TugeZine

all about tugs

Hirtshals, Training, Bonga . . .

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Front page
WOLRAAD WOLTEMADE in heavy seas off the Portuguese coast towing the BONGA FPSO as seen from FAR SALTIRE
photo: James Dodds

Of tugs and salvage and training and AI

In this issue we continue the 'Bonga' story that started in TugeZine 18 in South Korea. The next part of the story sees construction finished in the U.K. and the tow to offshore Africa. It is of interest to note that the majority of the deepsea tugs involved is no longer around or will soon be extinct. We will come back on that particular fact in a later issue.

Meanwhile the delivery of new shiphandling tugs continues. In this issue we look at the Danish port of Hirtshals that just received a new shiphandling – *Sibba* - another Sanmar Shipyard product that found its way into Europe and a good example of the powerful but small shiphandling tugs that er entering the market in the lower output range. Speaking of new tugs, Muller Dordrecht's *En Avant 25* was in the news when she served as the stern tug during the tow from Eemshaven to Rotterdam with the burned car carrier *Fremantle Highway*. We will come back on that casualty in our December issue.

To man the new hi-tech tugs sufficient training is required for the (prospective) Masters and for those changing over from conventional screw tugs to the azimuthing or cycloidal drives. The subject of 'situational awareness' was raised which at first glace is a logical basis for controlling any vessel. To get the results in our small survey boat both the Master and the surveyor had to have a good deal of situational awareness even projecting this forward. I can well remember the embarrassment of having to be towed off the underwater dam my situational awareness had missed: we made the pass upstream of the dam. Ouch. Luckily two crates of beer paid for the 'salvage'.

By the way we have some more trade shows coming up. It will be interesting to see the new solutions being offered to reduce fuel costs, reduce emissions, reduce manning, and to teach AI to make us all redundant . . .

Job van Eijk (editor)

Embarrasing result of mistaken spatial awareness

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“Sibba” for Hirtshals

As early as 1804 the idea for a port at Hirtshals, Denmark, was tabled. But it was only at the end of the century that the first breakwaters were constructed. The 2023 port recently took delivery of a replacement shiphandling tug.

by Job van Eijk

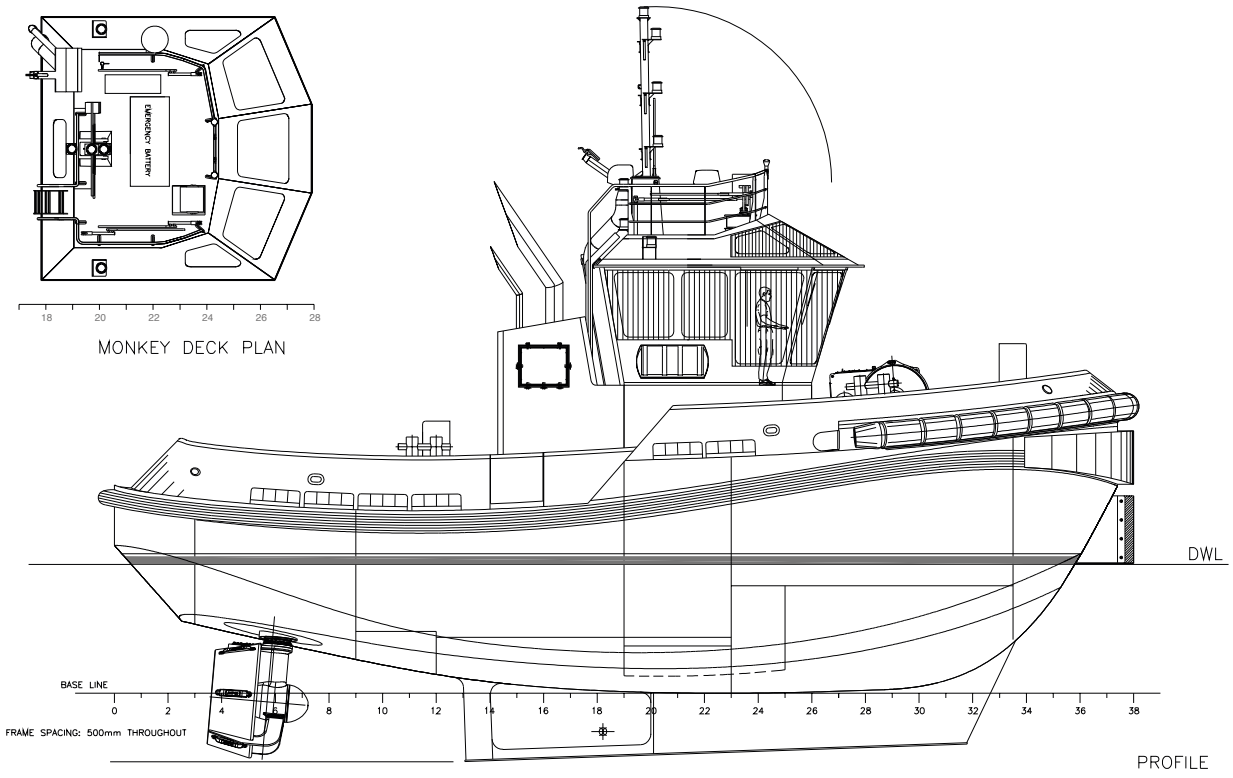
The breakwaters served the local fisherman but it was in the late 1920’s that a proper port was started. As ports do they attract people and businesses. With fishing being an important business it was not a surprise that on 2 January, 1930 the first fish auction was held in the newly built fish warehouses at the appropriately named Auktionskajen.

World War 2 interfered with port development and fishing itself took a turn for the worse. As elsewhere, the end of the war meant reconstruction of business and with increased prosperity and technological advances the port flexed its muscles. The fishing fleet activities increased to the point where the port became too small. By the mid-1950s eyes were set on a **ferry route** between Hirtshals and Norway. By 1958 a ferry berth had been constructed and the service to Kristiansand in Norway started.

With the new Vesthavn basin opened in 1960 new berths were constructed and a shipyard attracted to serve the needs of the ever-expanding fishing fleet. To accommodate the **fishing business** the Ostbasin was added to the port in 1967. By the mid-1970s Hirtshals had become the number one Danish commercial fishing port. **Rail-container traffic** for the ferry route also increased. The ever-increasing size of vessels also forced the port to expand to the east and the opening of the new East Basin 2 in **1975. The ferry berth** also was reconstructed to allow for the larger ferries serving the route and a new **freight-only ferry service** between Hirtshals and the Faroe Islands.

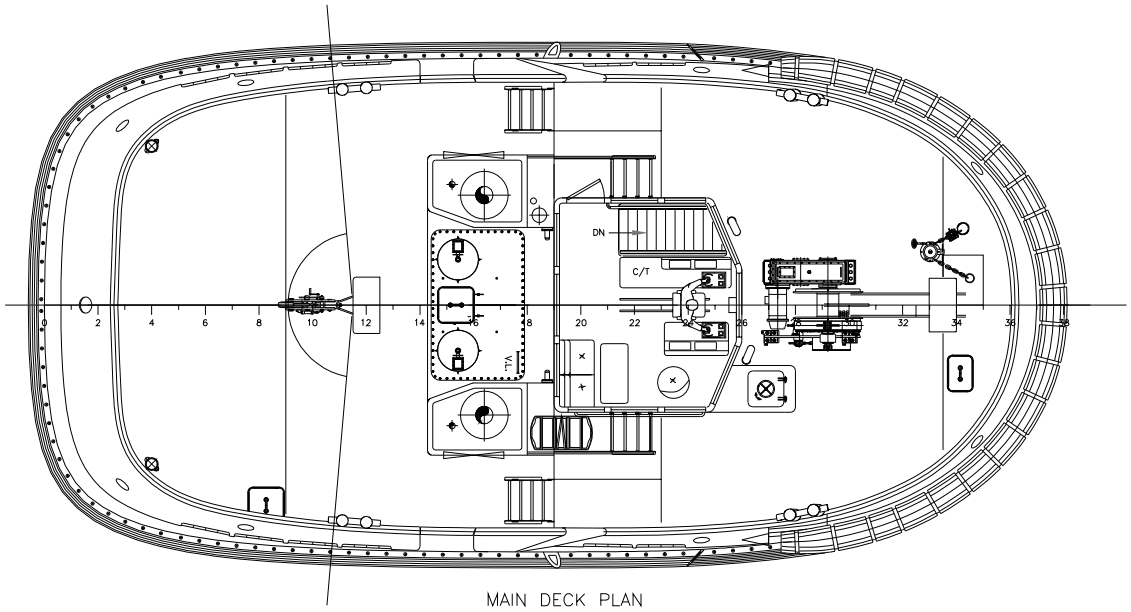
When in the 1980s the Government began contemplating the withdrawal from **port ownership** the indecision crippled port maintenance far into the 1990s. On 1 January, 2001, Hirtshals Municipality finally purchased the Port of Hirtshals from the Danish State. With the status change further business was developed and a new quay and container terminal was added. With water depth increased to 9,5 m. it was possible to receive the big fishing boats active in pelagic fishing. From the mid-2000s the ferry business was considerably strengthened with Color Line concentrating its Danish business at Hirtshals, the introduction of hi-speed ferries and Fjord Line and Smyril Line arriving at Hirtshals with **new ferry routes** Western and Southern Norway, the Faroe Islands and Iceland. Seven routes were now served from the port. Even though fishing is around 10% of the port’s turnover it is still regarded as a core business. New to the port is the addition of a salmon terminal which allows transport from the Norwegian salmon farms to European markets been reduced by almost two days. Water depth currently is up to 10,5 m. Quay length is 4,7 km. The port has 4 dedicated ferry berths, 2 ro/ro ramps, a slipway and a floating dock. The fishing industry is served by 2 ice factories.

The results for the year 2022 were very satisfying with a turnover increase of 12% against the previous year. Car and passenger traffic remained at the same level but the volume of goods increased by 8,2% since 2019, prior to the corona crisis. Fishing showed particularly good results with a 17%

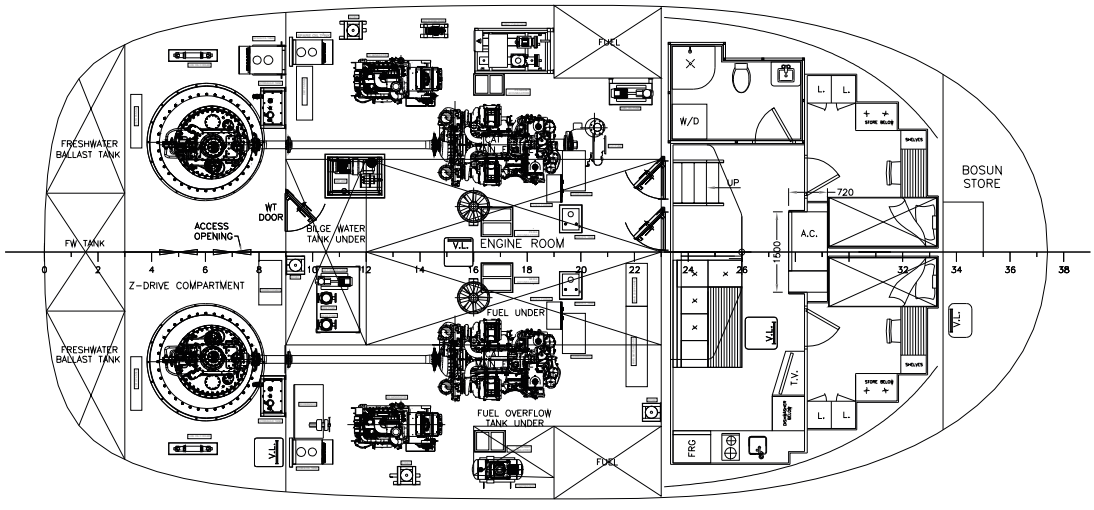


MONKEY DECK PLAN

PROFILE



MAIN DECK PLAN



HOLD PLAN

General Arrangement SIBBA (ex YENICAY X) *drawing: courtesy Sanmar Shipyards*

SIBBA *photo: Sanmar Shipyard*

increase since 2021. 144.000 lorries and trucks passed through the port as well as 780.000 passenger cars and 2.369.000 passengers. The cargo volume handled by the port in 2022 1,95 million tonnes. Currently the Port of Hirtshals is planning a major port expansion aimed at the expected growth in cargo transport by sea. The port will be able to accommodate larger vessels in harsher weather conditions. Also more ro/ro berths will be added.

Note: the above information on Hirtshals port was gleaned from the port's website with snippets from other websites included.

TYBRING will be replaced by SIBBA. TYBRING is the former OSCAR TYBRING of the Norwegian Lifeboat Association. Built by Haugesund Slipway in 1979 she arrived in Hirtshals in 2005. Dimensions 22,5 (oa) x 6 m. 1.600 hp - 19 tbp *photo: Capt. Hilmar Snorreson*

The figures for traffic in 2022 come from the port's Annual Report.

Port Towage at Hirtshals
is conducted by the port itself. Recently a new tug arrived in Hirtshals. *Sibba* is the former *Yenicay X* completed in 2019 by Sanmar Shipyards for its own tug fleet operating in Izmit Bay, Turkey. *Sibba* replaces the port's previous tug *Tybring* which was built in 1979 by Haugesund Slip A/S as *Oscar Tybring* for the Norwegian Lifeboat Organisation and has served at Hirtshals since 2005.

Based on the exclusive **RAscal 1800** design from Canadian naval architects Robert Allan Ltd the Yenicay-class was developed to address the challenges of modern, high-performance Z-drive line-handling, *Sibba* has a length overall of 18,70m, a moulded beam of 9,20m and depth of 3,5 m. Hull draft is approximately 2,50 with a maximum draft of 3,95 on the skeg and thrusters.

The hull
is divided into five watertight compartments. From forward to aft these are the fore peak with bosun store / chain locker, the lower accommodation,

YENICAY design *artwork: Sanmar Shipyard*

Note bow pushing pad below bow fendering typical for the YENICAY design
photo: Sanmar SHipyard

engine room, thruster compartment and aft peak / ballast tank. Frame spacing is 500 mm. The hull is fitted with a skeg that runs from frame 33 below the forward towing staple to frame 12 just forward of the aft deck towing bollard. The skeg features a cut-out section from frame 14 to 20 which greatly facilitates manoeuvrability. The hull is protected by heavy-duty D-type fendering in the sides. At the bow W-type fendering is in place with additional cylindrical fendering on top size 500 OD x 250 ID. Unusual for a shiphandling tug is a push pad from the waterline up but this is a standard application not only in the RAscal 1800 but also in the RAscal 1500 and the RApport 1600 and 1900 designs.

The superstructure
basically consists of the wheelhouse which sits on the semi-raised forecastle deck that extends from frame 19 all the way forward. The helmsman's seat is situated between two longitudinal control desks. In addition the wheel-house is fitted with seating for 3. The superstructure extends aft on the main deck with the engine uptakes and the engine room fans.

The accommodation
is arranged below the semi-raised forecastle and consists of two double cabins each fitted with two lockers, settee and desk. A separate sanitary space is fitted to port with shower, wash basin, toilet and a washer / dryer. A messroom / pantry equipped with TV, wash basin, refrigerator, dishwasher and cooking facilities seating 4 persons is located to starboard.

The space **below the accommodation** is accessible from the engine room. This space was utilised to fit the black and grey water pumps, the two hydrophores and the hot water tank.

Towing gear
Towing is via an electric constant tensioning **DMT** TW-E100kN winch located on the fore deck. The winch drum can hold 100 m x 40 mm diameter synthetic rope. Hauling speed is 10-tonne at 10 m/min, 3 tonne at 30 m/min., with a brake load of 75 tonnes. The forward winch also serves **towing over the stern** as a pipe tunnel runs underneath the wheelhouse. For that reason a second towing staple is sitting on the aft deck. A **Data Hidrolik** DTH 30-60P tow hook with pneumatic quick-release has been attached to the staple as well.

The engine room
Main engines are two **Caterpillar**

YENICAY engine room starboard side looking aft with main engine and gen set *photo: Sanmar Shipyard*

YENICAY messroom / pantry *photo: Sanmar Shipyard*

C32's, each producing 970 kW at 1.800 rpm (total output 2.638 bhp) driving the thrusters via **Vulkan** carbon-fibre shafts. The two **Veth** azimuthing thrusters type VZ-900-FP are fitted with fixed-pitch propellers with a diameter of 1,70 m rotating in Veth VOB-50 type nozzles. Bollard pull is 30,6 tonnes ahead, 29 tonnes astern. Speed ahead is 12 knots, astern 11 knots. Electrical power is generated by two Caterpillar C4.4 gen sets each 86 kW, 400 V, 50 Hz.

The tug is equipped for **fire-fighting**. A 600 m^3/hr fire pump is driven by the port side main engine via a clutched flexible coupling. A **FFS** manual operated foam / water fire monitor is located port side aft of the wheelhouse at the level of the top deck. The foam tank which is situated below the accommodation has a capacity of 1.586 litres.

The thruster room
is accessible via a watertight door in the engine room. It holds the two thrusters with their hydraulic oil tanks, lube oil coolers, control panels and a spare oil tank and transformer unit.

The aft peak
is fitted with fresh water ballast tanks port and starboard (5.017 litres each) with the ship's fresh water tank (5.776 litres) in between.

Tank capacities
The two fuel tanks in the double bottom each hold 7.735 litres while the fuel oil deep tanks fitted port and starboard immediately aft of the accommodation each hold 9.014 litres. With the fuel oil overflow tank – situated to starboard aft of the fuel oil deep tank – holding 807 litres the total fuel capacity is 34.405 litres. The two main engine lube oil tanks each hold 246 litres. Grey water 1.330 litres, black water 1.330 litres, bilge water 3.394 litres.

Port of Hirtshals
CEO, Per Holm Norgaard said : "The port's old tug was not strong enough to cope with the larger ferries now using the port and that this would become more of an issue in future as the port expanded."

Robert Hanson, Master Mariner and Fleet Manager at Hirtshals, added: "We have scoured the market over the past two years. We are convinced that with *Sibba* we have found a tug that suits our needs both today and in the future." He also noted that *Sibba*'s engines met with far stricter environmental requirements than its predecessor, resulting in much less CO_2 emissions.

Sanmar's
Ruchan Civgin, Commercial Director of Sanmar Shipyards, said: "I am delighted that the Port of Hirtshals has found the tug that provides the power, strength, and performance it requires to meet its individual needs, both now and in the future, at Sanmar. *Sibba* is one of a proven workhorse range of tugs that can take adverse weather conditions in their stride."

The RAscal 1800
is a twin azimuthing drive diesel powered tug designed for maximum efficiency in the performance of ship-handling duties for seagoing vessels. The design was developed from a wide array of previous successful tug designs, to ensure good sea-keeping, manoeuvrability, and stability in all modes of operation. Its robust all-welded steel construction comes with scantlings significantly in excess of minimums of any Classification Society. The vessel is equipped with heavy duty deck equipment and all-round fendering for all ship-handling operations.

Sibba is the 10th RAscal 1800 / Yenicay design built by Sanmar. The first was delivered in 2015 and currently operates

YENICAY note FiFi gear
photo: Sanmar Shipyard

in Somalia for Mogadishu Alport, jointly with *Yenicay II* now respectively *Mogadishu-1* and *Mogadishu-2*. No. 3 went to Otago Port, New Zealand, as *Arihi*. No. 4 was delivered to Abu Dhabi Ports. *No. 5* sails for Drydocks World Dubai as *Hatta 9.* No. 6 and no. 7 went to Safeen as respectively *Al Jimi 1* and *Al Hili II*. No. 8 sails as *San Martin* for the Spanish operator Remolcadores Nosa Terra. *Yenicay IX* is still working in Turkey but for MIP. No. 11 is now Marintug's Kaptan Bora Eksi while *Yenicay XII* and *Yenicay XIII* are still in the Sanmar fleet. *Yenicay XIV* was delivered to CFSM, Australia, in 2022.

YENICAY wheelhouse looking forward *photo: Sanmar Shipyard*

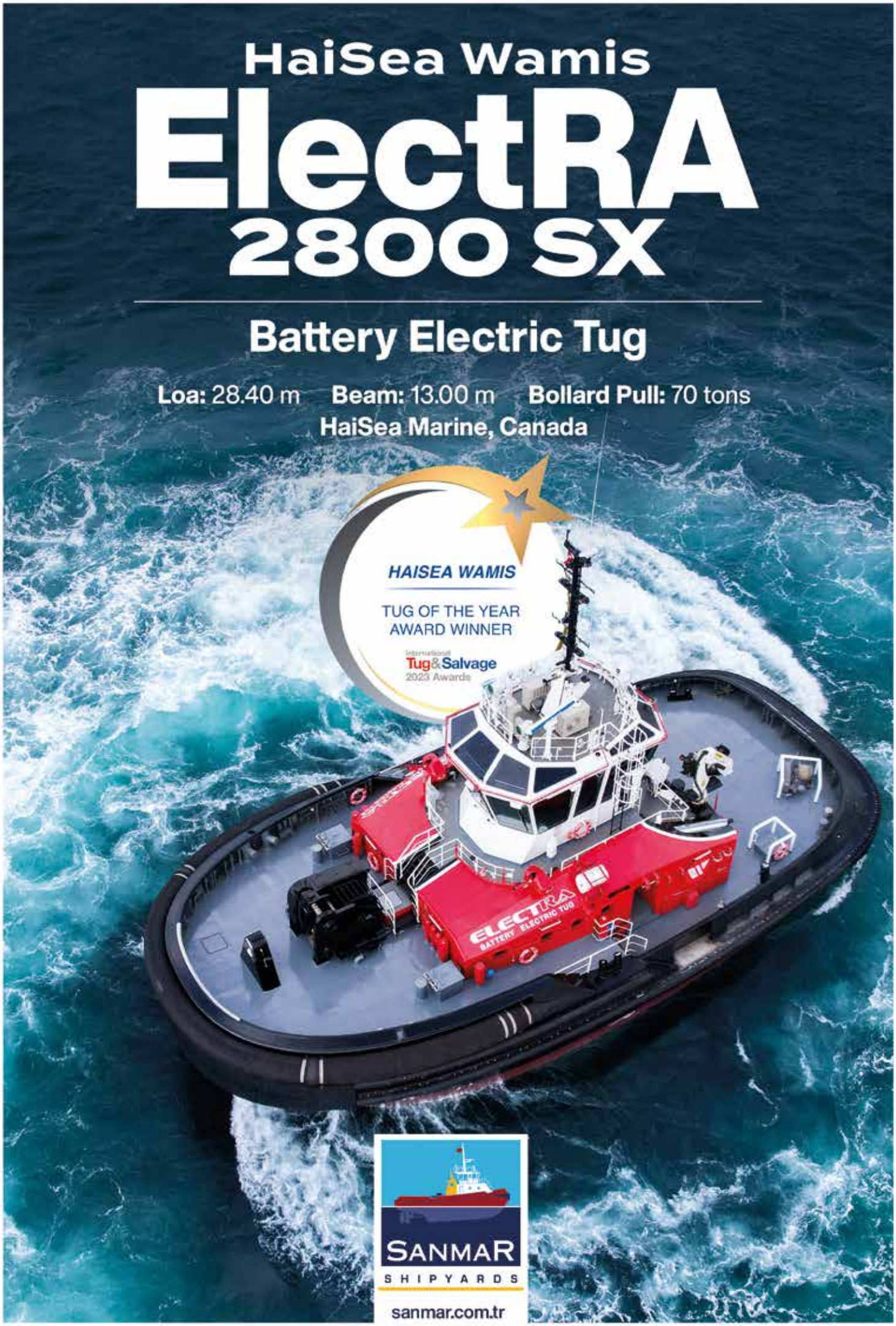
HaiSea Wamis

ElectRA 2800 SX

Battery Electric Tug

Loa: 28.40 m **Beam:** 13.00 m **Bollard Pull:** 70 tons

HaiSea Marine, Canada



SANMAR
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sanmar.com.tr

“Bonga” – intermezzo U.K.

Prior to continuing the voyage to Nigeria *Bonga* had to be equipped for the job. This saw equipment arrive from various parts of the world. It took until late 2003 to finish the FPSO and set sail for the final location.

by TDI Tugboat Publications

ASIAN HERCULES II operating in the Tyne *photo: coll. Job van Eijk*

The Shell contract for GBP 300 million construction and engineering work to complete the FPSO had been won by AMEC in 2001. Some 22.500 tonnes of topsides with oil and gas processing equipment had to be added to the FPSO. Main pieces were several pre-fabricated modules to be fitted on deck which housed the larger part of the installations required for the functioning of the FPSO. In total 17 modules were to be fitted which housed items like power generation, processing, flare scrubber, gas sales metering, vapour recovery unit, field gas compressors, the compressor control building, etc.

All were transported on barges which generated a lot of towage and heavy-lift activity in the river and at the AMEC yard. The contract for the heavy-lift operations was won by **Smit International Heavy Lift** that mobilised their lifting vessel / sheerlegs *Asian Hercules II* for the job.

ASIAN HERCULES II lifting a module for installation on BONGA *photo: Kevin Blair*

This 3.200 tonnes lift capacity sheerlegs lifted the process modules from their delivery barges or from the quay, transported them to the FPSO and positioned them on deck supports. For this purpose the sheerlegs was fitted with a 35-metre fly jib.

The heaviest lifts were the power generation and starboard process modules at about 2.600 tonnes each. Five of the modules also had large dimensions and weighed between 1.600 tonnes and 2.300 tonnes. To lift the seven big modules, Smit used a special lifting frame. In addition, the main pipe rack - weighing some 370 tonnes - consisted of at least seven modules, each requiring an individual lift. Besides the various process modules, Smit also installed a 440 tonnes flare boom with a length of 90 meters, which increased the *Bonga*'s air draft to approximately 90 meters. For each lift, *Asian Hercules II* had to sail to the lift location and moor after which the hoists were attached to the lifting points on the modules. The module was then transported to the FPSO. Four azimuthing thrusters allow *Asian Hercules II* to manoeuvre accurately into position for each lift and installation. As with the tow the lifting schedule was dictated by the limited manoeuvring area and the tides. These especially influenced the heaviest of the lifts.

Asian Hercules II two years earlier, in 2000, assisted in the outfitting of *Terra Nova*, Canada's first FPSO. The sheerlegs performed 20 heavy lifts over a one-month period at the Bull Arm fabrication facility in Newfoundland. *Asian Hercules II* is also known on the River Tyne.
In November 2000, the lifting vessel installed the Gateshead Millenium Bridge and in April 2001, *Asian Hercules II* installed three modules on the *Bleo Holm* FPSO.

Most of the modules arrived during the months of March and April, with barges loaded with modules from as far away as Nigeria and as close as Hartlepool.

The Norwegian tug BAMSE delivering yet another module for BONGA *photo: Kevin Blair*

The first to arrive was a short one from Hartlepool, the first of two from the same yard. The URS tug *Boxer* and *Boa Barge 21* were also used for these movements. On the first delivery there was a two-week wait before the barge could be discharged as the tides were not right for *Asian Hercules II* to work. *Boxer* stayed on at the Tyne for the duration. There were two modules for each of the deliveries and the local tugs were much in evidence for the passage up and down the river.

More modules for *Bonga* came from Zwijndrecht, The Netherlands, on board the barge *AMT Explorer*, towed by the tug *Multratug 7*. The tug and tow were met at the piers by the local tugs *Rowangarth* and *Yarm Cross*, which assisted all the way to berth at McNulty's in South Shields. Once again there was a delay due to lack of water in the river before lifting off could take place. In fact, *Boa Barge 21* and *AMT Explorer*'s modules were lifted at the same time on 13 / 14 March. In the meantime, *Multratug 7*, which had lain alongside OTP Walker, was waiting for the discharge to be completed so that she could pick up the empty barge for Zwijndrecht, where it was loaded again with two further modules for *Bonga*, which arrived on the Tyne on 24 March.

EERLAND 26 assisting ASIAN HERCULES II. In the background part of the flare boom to be lifted. EERLAND 26 is the former JANUS, the first-ever Schottel tractor tug (see TugeZine 11 for a full report on this tug and Schottel) *photo: Kevin Blair*

Installing the flare boom on BONGA *photo: Kevin Blair*

It was in late March that the I.T.C. tug *Sirocco* with the barge *H 122* in tow arrived from Nigeria, loaded with the flare boom and a further two modules for the *Bonga*. Once again the barge was put to a lay-by berth at McNulty's Yard in South Shields. Assistance for the passage up river and berthing was from *Yarm Cross* and *Flying Spindrift*. The following day *Sirocco* moved up river to O.T.P. Walker for stores and to sort out her towing gear. She sailed for IJmuiden

three days later. The barge had been discharged by 3 April, at which point *Boxer* moved down from O.T.P. Walker to connect up to the empty barge and departed the river for Stavanger the same day.

In all it took some 10 months of engineering work to complete the FPSO. Once installed offshore Nigeria it was to extract and process some 225.000 barrels of oil a day. On-board storage capacity is 2 million barrels of oil. The gas export facility can deliver up to 150 million cubic feet per day.

Note: the text is based on movement reports over this period by the late Mike Hawkins in his 'Around the U.K.' column in Lekko International

Asian Lift was established in Singapore in 1985, It was a joint-venture between Keppel Offshore & Marine and Smit Tak Singapore.
Asian Hercules II was built in 1996. Dimensions are 91,00 x 43,00 (mld) x 8,50 m. Displacement is 16.500 tonnes. Speed under own power is 7 knots. Deck strength allows loads of up to 15 tonnes per m^2. Ballast water capacity is 12.600 m^3. The A-frame has a length of 90 m with a maximum hook height above deck level of just over 75 m at an outreach of 20 m from the bow. The four main blocks have a capacity of 4x 825 tonnes (total 3.300 tonnes) without the fly jib mounted. A 35 metres fly jib is fitted with two blocks with a capacity of 825 tonnes each (total 1.650 tonnes) at a height of 110 m above main deck and at an outreach of 30 m. With the jib inclined at 40 degrees the capacity drops to 735 tonnes at a height above deck of nearly 100 m and an outreach of 47 m. For sheltered waters a 96-m fly jib can be mounted with a hook height of 175 m at an outreach of 45 m with a 300 tonnes lift capacity.

The A-frame can be skidded back along a deck track allowing for the carriage of heavy objects. The A-frame can thus be fixed in positions 5,20 resp 33,00 or 59,00 m from the bow. An 8-point mooring system is fitted with 1000 m 44 mm wire.

A vision of the way forward

Capt. Burchett for a long time has been involved in maritime training. Burchett Marine also provides scale models for open air training and testing. In this article a reflection on how to move forward.

by Capt. Ron Burchett

Where we are today is a result of the most technological advances in tugboat history. It was driven by the need to supply ship handling ability as the vessels got larger. In the last twenty-five years, tugs have gone from 25 tbp to 80 tbp today. As well, the hull dynamics had to be advanced to keep up with the increasing power available to the tug. This included modifying the keels and increasing the stability. In the end we have achieved a very high level of efficiency and safety. All of the technicians and naval architects and propulsion suppliers met the challenge. Hats off to the effort that was put in to reach this milestone.

ANDREW McALLISTER in escort mode *photo: coll. Job van Eijk*

The Crowley Voith Tractor NANUQ as tethered escort of the tanker ALASKAN LEGEND at Valdez
photo: coll. Job van Eijk

Now we are faced with moving forward with an exponential increase in the size of the ships which will offer a new challenge to meet the demand of the pilots and ship owners. On top of that the intake of cadets and crew is at a very low ebb, not only in Canada and the U.S. but globally and takes into account the upcoming retirement of the 'baby boom' generations. At the same time the requirements of the crew need to reach a much higher standard. This will require us to look at a cadet program, mentoring by senior captains and establishing crew retention. Consider looking at training people earlier and open enrollment to all genders and ages. The tugboats don't drive themselves even though it's been suggested we could make them robotic!! This brings up the question – 'Who's Driving the tug?'. The challenges going forward are the greatest they have ever been.

There is a **generational change** happening worldwide with both the crew and the retiring of the older tugs. Going forward, we will be building **mission specific tugs**. Electric harbour tugs and hybrid escort tugs. The need has never been greater to match the higher risk of the bigger ships. At the same time, we have pollution (tier 3) requirements to deal with. And the building of green tugs that are end-life recyclable. This also brings up the need for a different class of engineers to deal with the new power trains. We now have data supplied by the manufacturers of the drive train in real time transmitted ashore. This will come in the form of a histogram of the general health of the machine as well as how the vessel is being run (this is where the efficiency comes in to save on fuel). The winches and the tow lines have undergone great changes. Now, with the larger tugs, those demands will increase exponentially and will require new practices to be implemented. This will require a time motion study in real time to validate the safety of the operation. The other aspect to consider is **training the tug captains and pilots as a team**. They should have pre-planning to match the weather conditions affecting the passage of the ship. This will require practicing and certification of the techniques. This will all be based on risk analysis.

It will be more important than ever to build tugs that have a thirty-year life cycle. This means doing a complete audit of all the equipment on the vessel to evaluate the life cycle of the equipment including the overhaul and the up grading to match the changing technology. The running costs must be looked at very carefully to achieve a business plan that is sustainable in this competitive world. Propulsion packages will change rather rapidly now.

Testing escort manoeuvres using a remote-controlled model of a Voith Tractor connected to a free running manned tanker model
photo: coll. Ron Burchett

Ron Burchett at ITS 2014, Hamburg, repairing one of the regular RC models - AMAPOLA 1 - used in the model-pond
photo: Garth Manson

The bottom line of this is that the tug will have to be built in such a way that it can be upgraded technically over time without a lot of expense. One of the things that is showing up now is that the vessel must be built in such a way that the running expenses will be reduced by using aluminum and stainless-steel components wherever possible. The need to protect the performance of the main engines is to incorporate fuel additives and lubrication additives. This will lessen the wear and tear and increase the longevity of the machinery. Computer monitoring of all the equipment will be mandatory to implement cost control. There will be electronic tools coming forward to manage the wear and tear and also profile the proficiency of the captain. We all have bad habits. We were taught by captains that have "always done it this way". It is not how much your daily rate is, it's the cost of delivering the service in an economical and safe manner.

Three models used in the testing of the Auto Position Escort Winch - l to r Voith and ASD with the Auto winch, ASD with conventional bow winch
photo: coll. Ron Burchett

The running cost is the one aspect that must be controlled (saving fuel). This will mean dispatching the tugs in such a way that they minimize the movement of the tugs. i.e. – slow transit to the job and stay in position for the next job if possible. The next cost that has to be looked at carefully is the care of the tow line. Taking care that the line is spooled on the winch correctly over time will save money. Make use of the time between jobs, where possible, use the time for boat handling development. Over the last ten years, I've introduced physics in the training based on the tug design to get the most out of the boat. Learn to do the most movement with the least amount of energy is 'Money in the bank'. Learn to pre-position the tug for the next maneuver in a timely manner.

The success of the tug companies in the future will rely on very careful management of the resources. Attention

Port Revel training centre near Grenoble, France *photo: Port Revel*

to detail will be even more important than ever before. Don't forget that the retention of your well-trained crew will be your biggest asset. A lot has been said about remote control tugs. I've spent my whole life involved with the conception, design and testing of the new tugs by using models. I have been supplying models for thirty years to the training centres around the world. I have thousands of hours running remote control. **Flying an airplane is easy compared to running a tug** because of all the influences affecting the tug. (wind, tide, water pressure flows around the ship). The plane is flying at hundreds of miles per hour whereas the tug is going from 5 - 10 knots so that the outside influences are magnified accordingly. Slow motion is harder to deal with because you need to be highly attentive to realize what is going on and be able to pass the information on to the pilot.

Spatial awareness is paramount – you must be totally in touch with your surroundings and use risk analysis to make your decisions. This way you have an 80% chance of successfully completing the maneuver intended. Plan B is the back-up plan also based on risk analysis – then you must know when to use plan Z. **It requires a team effort – tugs & pilot. Know your team**.

Returning to training using models, the R.C. models are a derivative of the tank test models we used to come up with the new techniques on the newest tugs. The are built in 1:25 scale, which is the worldwide standard that is used in the training centres around the world. Burchett Marine supplied the models for **Port Revel** in France, **Warsash** in Southampton and Boston in U.S. and **Port Ash** in Australia. They have been very successful in teaching the pilots on the physics of ship docking with the use of tugs. As for the scale effect, it's four times faster than real time which means that the pilots are getting four times more training per day. They are

Port Revel
was established in 1967 near Grenoble as a man-made lake with facilities for manned scale models to train ship's captains experiencing behaviour of certain ship types like the big oil tankers, but also other types of ships, while handling these in restricted waters. Specific port scenarios can be imitated, as well as water depth etc. Initial training was for tug captains but soon pilots also used the facility. Since 1996 tugs have been added to the 'fleet', in this case to train the interaction between tug and assisted ship. The tugs are remote-controlled but otherwise behave like the real thing.

The APEW winch
Burchett Marine was also involved in the development of JonRie Inter Tech's concept of the **A**uto **P**osition **E**scort **W**inch. This winch (and staple) auto-rotates aligning itself with the pulling forces. Burchett carried out tests using models of a 32-metre ASD and 39-metre VSP tug. Live trials were carried out at Port Revel using a model of a 125.000 dwt tanker, a 266.000 m3 Q-Max LNG carrier and the 39-metre VSP model. Further tank tests were also carried out at the Stevens Institute of Technology, Hoboken NJ. The tests showed an increase in braking and steering forces exerted by the tug compared to a fixed winch / staple combination. The results were presented at the Tugnology 2011 conference in Antwerp.

JonRie Intertech - Burchett model trials with the Auto Position Escort Winch
photo: coll. Ron Burchett

Burchett's scale model of the tug and barge combination ISLAND RAIDER and barge ITB RESOLUTION was commissioned by Island Tug & Barge for training of the crew as the propulsion system as well as the connecting system – a 'pin' boat - was new to Island T&B. The operator sits in the seat on the barge with a full set of controls for azimuthing drives and the barge's bow thruster *photo: Alan Haig-Brown*

The live version: ITB's ISLAND RAIDER connected to the barge ITB RESOLUTION seen here entering Vancouver harbour *photo: Alan Haig-Brown*

very useful in re-enacting accidents and developing new manoeuvres for the larger ships and this is proving very effective for the pilots and the tug captains. This is one part of the training process. It is an introduction to the physics which leads into the use of the simulator to re-create manoeuvres for evaluation. Moving on to a training tug is the final step.

It ties all the physics of weight in motion, current and wind and how it affects the results of the manoeuvre which does not happen on a computer without very expensive programming. This speeds up the whole learning curve dramatically and gives the operator a level of competence which he can use to move forward with his learning curve, it reduces the sphincter factor - the fear of the unknown. I have had thirty years of experience with the models now in the training centres around the world. One of the bonuses is we can try new manoeuvres without any real life mishaps. This leads to onboard training preferable with a training tug. This makes the evaluation process a lot easier too.

As far as the spatial awareness is concerned using a model tug has the same requirements of the real tug, if not more. The tugs at the training centres are run by tug captains and they make the transition to how the model reacts without being on board. Yes, it is a bit harder not feeling a boat underneath your feet. In time it becomes natural. The simulator is only as good as the programming. On the lake, you cannot push reset!!. You are in real motion.

Ron Burchett is the son of a tug owner. From his early years on he developed an interest in vessel design. From an early age he worked for some 15 years on tugs and fishing vessels, rising through the ranks. After coming ashore he spent some time in shipyards. In his spare time he had achieved a very high standard in model ship building and turned this skill into a commercial venture, building model tugs for training purposes. Ron presented his first paper on the subject at the 1998 International Tug & Salvage Convention in Cape Town, 1998. **Seacor Holdings Inc.**

BRATT - the world's first dedicated training tug developed by Ron Burchett and Robert Allan
photo: coll. Job van Eijk

Tug News – New Tugs

A wide array of news from the world-wide tugboat industry and its suppliers. We are happy to receive your press releases and additional info via tugdoc@upcmail.nl.

compiled by TDI Tugboat Publication

The Fort Lauderdale based company is a portfolio partner of **American Industrial Partners** which has interests in domestic and international transportation and logistics assets.

Seacor has decided to sell its US harbour towing operations and assets from its **Seabulk Towing Holdings** subsidiary to two parties, E N Bisso and Son and Bay-Houston Towing Company. The two deals include a total of 20 tugs.

Seacor was co-founded by Charles Fabrikant. It all began in 1989 with the buy-out of Nicor Marine, an operator of supply vessels for the offshore industry in the Gulf of Mexico. In 1991 Seacor launched the National Response Corporation set up to combat environmental emergencies. From then on Seacor continued to invest in maritime, offshore and environmental related businesses. Towage came into the fold in 2005 with the acquisition of Seabulk International whih apart from its offshore and petroleum transportation business also operated in harbour and offshore towage. In 2021 Seacor became a 100% subsidiary of American Industrial Partners.

"**E.N. Bisso** and **Bay-Houston** are two industry leading harbour towing providers supported by many decades of safe and reliable operations," Eric Fabrikant, CEO of Seacor Holdings, said in a statement. "They not only offer our people and assets long-term homes, but also ensure the continuation of high-quality service for our customers". Seabulk will continue to own and operate a fleet of tugs and barges in support of its Caribbean terminal and bunkering operations, including the KSM joint venture with partner Kotug International.

PAX is a newbuilding for the Polish operator WUZ seen here arriving at Rotterdam. It is the third newbuilding to be delivered in a short time *photo: Leen van der Meijden*

Bay-Houston Towing
on 25 September , 2023, announced it entered into an agreement with Seacor Holdings to purchase Seabulk Towing Services and its towing operations at Port Arthur, Texas and Lake Charles, Louisiana. The transaction will bring an additional eight tugs to the Bay-Houston fleet which then will consist of 34 tugs.

"This acquisition expands Bay-Houston's ability to service our customers across more Texas and Louisiana ports," said Philip Kuebler, president and CEO at Bay-Houston. "We look forward to providing both existing and new customers with a smooth transition and serving as a valuable partner for years to come".

(continued at page 190)

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Pictured here:
ASD Tug 2111

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WOLRAAD WOLTEMADE seen 23 September, 2003, arriving in Rotterdam during heavy rainfall prior to mobilisation to the Tyne for the BONGA tow *photo: Job van Eijk*

SMITWIJS ROTTERDAM on 22 September, 2003, at the start of the mobilisation trip to the Tyne for the BONGA tow
photo: Job van Eijk

FAR SALTIRE - the lead tug for the BONGA tow Tyne to Nigeria *photo: Paul Whitelaw*

“Bonga” U.K. to Africa

Once completed by AMEC Wallsend the now finished FPSO Bonga had to be towed to a location offshore Nigeria and moored in deepwater. For the tow the owners selected Rotterdam-based Fairmount Marine. The contract was signed 22 March, 2002.

compiled by TDI Tugboat Publications

The three tugs chartered for the operation were the AHTS *Far Saltire* (180 tbp) as lead tug and the Global Alliance tugs *Wolraad Woltemade* - sister to *John Ross*, 205 tbp max) - and *Smitwijs Rotterdam* (176 tbp). At the request of Shell an additional tug was chartered, the AHTS *Highland Courage* (184 tbp) to act as an escort and back-up tug during the initial phase of the tow from the North Sea via the English Channel. The conditions for departure were more or less identical to those being in place on arrival: daylight only, passage of the breakwaters at high slack water during neap tides and wind speed less than 10 knots in the river.

BONGA at the AMEC yard awaiting the tow to Nigeria *photo: Kevin Blair*

The first attempt failed due to problems in ballasting *Bonga*, resulting in a cancellation of the sailing. The weather then took charge for a few days, bringing the risk that she would lose the high tide. If *Bonga* did not sail by 18 / 19 October 2003, a further two-week’s wait for water was looming. Luck and weather were on everyone’s side for the early morning tide of 18 October, and the big move was ready to commence.

The build-up of vessels had started on the last few days of September, when *Wolraad Woltemade* and *SmitWijs Rotterdam* arrived at Riverside Quay from Rotterdam. They were followed by *Far Saltire*, arriving from sea at T.C. Quay. She, in her turn, was followed later by *Maersk Logger* also from sea. These vessels were the main towing vessels. The chartered and local tugs arrived for the big move in the early days of October: *Kincraig* arriving from Invergordon, with *Ayton Cross* and *Ormesby Cross* up from the Tees.

MAERSK LOGGER assisted at departure of BONGA acting as the brake tug *photo: Paul Whitelaw*

When the first sailing was cancelled on 5 October, it was just in time to stop the arrival of any further vessels taken up for the sailing, and all three tugs returned to their normal working bases, but *Wolraad Woltemade*, *SmitWijs Rotterdam* and *Far Saltire* stayed on the Tyne in preparation for the next attempt at sailing.

Maersk Logger left Tyne Commission Quay on 5 October for Lowestoft, where she was looked over by the Klyne tugs with a view to purchase. In fact, she returned to the Tyne for *Bonga* sailing, and did some further work before returning to the Tyne for the last time as *Maersk Logger* on 27 October. She then entered dry dock for change of ownership and name, becoming the second *Anglian Earl* in the Klyne Fleet.

The second build up for *Bonga* sailing started with *RT Magic*, arriving from Rotterdam and berthing at Tyne Commission Quay for the wait. The next to move was *Wolraad Woltemade*, leaving Riverside Quay for the open sea to await further developments. She was followed two days later by *SmitWijs Rotterdam*, after she had taken bunkers at Velva Liquids. By 15 October there

The transport heading down the river Tyne, FAR SALTIRE towing flanked by RT MAGIC and RT SPIRIT *photo: Paul Whitelaw*

FAR SALTIRE heading downriver with BONGA. Seen running alongside are KINCRAIG and (behind) THORNGARTH. At the stern ORMESBY acting as steering

photo: Paul Whitelaw

WOLRAAD WOLTEMADE heading out to sea for the holding area to await the departure of BONGA
photo: coll. Job van Eijk

KINCRAIG assisting BONGA in the river *photo: coll. Job van Eijk*

were further arrivals: *Kincraig* (1998 – 3.600 bhp – 50 tbp) from Invergordon overnight; *Ayton Cross* (2000 – 4.400 bhp – 60 tbp) up from the Tees; and *RT Spirit* (1999 – 6.300 bhp – 75 tbp) from Rotterdam. *Ormesby Cross* (2000 – 4.400 bhp – 60 tbp) from the Tees was due to arrive the same day, but she came up a day later; and the final vessel, *Highland Courage*, arrived from Aberdeen three days after that, joining the others at sea.

Departure

At about 8.00 pm on 18 October, *RT Magic* (1999 – 6.300 bhp – 75 tbp), *RT Spirit*, *Ayton Cross*, *Kincraig* and *Rowangarth* (1981 – 3.200 bhp – 42 tbp) moved up river to connect to *Bonga* and started to push to allow all ropes to be released. In the early hours of the 19 October, at 07.25 AM the last of the moorings was slipped. *Far Saltire* was at the bow with Kotug's *RT Magic* and *RT Spirit* also connected at the bow and Svitzer's *Ormesby Cross* and *Ayton Cross* at the stern. *Maersk Logger* (1987 – 12.000 bhp – 150 tbp) moved up to connect to the stern to act as a brake. At 09.45 the convoy passed the breakwaters, despite being hit by sudden squalls with wind speed up to 37 knots. At 10.10 the convoy reached the designated hand-over location where the other two tugs hooked up. At 13.30 hrs course was set for Nigeria. Once outside most of the tugs were released to return to their various ports of operation.

It was then left to the larger vessels waiting outside to take charge of the tow to Africa. *Maersk Logger* was also discharged at the piers and returned to Great Yarmouth. *SmitWijs Rotterdam* was delayed off the Tyne with engine problems so *Highland Courage* took her place. With *Far Saltire* on the centre tow and *Wolraad Woltemade* and *Highland Courage* on each quarter, *Bonga* took off for Africa followed by *RT Magic*. By the time the tow reached the English Channel, *SmitWijs Rotterdam* replaced *Highland Courage*, which then joined *RT Magic* as escorts to the first bunker station at Setubal, where both escorts were given permission to leave for home.

Towing speed in the North Sea and Dover Straits was up to 8 knots. On 6 November, off Las Palmas, the bunkering dance of the tugs began while at the same time a crew change of the *Bonga* riding crew was performed. On 8 November this was completed and course was set for Nigeria where the transport arrived 27 November at the designated handover point. Installation

BONGA en route Nigeria as seen from SMITWIJS ROTTERDAM *photo: coll. Job van Eijk*

BONGA experiencing heavy seas off the Portuguese coast on 31 October, 2003,as seen from WOLRAAD WOLTEMADE *photo: Albert Chipps*

SMITWIJS ROTTERDAM as seen from FAR SALTIRE *photo: James Dodds*

work started immediately under management of SBM.

Production

In November 2005, Shell Nigeria Exploration and Production Company Ltd (SNEPCo) began to produce oil and gas at Bonga, 120 kilometres (km) offshore Nigeria in the Gulf of Guinea. The project – the country's first in deep water – increased Nigeria's oil capacity by 10%. First discovered in 1995, Bonga lies in water 1.000 metres deep across an area of 60 square km. By the end of March 2010, Bonga had produced over 280 million barrels of oil. The Bonga field supplies gas to the Nigeria Liquefied Natural Gas Company Ltd at Bonny Island, from where it is exported to European and other markets. Oil is exported globally from the *Bonga* FPSO – the floating, production, storage and offloading vessel that is at the heart of the field's development.

It receives crude from production wells on the seabed. The oil is processed onboard, stored and then sent to the single point mooring (SPM) to load it onto tankers for export. *Bonga* is held in place by 500-tonne anchors linked by 20 km of high-strength chains.

The field is operated by Shell Nigeria which owns 55% of the license. The other partners in the field development are Exxon (20%), Nigerian AGIP (12,5%) and Elf Petroleum Nigeria Limited (12,5%). A secondary field was discovered in the block in May 2001 known as Bonga SW, which encountered significant hydrocarbons. A third field was discovered later in 2004 which is known as Bonga North.

Field extension

In August 2014 Shell Nigeria started oil production from the first well at the Bonga North West deep-water development off the Nigerian coast. Since then the remaining five wells have been completed and are now on stream, with the last well commissioned on 18 January, 2015. Oil from the Bonga North West subsea facilities is transported by an undersea pipeline to the existing *Bonga* (FPSO) export facility. The *Bonga* FPSO has been upgraded to handle the additional oil flow from Bonga North West which, at peak production, is now contributing around 40.000 barrels of oil equivalent per day. The project included upgrading the Bonga FPSO to add new chemical injection systems to prevent corrosion and freezing in the new pipelines.

One billion barrel milestone

On 13 February, 2023, it was announced that *Bonga* had hit a 1-billion-barrel oil export mark. This milestone came three months after a major turnaround maintenance of the facility was completed ahead of schedule. Managing Director, Shell Nigeria Exploration and Production Company Ltd, Elohor Aiboni, described the milestone as a celebration of excellence, leadership and focused delivery that has brought significant benefits to Nigeria and Nigerians. "One billion barrels is an exciting milestone," said Aiboni, SNEPCo's first

Specifications *Far Saltire*

Owner: Farstad Marine (Solstad Offshore). Built 2002 by Orskov Shipyard, Frederikshavn. Design UT 728 L. Dimensions 73,6 / 63,6 x 16,8 x 7,5 m. Draught (max) 6,3m. Main engines 4x Bergen 4.075 bhp each, total output 16.300 bhp. 180 tbp. Speed max 16,3 knots. Double drum towing winch with 4.530 m x 80 mm wire. Accommodation 25. The vessel was sold in September, 2019, for further trading. *Pionnier* is registered under the SeaOwl Group and on charter to the French Marine Nationale for environmental protection and SAR operations in the Mediterranean.

Specifications *Highland Courage*

Owner: Gulf Offshore North Sea. Built 2002 by Soviknes Veft. Design UT 722-L. Dimensions 80,0 / 69,3 x 18,0 x 8,0 m. Draught 6,6 m. Main engines 4x Bergen total output 16.320 bhp. 183 tbp. Speed max 16,2 knots. Single 3-drum towing winch with 1x 8.000 m / 2x 3.000 m x 76 mm wire. Accommodation 32.

FAR SALTIRE lead tug of the BONGA tow dancing off the Portuguese coast photo: coll. Job van Eijk

Another shot of BONGA from WOLRAAD WOLTEMADE photo: Albert Chipps

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WOLRAAD WOLTEMADE in 12-meter seas off Portugal *photo: James Dodds*

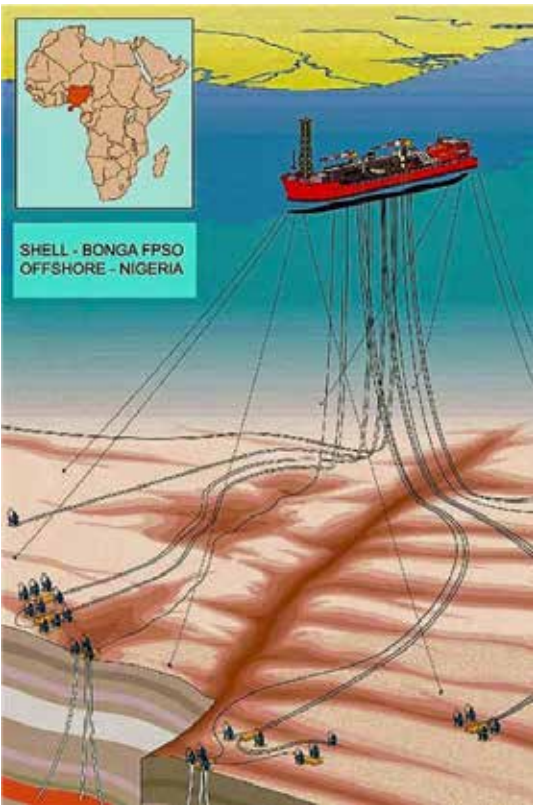
SMITWIJS ROTTERDAM during the BONGA tow *photo: Albert Chipps*

female Managing Director, adding, "I'm incredibly proud of all of our employees and contractors who've contributed to the success of the *Bonga* FPSO and the attainment of this remarkable achievement." Aiboni also attributed the success of Bonga to the supportive partnership with the Nigerian National Petroleum Company Limited and SNEPCo's co-venturers – TotalEnergies EP Nigeria Limited, Nigerian Agip Oil Company, and Esso Exploration and Production Nigeria Limited.

Bonga, a floating production, storage, and offloading (FPSO) vessel which began operations in 2005 is anchored 120 kilometres offshore in the Gulf of Guinea and has consistently delivered value in national revenue, local capacity development of Nigerian engineers and funding support to the service industry, in addition to its many social investment programmes in health, education and sports. The *Bonga* FPSO vessel has enjoyed significant expansion over the years with the further drilling of wells in Bonga Phases 2 and 3 and through a subsea tie-back that unlocked the nearby Bonga Northwest field in August 2014. Bonga Northwest can produce approximately 65.000 barrels of oil equivalent a day and was named **Engineering Project of the Year 2015** at the prestigious Platts Global Energy Awards in New York.

Speaking on the Bonga billion-barrel milestone, the Country Chair, Shell

BONGA and FAR SALTIRE on 9 November, 2003, shortly after completing the bunkering operation off Las Palmas *photo: coll. Job van Eijk*



Graphic showing the BONGA FPSO operation in the field offshore Nigeria *photo: Shell*

Installation work in the Bonga Field *graphic: coll. Job van Eijk*

Companies in Nigeria, Osagie Okunbor, commended the resilience, focus and dedication of the entire SNEPCo team, most of whom are Nigerians. "I feel a strong sense of pride knowing that today, over 95 percent of SNEPCo staff, including those working on the Bonga FPSO, are trained Nigerian deep-water professionals, who daily contribute their quota, in the development of Nigeria's deep-water hydrocarbon resources. The entire team should be incredibly proud of themselves," Okunbor said.

Note: the facts of the departure were taken from the column 'Around the U.K.' by the late Mike Hawkins in Lekko International magazine. The Bonga Fields data were sourced from Shell websites and press releases.

The BONGA FPSO in approximately 2015 *photo: Shell (Giles Barnard)*

Books

This time we present you with a new book plus some older publications related to our back page photo.

compiled by TDI Tugboat Publications

Een Eeuw Verbinden – Passagiersdienst Rederij Doeksen bestaat 100 jaar
is a Dutch-language publication commissioned on the occasion of the 100th anniversary of the Doeksen passenger services they are running connecting the Wadden Islands of Terschelling and Ameland to the Dutch mainland. Obviously 'TugeZine | all about tugs' at first sight Is not the most logical medium to report on the new book. However, Doeksen is also known for its salvage work – and to a lesser extent – the towage activities. The services to and from the Wadden islands have always been season-bound. The summer months the tourists were overflowing the islands, while in winter it was difficult to earn a penny. Perhaps this more than anything else has been the driver behind the salvage work because for that activity winter was more lucrative.

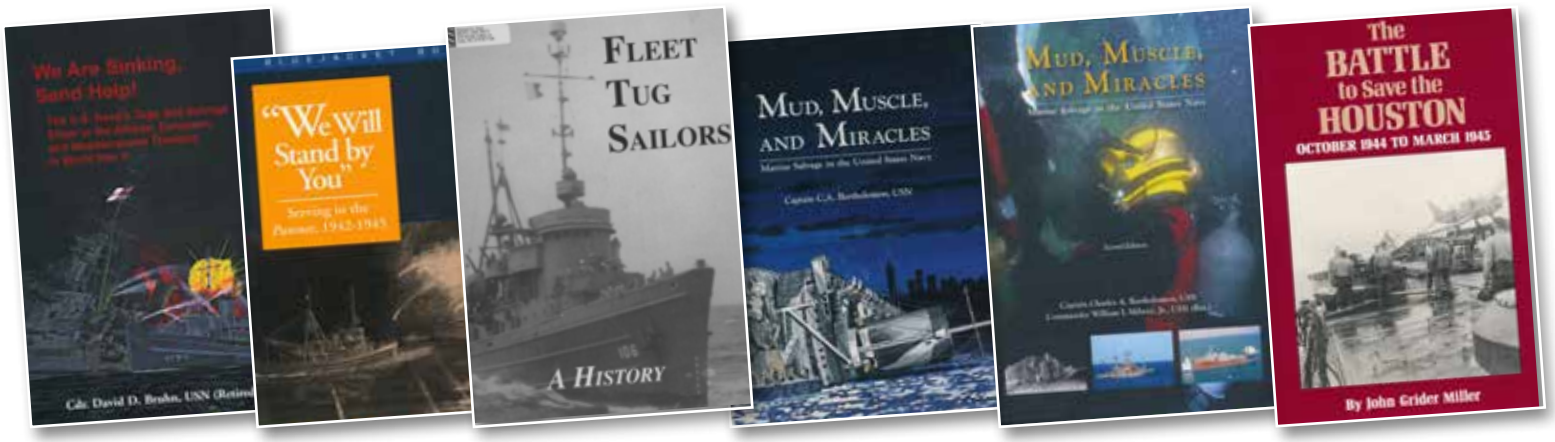
That is why they developed the passenger-salvage-ferry-tug. Or rather, they adapted their tugs for the carrying of passengers in the suitable months by constructing mobile passenger accommodations. Although on occasion they left passenger ashore hurrying answering a mayday call. This book is therefore of use to those with an interest in this special field and in the Doeksen company but the majority of the book is given over to the passenger services.

The book - in the Dutch language – is a nice read with many clear pictures. Recommended reading for those of you with affinity with the subject.

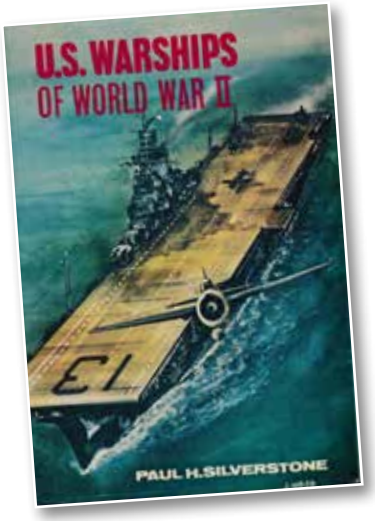
Een Eeuw Verbinden – Passagiersdienst Rederij Doeksen bestaat 100 jaar - published 2023 by Rederij Doeksen, U.K.-Authors: Harry Wentink, Annemieke van Brummelen-van Dam, Carina van der Schaaf with Kees Dekker and Pieter Schroo – 68 pages – 102 photos in colour and black&white – no index - size 30,4 x 21,4 cm – hardback cover – no ISBN – 'the bool can only be ordered via https://www.rederij-doeksen.nl; go to 'home' and scroll down until you find the book. Click the book and you will enter the webshop. Click 'boeken' to enter the order procedure - price: Euro 19,23 excluding postage.

Several English-language books are related to the subject of our back page – the ATF Fleet Tugs of the U.S. Navy.

A good starting point is **U.S. Warships of World War II by Paul H. Silverstone**. This book delivers in tabulated format the goods mentioned in the title. All ATF's are listed with the builders, delivery or launch dates and ultimate fate at the publishing date which is 1965. Far more extensive is Capt. Walter W. Jaffee's **Ships for Victory – The tugboats from A to Z**. This hefty volume describes the individual tugs with extensive documentation on the ship's history where available. See the description for further info.
Fleet Tug Sailors – A History, published by Turner Publishing Co., Paducah, Kentucky, USA. The book is partly filled with a selection of operational cases carried out by some of the ATF's. A third of the book is given over to mini biographies of (former) fleet tug crewmembers.
Mud, Muscle and Miracles – Marine Salvage in the United States Navy by Capt. C.A. Bartholomew, USN, is a historic record of U.S. Navy salvage. A well-documented book that deserves a wide audience. If you are interested in marine salvage, this is a must-read.
A second updated edition has also been published but the quality of printing and photographic reproduction is far below the original first edition.
We are sinking, Send Help! By Cdr. David D. Bruhn, USN (retired) describes the salvage operations in African, European and Mediterranean theatres during World War II. This is a most informative book aiming at the larger operations. Like the other books it also provides a listing of tugs and salvage vessels. One of those lists shows the U.S. tugs involved in the D-Day landings.
"We will stand by you" subtitled Serving in the Pawnee, 1942-1945 by Theodore C. Mason follows the track of the fleet tug *Pawnee* during World War II over a period of 25 months in the Pacific.



Mr Mason at the time was a radio man in that tug and describes events as seen from the deck rather than from the bridge. The title of the book is the signal Pawnee send to the torpedoed cruiser Houston which was salvaged in battle against all odds. Good reading that takes you on board a tug at war.
The battle to save the Houston, October 1944 to March 1945 by John Grider Miller specifically looks at what happened to the *Houston* and her crew and how they achieved the survival of their ship. This is a good companion read to 'We will stand by you'.

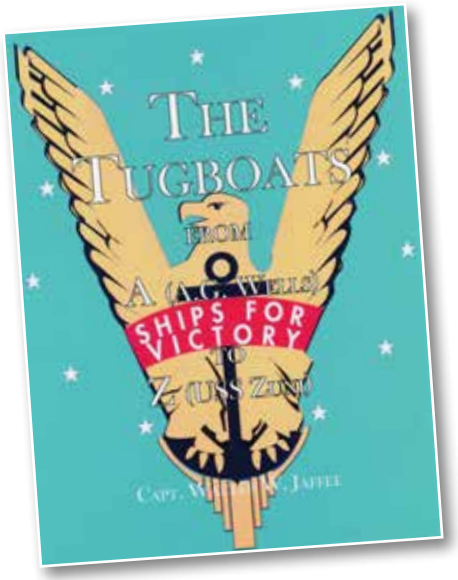


U.S. Warships of World War II
Another of the famous Ian Allan reference books this time compiled by Paul H. Silverstone. This book - dating from 1965 - can be considered the most comprehensive publication ever on the U.S. Naval forces of World War II. The book lists all U.S Navy and U.S. Coastguard vessels from the battleships down to the amphibious craft and auxiliaries. The book follows he same format as "Warships of World War II" An index was provided listing all ships by name. It also contains a list of ships lost during WW II.

The chapters of most interest to us obviously are those on the tugs and salvage vessels. While the fleet tugs and salvage vessels are all individually listed this unfortunately is not the case with the 'auxiliary tugs', the ATA's and the 'rescue tugs', the ATR's. These are listed as groups, with individual names / numbers mentioned as well as their respective building yards.

Availability of this book is second-hand not widely offered. Prices range from USD 4,00 to USD 20,00.

U.S. Warships of World War II – published in 1965, 1966 and 1968 by Ian Allan, Shepperton, United KIngdom. – Author: Paul H. Silverstone – 442 pages – nearly 400 photos in b&w – Size 19,0 x 13,5 cm – Hardback with dustcover.



Ships for Victory: The Tugboats from A (A.G. WIlls) to Z (USS Zuni)
is the title of a book by Capt. Walter W. Jaffe. This is book no 6 in a series detailing the U.S. Maritime Commission's wartime ship-building program and that of its successor, the Maritime Administration. More precisely, this specific book details all the tugboats contracted for by the U.S. government through the end of World War II. Included are the Defence Plant Corporation, the U.S. Maritime Commission, the U.S. Coast Guard, the U.S. Army and the U.S. Navy. There is a separate chapter on the Mikimiki Army tugs and two appendices of seldom-seen information and photos on military barges. A useful chapter is added to present an overview of the yards involved.

The tugs are arranged according to Department: Defence Plant Corporation, U.S. Army, U.S. Coastguard, U.S. Maritime Commission and U.S. Navy. Apart from these is a separate chapter on the Miki's. The chapters mentioned detail the tugs. There are also appendices detailing various matters like the TUSA tugs.

The vessels listed are up to the end of WW II. This is important in relation to other publications on the subject - more on this further down the text.

The tugs are presented in a standard format. Detailing origins of the ship's name, builder, keel laid, launch date, delivery date, type of vessel, armament, total crew, and the vessel's history as far as owners, change of ownership and change of names is concerned. The choice for a standard clear format is to be praised but on the other hand the way it is being used in full format for every individual vessel leads to a lot of repeat information for series-built identical ships. There is also a lot of empty 'unknown' fields of information which takes up a lot of space. In some instances this creates uncertainty. For instance, armament with the DPC tugs is mentioned as 'no information'. The most likely answer is that these tugs were not armed so the correct answer would be :'none' which is quite a difference form 'unknown'. On the pro-side is the extensive descriptions of the individual operations carried out by the fleet tugs – little of that has been published previously.

Obviously the full format is a good thing if you want to amend details from your own research but given the nature of previous publications on the subject it is more likely to be the other way round. – to use the book to fill gaps in your older information. The book has a bibliography but several well-known publications are missing from this which presumably means these were not taken into account in the research for this book although the older books miss out on later historic data which in a number of cases is rectified in this book. Some 500 illustrations were added, all in black & white, Size varies from 1-colum to full page width.

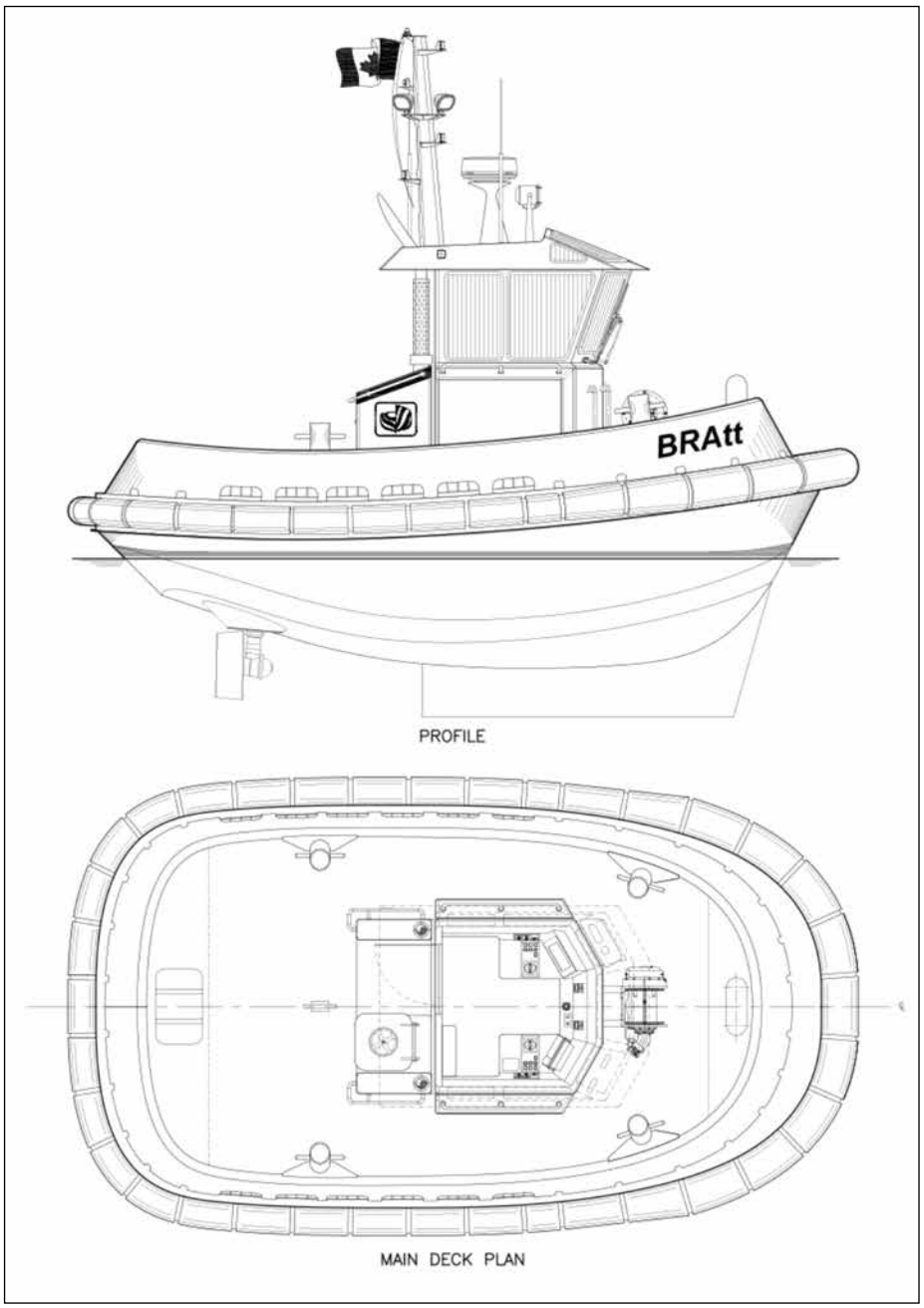
For those of our readers interested in the subject but with only basic awareness the book thus is a must-buy. For those who have already researched some of the subjects / tug types and are in possession of some of the earlier publications the book may or may not add to your knowledge. The price varies but if you pay around USD 55,00 you should be allright. Prices of up to USD 150,00 have been spotted but that is over the top value-for-money wise. For those outside the U.S. - remember that on top of published prices and the postage in many countries also import taxes will have to be paid.

Ships for Victory: The Tugboats from A (A.G. WIlls) to Z (USS Zuni) published 2014 by Glencannon Press, El Cerrito, CA, USA - Author: Walter W. Jaffee - 662 pages – some 500 illustrations in b&w – index of ships names - size 28,5 x 22,0 cm – hard coverwith dust jacket - ISBN 978-1-889901-57-2 – price: varies depending on source but try for approx. USD 55,00 including delivery.

The training tug

BRATT - the Burchett Robert Allan Training Tug project - evolved from Ron Burchett's training programs for tug operators using radio-remote controlled scale models.

by Job van Eijk



General Arrangement BRATT training tug *drawing: Robert Allan Ltd*

Why not build a model that is large enough for the operator and instructor to ride on and learn in the same space frame of reference as the boat?

The 2010- built *BRAtt* is a 7.80 m x 4.32 m aluminium-hulled training tug with a draught of 1.44 m designed by Robert Allan Ltd, with the designer's distinctive double-chine hull form. Under the counter of the broad stern the hull tucks in quickly providing good water flow over the twin azimuthing drives located aft in the ASD manner. Forward, a relatively deep bow is augmented by a skeg that makes this an escort capable tug. The little tug provides real water training to aspiring assist and docking tug masters without taking an expensive full-size ASD tugs off the job. The boat is fitted with a fully operational JonRie hawser winch forward with the tow line passing through a polished stainless-steel staple.

The **propulsion system** on the BRAtt is scaled to proportionately represent the full size tugs. It begins with a pair of **Cummins** QSB5.9-230 HD engines, each delivering 225 hp at 2.600 rpm into engine mounted ZF-280.1 gears with 1:1 ratios. To allow for further reduction below the engines 600 rpm idle, the gears have slipping clutches. Flexible Centa torsional couplings are installed between the engines and their gears. Additional flexible couplings are at either end of the drive shafts to reduce vibration and to accommodate any movement in the flexibly mounted engines. The **Z-drives** are Olympic Model HD3 with 2:1 reduction. These thrusters were developed and are in use in the BC logging industry fitted in the log-dozer / yarding tugs. The propellers are 25¾" stainless in stainless nozzles. Both the engines and the Z-drives are mounted with a five-degree angle upward to the stern. The 450 hp twin-engine tug delivers 3.6 tons of bollard pull.

Piping and fittings are aluminium except were unpractical for which stainless steel was used. The engine is isolated from the aluminium with stainless shims. The four bollards are constructed to also serve as lifting points for the 16-metric ton vessel. The wheelhouse is fitted on resilient mounts to provide a lower ambient noise level in the training area. In operation there is room for at most three people on the boat, but ideally just two. In addition to its training functions, the BRAtt can serve effectively as a real tug, doing smaller towing, docking and line-handling duties, and other harbour tasks such as boom deployment.

As it were, demand for a dedicated training tug developed not as expected. The larger operators preferred using their operational vessels for training purposes. Building a training tug is

10% of the price of a shiphandling tug and the chances of doing serious damage during training are reduced dramatically. As a bonus the operating costs are lowered exponentially.

In early 2014 the *BRAtt* was purchased from Robert Allan by Harley Marine Services, Seattle. At the time Director of Marine Operations for **Harley Marine Services**, Captain Scott Manley, stated, "This vessel will greatly enhance our ability to train qualified and quality operators for our fleet." The addition of *HMS BRAtt* will allow crewmembers to become familiar with manoeuvrability and handling capabilities of a tractor tug prior to taking on of a full sized vessel. Her compact size will give trainees the opportunity to practice their operational skills in confined spaces". "One key component to a successful transportation company in the maritime industry is to employ the most qualified and competent individuals" reports Captain Scott Manley. "In order to achieve this goal, Harley Marine is constantly evolving their training program so that employees are provided with the best available resources to do their job. The *HMS BRAtt* is just one element of the comprehensive training program at Harley Marine Services. The *HMS BRAtt* will provide a real-life training mechanism that will teach lessons experienced in the wheelhouse on a daily basis. Harley Marine Services is the only marine transportation company that has this type of learning vehicle available to their employees".

Harley Marine, however, has since been taken over and the new owner disposed of the training tug to **CalMaritime** *- California State University Maritime Academy Training Centre in Valao, California.*

At the ITS 2010 in Vancouver - SEASPAN RESOLUTION versus BRATT *photo: Robert Allan Ltd*

SUNCOR V with BRATT behind. SUNCOR V differs in that it is not a training tug hence the tug is fitted with pushing pads and is steel-hulled *photo: Robert Allan Ltd*

While other tugs have been built along the same lines none were to be used for training. Using the same basic idea, however, the Dutch company Rotortug (Kooren) invested in a dedicated training tug to go with their training / simulation centre. *RT Borkum* is a fully operational 10-metre long Rotor tug with triple azimuthing drives.

RT Borkum was delivered in 2016 and has since been used as a training tug, demonstration vessel and test base for new techniques amongst which remote control testing, unmanned sailing testing and new types of towing gear. The tug also performs the occasional tow.

RT BORKUM active during the Ocean Towage Day 2019 at Maassluis. She is towing the Maassluis Sea Cadet vessel (former pilot boat) RIGEL leaving port *photo: Job van Eijk*

RT BORKUM in the Oude Maas towing the Kooren Terminal barge, 5 March 2020 *photo: Nico Giltay*

The shallow-draught Damen Multicat 1908-named SD SCHOLLE was delivered from stock
photo: Damen Shipyards

Tug News – New Tugs
(continued from page 174)

E.N. Bisso
The fifth-generation owned harbour towing business – based at New Orleans - also entered into an agreement with Seacor Holdings to purchase their operations in Florida and Alabama. This will bring an additional 12 shiphandling tugs - including five Rotor Tugs – into the fleet growing it to 34 units. The company provides shiphandling in New Orleans; Gulfport, Miss.; Port Canaveral, Fla.; and Palm Beach, Fla.

"Acquiring an industry leading platform in these markets is exciting for E.N. Bisso and enables us to enhance our services in Florida and expand into Alabama," said Matt Holzhalb, president and CEO at E.N. Bisso. "Not only are we growing our fleet with the addition of new, differentiated assets like the innovative advanced Rotor Tug, but we are thrilled to welcome such high calibre team members to the E.N. Bisso family".

Tidewater Canada
formerly ITB Canada, expand its tug fleet in British Columbia, Canada. For this they acquired two azimuthing stern drive (ASD) tugs. The first is a Damen ASD 2310 tug which had become redundant with its owner. Redwise Marine Services delivered the 2nd hand acquisition *TWC Artemis* - the 2015-built *Svitzer Yuma* - to the new owners in Vancouver.

The second tug is a newbuild reverse stern drive RSD 2312 tug from Damen's Song Cam yard in Vietnam. *TWC Endurance* - was delivered to Vancouver by a heavy-lift vessel contracted by Damen.

On 1 January, 2023, ITB, including Island Tug and Barge, ITB Subsea and ITB Marine Group **was re-branded as Tidewater Canada** under the new Tidewater Canada logo. As such, Island Tug and Barge is now Tidewater Transportation Canada Inc. and ITB Subsea changed to Tidewater Subsea Ltd. The change represents the strengthening integration of the Canadian enterprise with its US group of companies.

Svitzer Brazil
has taken delivery of *Svitzer Monte K* from its builders, Rio Maguari Shipyard. The new tug is a Robert Allan RAmparts 2300 design. Sister *Svitzer Atanásio* was delivered earlier this year. The two tugs are part of a six-vessel newbuilding program strengthening Svitzer's Brazilian operations. By the end of 2023, Svitzer will operate 20 tugs, including the four vessels added to the fleet in 2023, in eight ports across Brazil – Salvador, Suape, Pecem, Santos, Vitoria, Rio Grande, Sao Francisco do Sul and Paranagua.

Med Marine
recently delivered *Vernicos Scafi III* to Vernicos Scafi. The 25-meter 75 tbp tug is of the yard's MED-A2575 Ramparts 2500w design. Dimensions are 25,2 x 12 x 4,6 m with a draft of 5,75 m. Main engines are two MTU 16V-4000-M63 diesels IMO Tier II standard with a total output of 4.000 kW at 1.800 rpm. Propulsion is by Kongsberg US 205S-P20-FP azimuthing thrusters with a propeller diameter of 2.800 mm.

Ten new tugs for the Suez Canal *artwork: Robert Allan Ltd*

SVITZER YUMA – seen here 1 December, 2019, at Freeport, Bahamas – was sold to Tidewater Canada photo: Ko Rusman

Bohlen & Doyen Bau GmbH received their newbuild Multi Cat 1908 SD (shallow draught) just one month after signing the contact. Bohlen & Doyen is active in energy infrastructure construction and is a subsidiary of Friedrich Vorwerk. The vessel, named *Scholle*, is the first marine asset to be bought by the company in many years.

The 19,4-metre vessel has been bought for use on a multi-year project supporting transmission system operator TenneT on its offshore grid connection systems in the North Sea. Bohlen & Doyen's new acquisition will be used for a wide variety of support tasks in the coastal waters of Germany, including pushing and pulling barges, supplying fuel and water, transporting equipment and personnel to and from the working areas, and utilising its crane across multiple scenarios.

The German-flagged Multi Cat 1908 SD is specially designed to operate in shallow waters, with an operational draft between 1.0 and 1.2 metres. In addition to the standard specification, Bohlen & Doyen requested a towing hook, a wooden bulwark between the pushbows and additional lashing points. A cooling radiator has also been added to enable the generator to provide power while the vessel is beached. To further optimise the vessel for its role it has been equipped to use Panolin GreenMarine biodegradable hydraulic oil to allow it to operate in the Wadden Sea.

"We are very pleased to add this ultra shallow draft vessel to our fleet, providing us with an even wider range of applications in our hydraulic engineering department", said Tim Hameister, CFO of Bohlen & Doyen. "In particular, the very short delivery time and the quick implementation of our special requests by Damen Shipyards Hardinxveld convinced us".

Robert Allan Ltd. announced they have been awarded a significant new contract with South Red Sea Shipyard (SRSS) in Egypt for the design of 10 RAstar 3200-W ASD tugs to be built for the **Suez Canal Authority**. These new vessels build on the success of the RAstar 3200-W platform, of which there are over 20 vessels in service worldwide.

On completion of this contract, the Suez Canal Authority will own and operate over 20 Robert Allan Ltd. designed tugs, all of which are high-performance ASD tugs. These new vessels will complement the existing eight Robert Allan Ltd. designed tugs currently working in Egypt for commercial operators.

PAIUTE – ATF 159 photo coll. Job van Eijk

The ATF 'Paiute' story

PAIUTE - ATF 159 is one of a class of 69 WW-2 U.S. Navy fleet tugs. They were built between 1939 and 1946 by a total of just five shipyards, the majority being a product of Charleston Shipbuilding. The tugs were diesel-electric with a total output of 3.000 bhp delivered by four General Motors 12-278-A main engines to a single shaft. Speed 16,5 knots. Fitted with constant-tension towing winches. Displacement was around 1.230 tons standard / 1.589 tons full load with dimensions of 62,48 (oa) / 59,44 (wl) x 11,73 x 4,65 m. As Navy vessels they were armed with one 3-inch gun forward and four 40 mm anti-aircraft guns although some were fitted with twin 40 or 20 mm AA. The tugs carried a crew of 85 max.

Effectively there were two designs within the class: the NAVAJO and ABNAKI. While all were fitted with salvage gear, some were outfitted with a more extensive array of equipment. Basically, however, all tugs were carbon copies, the most detectable difference being a series that lacked of a 'normal' funnel. Three were converted to submarine rescue vessel while under construction.

PAIUTE (hull no. 159) was launched at Charleston Shipbuilding and Drydock Co. on 4 June, 1945. Her armament differed slightly with 1x 3-inch, 2x 20 mm AA and 2x 40 mm AA. Her crew was down to 76. She was commissioned into the Navy on 27 August, 1945. Her first commander was Lt. Stanley J. Lewandowski. Stationed at Norfolk she operated throughout the North Atlantic. In 1953 she was moved to Balboa in the Panama Canal Zone. In 1958 she changed to Mayport, Florida, although she mostly operated out of Guantanamo Bay, Cuba. The tug was involved with the recovery operations for the Gemini 6,7 and 8 space flights and a few years later for Apollo 7 and Apollo 9. In 1967 she was extensively overhauled. The tug was decommissioned at Mayport in 1985 only to be recommissioned in 1987. Final decommissioning was in 1992 after which she went into lay-up. 14 February, 1995 her name was struck from the Naval Register. On 29 December, 1997, she was transferred to MARAD for disposal, but it lasted until 2003 before she was finally scrapped. The photo shows the tug at IJmuiden after a visit to Amsterdam photo: coll. Job van Eijk

The PAIUTE - ATF 159 seen at IJmuiden after a visit to Amsterdam