasonable end would be.”

Faciane and Rick Schwab, senior director of Delgado’s Maritime and Industrial Training Center, said the school’s XVR software can be tailored to create a specific port, refinery or ship depending on the customer’s needs or interests. The course assesses command and control skills and challenges students to manage real-life situations.

This type of technology, which closely mirrors wheelhouse simulators, can itself create anxiety among mariners. Delgado addresses that by introducing it in small steps.

**At MITAGS, veteran firefighters guide students through the live-fire training program every step of the way. Kirkland (Wash.) Fire Capt. Kyle Higgins, standing at right, answers questions before the rollover demonstration begins.**

Students spend time observing the system before anyone steps into the simulator. Instructors also stress that the students themselves have the tools to effectively control the situation if they follow the training.

The same premise exists in the basic firefighting program offered by MITAGS in Seattle, albeit in a

Trainees using Delgado’s simulator see the action unfolding in front of them. They can walk around and respond to sounds as the event takes shape. “We give you basically everything but the smell,” says instructor Albert Faciane.

different setting and environment. Students are already mustered and in turnout gear when they hear an alarm indicating a grease fire in the galley, with one crewmember missing. Although they know these details ahead of time, how the students react and the techniques they use influence how soon the fire is extinguished.

During the training session in February, teams of four and five students enrolled at Compass Courses, which uses the MITAGS facility for live-fire exercises, gathered outside the training “ship”

awaiting the alarm. Jim Whitsett, a firefighter with the Poulsbo (Wash.) Fire Department, controlled the flames from a vantage point that offered a clear view into the “galley.” Crew began entering the smoky room when they literally stumbled onto “Bob,” a rescue dummy made from old fire hoses.

Kirkland Fire Capt. Kyle Higgins critiqued the students from inside the ship as they fought the flames. Whitsett offered occasional suggestions from outside, encouraging the students to stay low beneath the smoke. Each team approached the flames differently, with different levels of teamwork and communication.

“One thing we like to hear is the teamwork, the yelling back and forth,” Whitsett said. “This is really about communication and teamwork.”

It’s also about understanding how fire behaves. The grease fire scenario required a specific spray technique, sweeping from bulkhead to bulkhead along the galley floor. As the students approached the flames, their training called for them to aim down onto the fire rather than upward.

What might seem like a minor detail is a critical part of the fire response. The upward force of pressurized water can agitate hot, combustible gases along the ceil-

ing that can cause a fire to behave erratically, Whitsett explained.

Taken together, classroom instruction and experiences in the field are intended to give students what Hyde called “a strategic mental model” for responding to a stressful, confusing and scary situation.

“There is a lot of apprehension when we have people who are doing this for the first time. You can see it in their eyes,” he said. “Confidence gives you the capability to settle yourself down. If you are confident in your capabilities, you are going to be an active, competent member of that hose team.”

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# Book Excerpt

by Thomas Teague

## 'Tales from a Tugboat Captain' rides high on offshore adventure

**M**y first trip out into the ocean was exciting because it was a new experience. All the other guys aboard the boat had done this many times and were just glad the weather was calm. So now I start hearing all the sea stories. During the 40-some years I have been working on the water, I have heard all kinds of harrowing tales of extraordinary seas, wicked weather and terrifying storms. I am certain that all accounts of rough seas and bad weather have been grossly exaggerated. Some stories are probably just rehashes of questionable legends told over and over to the new kids on the boat. Tugboat guys have been known to stretch the truth about the weather. And most other subjects, too.

"It's gonna be as slick as an onion out there, Cap." Most days on the water are really nice and calm. This is due to the lack of any strong wind.

"It's just like a lake out there." Most tugboat guys have said this at least once in their career. I can't

remember any time the Atlantic Ocean was "just like a lake." These comments come from sailors who know that if the wind has been calm for a few days, the seas in the ocean will also be calm.

"The wind was blowing a hundred miles an hour, from all directions!"

"It's probably gonna be a little splashy out there today, Cap."

"It's gonna be a little bumpy out there today. We'll probably have to put her on a short string before we head down the beach."

What the hell are you trying to say? Translation: If the seas on the ocean are too rough for pushing gear, the barge will need to be towed astern of the tugboat on a hawser before they head south out of New York along the New Jersey coastline. If the tugboat has a towing machine, the guys will tow the barge astern on the towing cable.

"It's a nice day if you are a duck."

"Even the seagulls are weather-bound."

Weather-bound is the

term that tugboat guys use to explain why they cannot perform a job or why they will not continue (or begin) their journey. The prevailing weather is just too severe to safely operate or navigate.

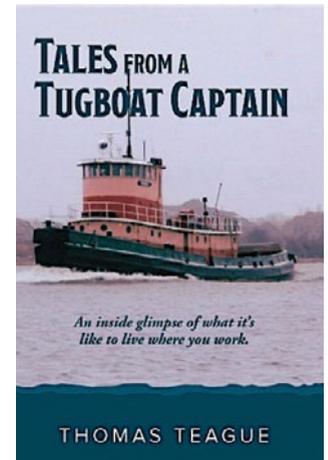
"It was so goddamned rough out there we went over one and under two!"

This is how the guys describe running into a large head sea. The tugboat rides up over the first oncoming wave, and then it falls down into the trough of the sea only to be covered by the next two oncoming seas.

"There's some holes in the ocean!"

That's how it feels sometimes when you are in a rough sea. You try to pay attention to the rhythm of the waves and anticipate how to react to the motion of the ocean. But the ocean is not that predictable. Just as soon as you think you know how it's going to feel, the bottom falls out and it feels like the boat is falling into a hole.

The weather dictates how tugboat guys prepare to make a tow. The geo-



graphical area in which you will be towing is another factor to take into consideration. Tugboat guys are supposed to make the best decisions on how to safely and efficiently tow a barge from one place to another. We try to make the job as easy as possible without taking any dangerous shortcuts. We are constantly watching the weather. When the weather changes during our trip, we sometimes need to change our mode of towing.

The most efficient mode of towing a barge is to be in pushing gear. The tugboat is positioned at the stern of the barge. Steel cables or new Spectra lines are used to keep the boat attached to the barge. This

is the preferred method of towing a loaded barge in calm weather. But if the weather is starting to change for the worse and the captain is not quite sure if he can remain in pushing gear, he might make a statement like, “When in doubt, put it out.” He is referring to putting the barge on a hawser or a tow wire. Or, “I’d rather be towing astern wishing I was pushing instead of pushing and wishing I was towing.” These statements are made by experienced men who know that it can be dangerous to change the mode of towing in rough weather. Rather safe than sorry.

I worked in the Gulf of Mexico for three months plus one year aboard a 110-foot tugboat. Our job was to tow oil rigs to their deepwater drilling site. Most of our trips were offshore, as in 100 to 200 miles offshore. There was no place to hide or find safe haven from a storm when you are that far from land. When foul weather hit, we just had to ride it out as best as we could and hope that our vessel was sound.

Thankfully, I never experienced a hurricane while working in the Gulf. But I did survive a storm that produced winds up

to 100 miles per hour. We could see the ominous line of black clouds approaching in the distance. We secured all portholes and weathertight doors in preparation for heavy seas. It was fortunate for us that we were not engaged in towing at the time the storm hit. We did not have to worry about losing an oil rig if our tow cable parted in heavy seas. When the storm hit, it ripped the flag halyard from the mast and it broke two radio antennas. There was no hail, but the rain was fierce. Sideways rain, as they say.

The seas quickly began to build and within the hour had reached heights of 20 feet or more (NOAA weather reported waves of 25 feet). The heavy winds lasted only a few hours that afternoon, but the seas were rough for two days! When the seas are that big, we must be vigilant while steering the vessel. There is the danger of rolling the boat over if we get caught broadside to the sea. If we approach a wave at a 90-degree angle, we could turn the boat over end for end; “pitchpoling” is the terminology for this tragic event. So we must take the seas on an angle as best we can at about 30 degrees.

Inside the vessel things are happening. Even

though we are well prepared for working offshore, there is always something that breaks free and is thrown around in severe weather. It is usually something harmless like pots and pans, and it is noisy and amusing until someone catches the culprit and secures it in a locked cabinet. The boat is completely watertight except for ventilation to the main engines. They need air to operate. The air inside the vessel quickly becomes stale. Diesel fumes waft up from the engine room. Someone usually gets seasick when conditions are this rough. Since the boat is “all buttoned up,” you will surely smell the stench of vomit when someone regurgitates his last meal. Hopefully the poor seasick sailor will make it to the head.

In heavy seas, the boat will thrash around violently. There will be no cooked meals for several days. Walking becomes a dangerous chore and sleeping is impossible. When you get off watch, you prop your mattress up with life preservers or spare blankets to form a wedge facing the bulkhead. Most tugboats have bunk beds in each cabin. Space is limited, so you usually need to share the room with another crewman. I always slept in

the upper bunk. During rough weather, you must time your jump into your rack to coincide with the motion of the boat. If you jump up when the boat is going down, you will most likely crack your head on the overhead!

When you get into your bunk, your stomach gets butterflies as if you are on a roller coaster. Actually, it is much worse because you don’t know when the ride will end, and there is no rhythm to the violent motion of the sea. While you are lying in your bunk, feeling the power of the ocean, you hope that your boat can withstand the punishment without sustaining any damage. You hope the engines do not fail. There is very little rest to be had when you are in severe weather in the open ocean on a tugboat. •

*Thomas Teague began his career in the towing industry when he acquired a full-time job as a deck hand on a tugboat in 1974. He is licensed by the U.S. Coast Guard as master of self-propelled vessels of less than 1,600 gross registered tons upon oceans, and master of towing vessels upon oceans and Western Rivers. The book is independently published and is available on Amazon.com.*

continued from page 48

about much more by the wind and weather than a 1,000-foot ship, which made standing up for an entire bridge watch virtually impossible if there was any kind of swell to deal with while underway. From my perspective, sitting down was also more user-friendly. The tugs I worked on had a chair in the wheelhouse set up so the watch stander could monitor the radar, adjust the throttle, and call and monitor traffic on the VHF radio — all while still keeping a good lookout.

After I moved on from tugs and began working on other commercial vessels, including tour boats, oceanographic vessels and fish factory ships, I found out that sitting down on watch was OK on those as well. One summer I was hired by a company operating high-speed passenger vessels between Seattle and Victoria, British Columbia, and was assigned to one that was specifically designed for deck officers to sit down while underway. The sleek new ship had two comfortable bridge chairs in what resembled an airplane cockpit,

with an unobstructed view ahead of us. At the speeds we went, there was no time to go back and forth between various pieces of bridge equipment as you could on a large, slower-moving ship. It was more of a navigation station than a traditional bridge, where we could do everything we needed to do from our chairs.

Besides operational reasons why sitting down on watch makes good sense, medical researchers have found that standing for long periods at work can actually be hazardous to your health. Studies out of Switzerland and Canada have determined that on jobs where workers stood for five hours a day, the subjects were at higher risk for back troubles, foot problems, varicose veins, and serious heart and circulatory issues. This certainly applies to bridge watch standers on commercial vessels, who routinely work eight to 12 hours a day — 200 to 250 percent more than the baseline in the studies. The researchers concluded that alternating between standing and sitting over the work period was optimum for promoting good health and minimizing fatigue.

This research medically makes the case for at least giving watch standers on deep-sea ships the option to sit down some of the time they're on the bridge.

That day my dad first warned me about sitting down on watch, I remember asking, "Why is it all right for airline pilots, train engineers and truck drivers to sit down on their job, but not mariners?" Agitatedly, he answered, "Because it's tradition, that's why." With ever-smaller crews working more and more hours, coupled with recent medical findings and the trend toward one-person navigational watches, never sitting down on a bridge watch no longer makes sense. I believe it's time that we leave this "tradition" where it belongs — in the history books.

Till next time, I wish you all smooth sailin.' •

*Kelly Sweeney holds a license of master (oceans, any gross tons), and has held a master of towing vessels license (oceans) as well. He sails on a variety of commercial vessels and lives on an island near Seattle. You can contact him at [captswweeney@professionalmariner.com](mailto:captswweeney@professionalmariner.com).*

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# A Mariner's Notebook

by Capt. Kelly Sweeney

## Sitting down on watch? Tradition aside, it's the smart option

I remember the day my letter of acceptance to the California Maritime Academy (CMA) arrived at my apartment in Spokane, Wash. I called my dad with the good news, and accepted his offer of a celebratory pitcher of something cold and a large



combo with extra cheese at our favorite pizza place that night. My dad sailed as an able seaman and boatswain for years, so I wasn't surprised that after toasting the beginning of my maritime career, he then started giving me advice on what he thought made a good mate at sea — things like relieving the watch on time and not drinking alcohol while at work. He was especially adamant that sitting down on watch was verboten, admonishing me not to

turn out like the second mate he stood watch with on a freighter bound for Cape Town, South Africa, who got fired after the captain caught him sitting in his wheelhouse chair one night. After I entered the academy, I soon found that the prevailing viewpoint was the same as my dad's — that sitting down during an underway bridge watch was as unprofessional as it was unthinkable, and any mariner who did so risked getting fired and sullyng his or her reputation as a result.

I got the chance to see firsthand just how serious some people were about the whole "sitting down on watch" thing when I was the deck cadet on a containership during my last year at school. It was just before sunrise, not far from Unimak Pass in the Aleutian Islands, when the captain came up to the bridge with his morning coffee. He greeted us and then went over to his chair — a big,

sturdy, barber-type model permanently attached to the deck. Putting his free hand on the seat to steady himself as he hopped up on it, all of a sudden he stopped and turned toward the second mate. Glaring, he snarled, "Any idea why the seat of my chair is warm, Mr. Mate?" Looking down at his shoes, the second mate mumbled a weak, "No, captain." "That's good," the skipper continued, "because you know from signing my orders that anyone sitting down on watch will be fired."

The idea that no one should ever sit down on a bridge watch was spawned from practices developed on deep-sea ships, both naval and merchant marine. Though never formally included in any navigation laws or regulations, it has been a nautical custom for hundreds of years. From a safety perspective, the thinking has always been that no matter how fatigued a mari-

ner might be, standing up for the entire watch supposedly ensured that he would never fall asleep while on the bridge. By the time my graduation from CMA drew near, I thoroughly accepted what I had been taught: A deck officer on an oceangoing ship should never sit down on watch. After I started working professionally, however, I became aware that other sectors of the maritime industry didn't necessarily think the same way.

When hired by a large West Coast towing company based in Long Beach, Calif., I soon found out that it was considered OK for watch standers to sit down while underway. I asked Jeff, the chief mate on my boat, why it was considered all right on tugs but frowned upon on deep-sea ships. He told me that a major factor was the motion of the vessel. A 100-foot tugboat got battered

*continued on page 47*



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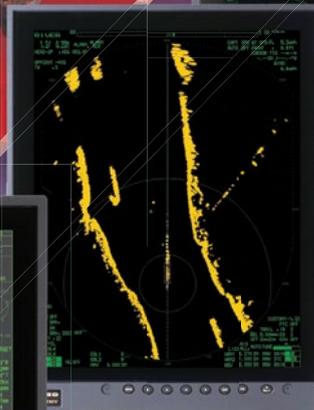
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