

Wallenius, a green pioneer

Going green involves more than painting vessels

Wallenius has a reputation for being one of the “greenest” shipping companies in the world. Jesper Lögdstrom, Design Manager – Stability & Hydrodynamics of Wallenius Marine, tells Report how the shipowner does a lot more than paying lip service to environmental issues by just following the latest regulations. He outlines how taking an environmentally-responsible approach runs through the very blood of the company.



Launching of M/V Fedora, DSME Okpo Shipyard, November 2007

Wallenius operates some 180 ro-ro vessels together with its subsidiaries and partners, including the world's largest car carriers, which carry up to 8,000 vehicles. Lögdstrom says the company's aim is that the fleet should be a world leader with regards to quality, safety and environmental standards. Even though shipping is the most energy efficient way of transporting goods, he says, the industry faces a huge challenge to decrease its environmental impact. “In Wallenius we are doing our best to reduce our environmental footprint.” For the Swedish firm this means more than merely complying with laws and regulations. “We want to be ahead and push legislation forward.” One way of doing this is to work with “upstream solutions” – trying to control the sources of waste in the first place, rather than treating them afterwards. Wallenius has already been working according to this philosophy since the 1990s, he stresses.

Ahead of the legislators In practice, this means Wallenius wants its vessels to use fuel that is as clean as possible. Only environmentally-friendly oils and lubricants are used. The company reduces nitrogen emissions by lowering combustion chamber temperatures, uses tin-free bottom paint and it always looks to optimise ship operations. Wallenius uses the world's first IMO-approved chemical free system for ballast-water cleaning, PureBallast, which it developed together with Alfa Laval. From 2008, all new vessels are being delivered with PureBallast systems. In addition, the company has started retrofitting its existing fleet and this process will be completed by 2015. “This will ensure that we are well ahead of the legislation,” comments Lögdstrom. Wallenius makes sure that the “green message” gets through in a number of ways. The company's environmental commitment has led to a relatively-large Environment and R&D group that currently consists of six people who work with colleagues at sea and ashore.

Since 1998, the group has had an Environment Management System approved and certified according to ISO 14001. All co-workers

also go through an environmental education in order to get a deeper understanding of the environmental aspects. Lögdstrom says that because Wallenius is known as a company that takes environmental work seriously, it has noticed that it attracts people that are also engaged and have knowledge of this field. “That strengthens our position as a forerunner even more.”

Ambitious environmental targets

Environmental engagement is a central element in the way the company does business. “We think this strategy has served us well so far and we believe it will strengthen our position even more in the future with the many environmental challenges that lie before us. Our strategy is to be leading the world through highly skilled co-workers with continuous competence development. We strive for a systematic, focused and cost efficient upgrading of the current fleet. Last but absolutely not least, when we develop new tonnage, we do it with ambitious targets on efficiency, quality, safety and low environmental impact.”

Together with its operating company Wallenius Wilhelmsen Logistics (WWL), the company's goal is to reduce CO₂ emissions by 30% on average across the entire fleet over five years (2008-2012). Of the 30%, 10% will come from technical measures, 10% from operations, such as “eco driving”, route planning, cargo handling etc, and the remainder from speed reduction, contracts and by making cargo deliveries in due time.

To obtain savings by technical measures Wallenius is taking a number of measures:

- Optimised hull and propulsion (trying to design newbuildings for service instead of contract condition, improve aero-dynamic design – reduce height of bridge/application of bow wind screen, application of hull appendages/duck tail, low resistance rudders)
- Optimised machinery system efficiency (waste heat recovery, reduce losses from accommodation and ventilation, minimising SFOC by choice of main engine)
- Improved guidance for vessel operation (vessel characteristics guideline package



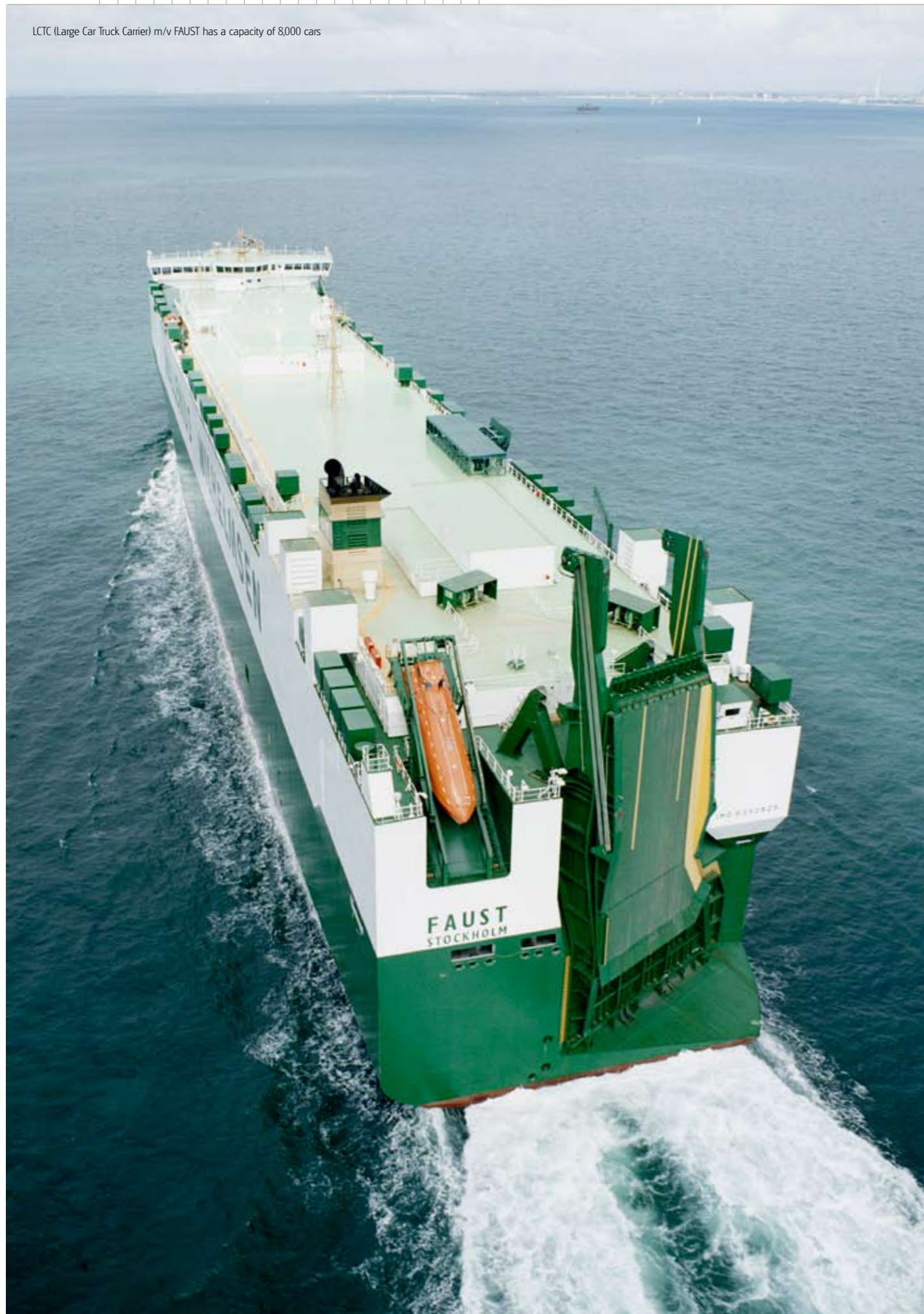
SPA-JIP: Reducing fuel costs and emissions on Wallenius Undine

Jesper Lögdstrom is playing an active role in the Service Performance Analysis Joint Industry Project (SPA-JIP) by providing the m/v UNDINE as a demonstration vessel. The SPA-JIP aims to reduce fuel consumption and emissions by analysing performance on board. Crews can use the results of the analysis to improve performance by changing the trim condition or speed settings. The service performance analysis method developed in the SPA-JIP, corrects deviations in environmental and loading conditions to ensure that the performance comparison is carried out under equal circumstances.

The m/v UNDINE is being used to collect data to test the analysis method and to demonstrate the on board analysis tool to the participants. On board, the analysis tool is coupled to the NAPA database. Data analysis has already produced some interesting results regarding trim optimisation and the effect of drift on the vessel's performance.

m/v UNDINE is also being used in many other energy-saving and emission-reducing projects at Wallenius. Lögdstrom comments: “Wallenius and other forerunners show what is possible and hopefully others follow.”

LCTC (Large Car Truck Carrier) m/v FAUST has a capacity of 8,000 cars



including an in-house developed support tool for “opti-ballast” that utilises the results from extensive opti-trim tests and optimises the amount and location of ballast to reduce the resistance, considering the actual tank arrangement, stability and strength) - Improved Performance Monitoring and Analysis (joined SPA-JIP in 2006, running internal project during 2009 that aims to develop a systematic performance monitoring procedure including reporting templates, analysis tools and follow-up presentations)

When it comes to NOx emissions Wallenius already started installing low NOx sliding valves on its main engines in 2000 and completed the installation in a few years. Additionally, the company is installing WetPac. This humidifies the scavenger air on the auxiliary engines reducing NOx emissions significantly.

To reduce SO2 emissions Wallenius runs its main engines on low sulphur bunkers with an average sulphur content below 1.5 % and auxiliary engines on diesel oil with a content below 0.2 %. In the longer-term, Wallenius is looking at alternative fuels such as LNG. “Our vision is to build an emission-free vessel,” he adds.

There are still several challenges to be overcome, he emphasises. For instance,

although numerous paint makers claim reductions in resistance, established figures still seem to be missing. Wallenius therefore, welcomes research in this field and he adds, “we think MARIN has the knowledge and experience for the task”. The most accurate way to determine the effect of propeller and hull fouling is probably to perform controlled in-service sea trials on a few sister vessels over a docking period of three to five years, he says, preferably using different anti-fouling systems.

Emissions-free vessel In 2004, Wallenius and WWL also designed the concept vessel Environmentally Sound (E/S) Orcelle, that has since become Wallenius Marine’s vision and inspiration in all environmental projects. Orcelle is being used for a feasibility study which the company believes will lead to an emissions-free vessel. “It will present new technologies and their applications that should enable us to achieve our goal. We believe that the way forward is in utilising the energy that already exists and which is free, namely solar, wind and wave energy. It is probably not enough to propel a ship at the usual speed, so we will have to take other forms of energy onboard as well but these energy forms will have to be emission neutral.”

But Lögdström stresses: “However, we doubt that the emission problem is completely solved on a voluntary basis and therefore,



we welcome stricter environmental regulations for the shipping industry. Wallenius believes that shipping is by far the best way of transporting goods but there are still a lot of areas for improvement.” For a complete overview of Wallenius’ environmental measures taken and other information please refer to www.walleniusmarine.com. □

