



The News around the Thomas Schulte Group

# CROW'S NEST

December 2011 Issue



Targeting MARPOL Compliance

Shaft Power Meter Improves  
Performance

Global Science on Board





## Editorial

**Welcome to the year's end edition of The Crow's Nest, the news magazine of the Thomas Schulte Group.**

2011 will probably be remembered as one of the most difficult years in the history of international shipping and the year ahead will most likely be no less demanding. We did mention already in the last edition that positive trends in the shipping markets alone, are not (anymore) sufficient to create an equilibrium.

Known as a cost efficient manager, the Thomas Schulte Group did already implement some time ago an operational cost reduction programme that goes hand in hand with our continuous drive to optimise our internal analysis procedures. These measures cover the entire spectrum available to a ship manager, with the primary focus to increase the quality and attractiveness of our fleet, whilst reducing costs at the same time. With a container order book of only 30 % of the existing fleet, the focus cannot only lie on the new building side. It is essential for the existing fleet to maintain its competitive edge.

Equally important for the future outlook of the German shipping companies, is the need to reorganise its representative body vis-a-vis national and international governmental institutions. Clear directions and proper representation are essential tools, in order to remain on the forefront of the shipping industry.

I would like to thank everybody on board the vessels of the Thomas Schulte Group all over the world, our shore office staff, as well as our various new building supervision teams abroad and of course all our partners for their continuous support and wish you a peaceful Christmas time and a happy and prosperous 2012.

As always we hope that The Crow's Nest will be interesting reading.

Sincerely,  
Alexander Schulte



**Shipping Miracles: Soybeans – Dry Bulk Cargo.** The soybean is often called the miracle crop. It is an extremely versatile commodity and one of the world's main providers of protein.

Nearly a hundred million tons of soybeans were exported in 2010, being transported around the world. MS DAPHNE SCHULTE and MS DORIAN SCHULTE offer modern transport technology. ▶

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**Trimming Fuel Costs.** Reederei Thomas Schulte, together with a major container liner operator, installed trim optimizing software onboard a test group of containerships.

The program is capable of determining optimum trim for each loading condition. ▶

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Reducing water and wave drag with an optimal position of the vessel's hull



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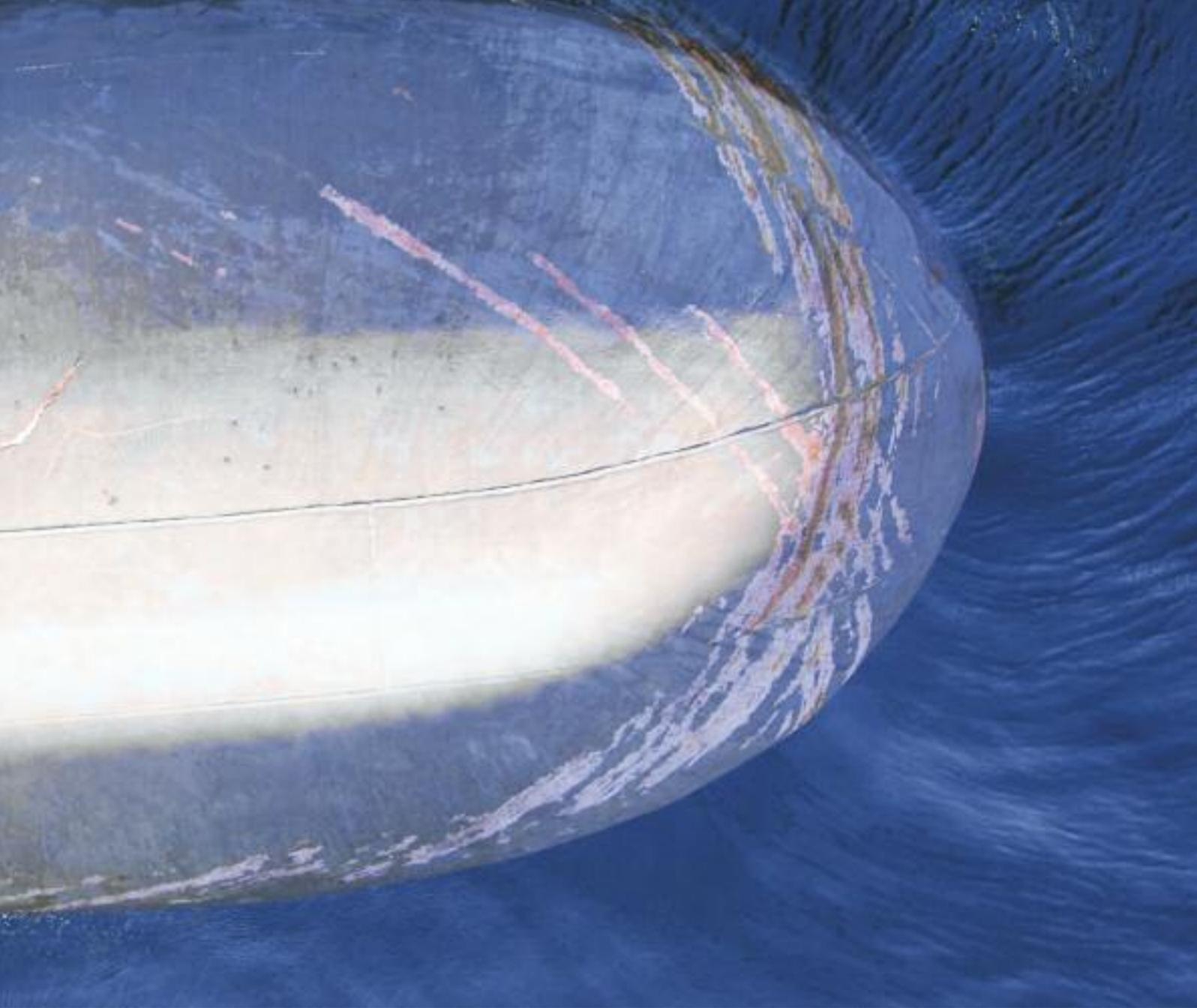


## Targeting MARPOL Compliance

**Ocean Shipmanagement GmbH, OSM, initiated major improvements of ship operations regarding international environmental requirements. The in-house technical manager of Reederei Thomas Schulte voluntarily took action to cooperate with Marport Security, an external auditing company, in order to evaluate environmental protection of our ships.**

The Thomas Schulte Group was to enforce compliance with MARPOL, not only to fulfil essential required standards of preventing any pollution of the marine environment, but also to be one of the cleanest managing owners globally.

MARPOL 73/78, the International Convention for the Prevention of Pollution from Ships, is the second pillar of the international regulatory regime for safe, healthy and clean shipping. MARPOL was signed in 1973 at the International Maritime Organization, IMO, in order to eliminate **MARine POLLution** by oil and other harmful substances, during normal operation or by accident.



As of May 3rd, 2011, 150 countries, representing 99.14 percent of the world shipping tonnage, are now parties in the valid convention, which has been amended continuously after 1973 and 1978.

MARPOL Annex I outlines requirements to prevent oil pollution regarding design and type of vessel, as well as equipment available to reduce incidents of oil discharge during the vessel's cargo handling operations. We started with all of our vessels calling at U.S. ports: Philadelphia, Long Beach, New Jersey and New York; these were to be checked by Marport Security.

Surveyors checking compliance with MARPOL Annex I focused particularly on equipment, documentation and procedures. Use of the Oily Water Separator (OWS), the overboard discharge

monitoring equipment and a thorough administration of the Oil Record Book (ORB) are key. Many of our Marport auditors are former U.S. Coast Guard Officers. Specific experiences during their particular work have made them well-aware of equipment and documentation being problematic areas on board the ships. With their broad background knowledge, they are the most qualified specialists for our clean ship operations.

Authorities around the world are taking an increasingly hard line on ships having, or being suspected of having, discharged oil at sea. Each country has a law enforcement agency that detains MARPOL Regulation violators, if necessary. Both company management and seafarers can be held liable to criminal prosecution and imprisonment for any deliberate violation of MARPOL ▶

requirements or falsification of records. Even minor violations will be detected. Million dollar fines may even be imposed.

Up to now, 4 of 38 vessels have been inspected. On January 18th, 2011, MV CAP CAPRICORN (ex. MV VALENTINA SCHULTE) was first in line. The audit took place at Philadelphia. Surveyors conclusively stated that the Company, Chief Engineer and the Master understand the seriousness of illegal oily waste discharge. The shipboard personnel are competent licensed merchant mariners who are committed to doing the right thing.

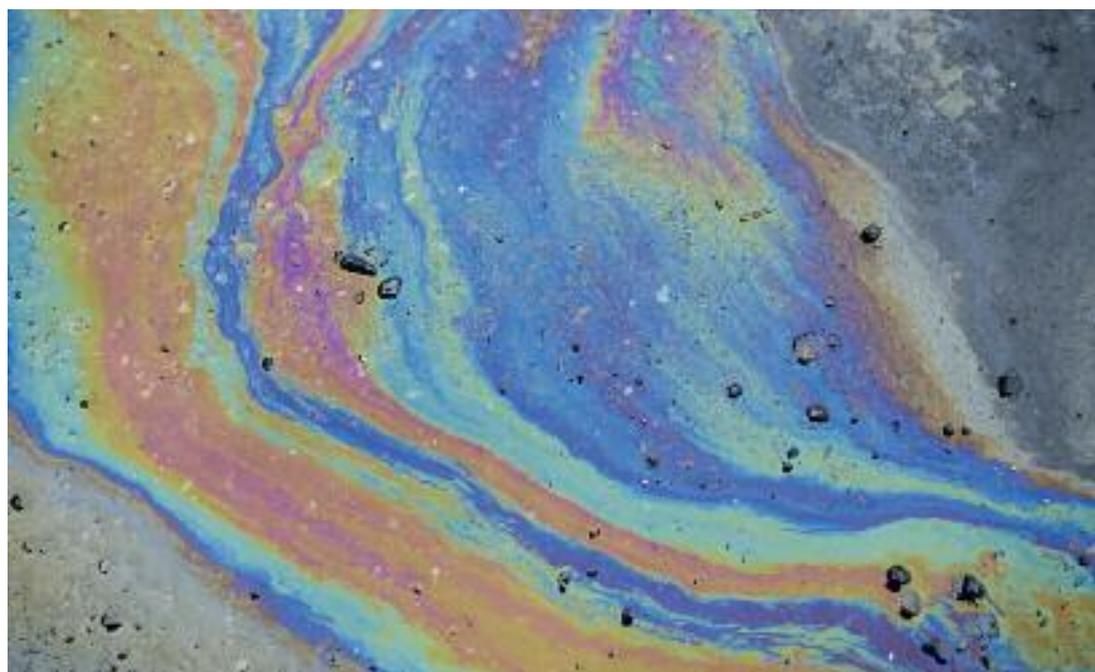
Surveyors were convinced by the efforts already taken by the Thomas Schulte Group. Many of the required procedures are implemented and are working well. For instance, OSM requires numbered seals on OWS discharge piping and has established a very thorough system for monitoring the seals, including notifications and permissions whenever a seal has to be removed and replaced. OSM takes time to brief the Captains and Chief Engineers on our MARPOL policies when joining the group and, at least once every two years thereafter, strengthening the company's overall performance.

MV VALENTINA SCHULTE achieved a reasonable 101 of 110 possible points; however, it left room for further improvement. MV UASC SAMARRA (ex. BENITA SCHULTE) was the final ship to be inspected on March 8th, 2011, and as a result of our continuous efforts, it achieved a respectable 107 out of 110 points.

The Quality Department, Fleet Manager and the responsible Superintendent analysed the audit reports immediately, after receipt, and suggested additional procedures. Important issues mentioned were the sealing of the boiler blow down valve and the fitting of missing nameplates on overboard valves. The work commenced instantly and was completed on all ships of our fleet after only a month.

Our target is not less than the maximum score for all inspected vessels. We will show that an efficient ship operation and environmental protection do not exclude each other, but rather work together for the benefit of both. ■

*Discharge strictly prohibited – oil slick: bright band of colour, Category D, Annex I to MARPOL 73/78.*



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# Shaft Power Meter Improves Performance

**Successful ship operation is based on fuel efficiency and engine reliability. In order to improve technical surveillance, economies in bunker consumption and environmental benefits, Reederei Thomas Schulte decided to equip most of the fleet with Shaft Power Meters. This sophisticated engine performance monitoring device is installed on ships' propeller shafts and provides a continuous online check of the current load of the main engine.**

The Reederei Thomas Schulte will see a rapid return on investment, because benefits of the technology are comprehensive. By benchmarking the current parameters with the optimum power values, the crew can easily detect any deviation and control the process pro-actively. Eventual defects become apparent quickly, and can be repaired before major machinery breakdown is inevitable. Early warning signals provide information about overload stress, which can be avoided as promptly as emerged. Costly engine failure, meaning off-hire, emergency purchase of spare parts, attendance of service technicians, is avoided.

Environmental benefits are driving forces for upgrading our vessels, because controlled fuel consumption saves resources. Reliable proper running conditions of the ship's main propulsion reduce hazardous emissions. The Shaft Power Meters enable the crew to compare current fuel-consumption with terms of reference. If out of limits, specific counter-measures can be started right on the spot to restore best fuel consumption target values.

*Tailored for the dry bulk business: our bulk ships reliably deliver coal, ore, grain, fertilizers and many other commodities all over the world.*



*Up and down a long flight of stairs – working in the ship engine*

The technology allows the engineers to balance cylinder oil consumption to minimal possible value by choosing systematically the best variables within the optimum set. So the Engineer can control and adjust quantities quickly, cutting the cylinder oil bill and reducing emissions. The application offers advantages immediately after installation, because daily running costs decrease from day one.

Performance monitoring makes it possible to improve the economic impact of propeller efficiency and hull resistance. The Shaft Power Meter shows the effect of any action taken to improve hull or propeller smoothness. In turn, fouling of ship's hull or any other impact decelerating the vessel headway is immediately detected, because the main engine needs more power to push the vessel forward.

The most beneficial aspect for Charterers, regarding fuel oil savings, is the simultaneous application of Shaft Power Meter and Trim Optimization Software, because the ship's command can balance fuel consumption and ship speed (see page 20). ■

## MAKING IT WORK

Carrying out measurements is simple, and the Shaft Power Meter is highly sensitive, fast and accurate. The intermediate-shaft between the main propulsion engine and the propeller is made from hard steel, which is flexible within certain limits. The degree of hardness depends on the steel alloy.

When running, the engine generates power on the propeller and the shaft is twisted by torsional-forces. The Shaft Power Meter accurately measures the on-shaft torque. Knowing the shaft hardness factor and its diameter, engineers are able to calculate the power required to obtain the intended twisting of the shaft. ■

## SECA Emission Limits: Challenges and Controls

**Shipping is an increasingly important issue in the current climate debate, as vessels are considered to be heavy contributors to emitting Sulphur Dioxide worldwide. In 1997 the International Maritime Organisation, IMO, proposed emission standards, limiting the sulphur content of bunker oil to a maximum of 4,5 % since 2005, to 3,5 % after 2015 and finally to 0,5 % after 2020, on the High Seas.** The Baltic Sea and the North Sea are classified as particularly sensitive SECAs (Sulphur Emission Control Areas), where emissions have to be lowered even faster. Today, bunker oil must contain less than 1,0 % sulphur. As from 2015, the allowed maximum will be down on 0,1 %.

The transfer to low sulphur fuels will increase bunker costs considerably: Bunker oil with less than 0,1 % sulphur is about 30 % more expensive than heavy fuels on average. Bunker is the biggest cost driver in overall freight costs, especially in the feeder and short sea market in Central Europe. Therefore, the SECA restrictions may not only lead to increasing transport costs, but also to shifting intermodal cargo flows from sea back to the road. German road networks will be forced to absorb higher workloads, particularly on the short



routes to Denmark and Poland. Surrounding ports will lose traffic volume and income.

Sea transport market players have started to call upon IMO to attenuate SECA-Regulations or postpone them. Amending the sulphur content limit from 0,1 % to 0,5 % would prevent raising fuel costs, to a certain extent, so that costs could remain manageable, delivering quality and service.

However, shipping companies already face additional cost burdens. The switch over from high to low sulphur fuel is a big challenge for vessels with single-fuel tank systems. Older vessels need to be equipped with extra tanks for the on board storage of different types of fuel or, as an alternative solution, to comply with SECA requirements, have to install exhaust

scrubber systems, which remove toxic particulates and gases from exhaust streams. Unfortunately, scrubber technologies are still in pilotage, expensive and place pressure on the limited space on board.

For a smooth changeover, from high to low sulphur fuel, the Thomas Schulte Group has decided to upgrade all new buildings with separate tank systems. The procedure takes up to three days during cruises, if conventional storage tanks are used. Because the changeover is to be carried out prior to entering the SECA, Thomas Schulte Group wants to accelerate the process and equip all new buildings with a sophisticated tank system, allowing fuel-change just by switching a valve. Providing efficient service to customers with an environmentally friendly solution is the mission of the Thomas Schulte Group. ■





# Reederei Thomas Schulte Supports Ethiopian Maritime Training Institute

**Yonas Bereka and Samson Tessema are the first of the newly graduated Ethiopian Engine Cadets to join the crews of our fleet.**

Reederei Thomas Schulte is cooperating for the first time with the Ethiopian Maritime Training Institute, EMTI, located next to Bahir Dar University on Lake Tana.

The EMTI is a private organization, training Ethiopian engineers in order to facilitate their employment with international shipping companies. The organization is owned and operated by the Washington based YCF Group and Ethiopian Shipping Lines, the national liner and tramp shipping business located at Addis Ababa. YCF Group operates a variety of companies across Africa.

EMTI's mission statement is to be a world-renown large-scale provider of high-quality marine professionals to the global shipping market. To achieve this goal, an undergraduate four-year course is offered and an post-graduate academic program of six months. Students attending the latter, like Yonas and Samson did, already hold a Bachelor degree in mechanical engineering from known universities.

In half a year they are trained in key skills for working and living on board beyond STCW certificates. Candidates qualify via an entrance exam, a personal interview and a medical check.

The first two six months batches were conducted at Akko, Israel, as the Ethiopian campus near Bahir Dar University was yet to be completed.

When Reederei Thomas Schulte heard about the EMTI in the summer of 2011, the management decided to support the project and to employ two Engine Cadets right away. Crew training is essential for our business.

It was Fleet Manager Jürgen Broschewitz, who had the pleasure of meeting the graduates of the second EMTI batch in Israel. He was impressed by the high standard of education and professional attitude of all participants of the course.

During a briefing conversation, Yonas Bereka and Samson Tessema were picked out as the best of their group. Both went on board HUGO SCHULTE at Hong Kong port in November 2011.

We welcome our new crewmembers with the best wishes for their professional career. ■



*Building terrain of Ethiopian Maritime Training Institute*



*From the left side: 2<sup>nd</sup> Eng. Alexander Zemskov, Eng. Cadet Yonas Bereka, Eng. Cadet Samson Tessema, Chief Eng. Dmitry Chernikov*



*MS DAPHNE SCHULTE and MS DORIAN SCHULTE offer modern transport technology with all necessary equipment for shipping soybeans safely to different charterer's destinations. Our crews are aware that shipping foodstuff calls for a very strong sense of responsibility.*

**ORIAN SCHULTE**





*Soybeans are a demanding cargo that has to be handled with special care during the entire voyage.*



## Shipping Miracles: Soybeans – Dry Bulk Cargo

**The soybean is often called the miracle crop. It is an extremely versatile commodity and one of the world's main providers of protein. It's used for vegetable oil, as an ingredient in many processed food products and in livestock feed.** Soya oil can be distilled into biodiesel. Global demand is rising fast.

Nearly a hundred million tons of soybeans were exported in 2010, being transported around the world, mainly on board bulk vessels. MS DAPHNE SCHULTE and MS DORIAN SCHULTE offer modern transport technology with all necessary equipment for shipping soybeans safely to different charterer's destinations.

Our crews are aware that shipping foodstuff calls for a very strong sense of responsibility. The commodity is a demanding cargo. Requirements are as versatile and high attention is necessary during the entire voyage. The soybean, as a natural product, is extremely sensitive to moisture, high pressure and temperature, which might not only cause damage to the cargo, but can endanger the entire vessel carrying thousands of tons.

Before loading, the commodity and the cargo holds have to be examined precisely. Even a minor variation in the color of the beans, like dark shadows, indicates that cargo was not treated properly before. The crew has to painstakingly clean the holds before loading operations can commence. Holds are to be kept absolutely dry. Soybeans have to be protected from pressure that might harm the outer shell and would expose the core of beans to influences from the transport environment. Rain, dust, rust endanger the quality of the foodstuff.

Damp, moisture and rain- or seawater are most threatening conditions. Critical water content of the beans is 13 to 14% causing microbiological activity. Soybeans are living organs

and start to respire: Fat cleavage increases the risk of the cargo undergoing self-heating, which not only decays the foodstuff but possibly can result in a cargo fire. Temperature of the cargo can increase rapidly, within hours, and at above 25 degrees Celsius the soybeans expel oil.

It is not only the possible caking or going rancid that is a concern, but the danger of auto-ignition at temperatures fairly below 100 degrees Celsius. The master has to prudently consider where to stow the cargo, and to secure stowage far away from tanks that are heated during the voyage.

Ventilation is the indispensable condition to make sure that the natural moisture degree of the cargo will not increase. Proper ventilation ensures perfect cargo conditions on the surface of the load. However, both the dew point of the internal air and outside the hold has to be intensively cared for. Inner and outer conditions have to be balanced at any time.

Sometimes it is helpful to find out the cargo origin, how it was harvested and stored until loading into the vessel. The vessel's command needs to rely on proper cargo description and analysis. Continuous surveys are to be made at various stages to prevent the mishandling of cargo.

Safety is the first basic demand for soybean transport, from harvest to consumption. Close and confident, hand-in-hand-working of all the parties involved is the best way for the cargo to reach the place of delivery at the highest quality. ■

## Trimming Fuel Costs

**Reederei Thomas Schulte, together with a major container liner operator, installed trim optimizing software onboard a test group of containerships. The ship design features a specific software tool, which promises to be a crucial step towards saving fuel costs.**

The program is capable of determining optimum trim for each loading condition. In close collaboration with cargo planners and the ship's crew, the trim can be adapted to any voyage conditions flexibly, just by entering some operational parameters.

The tool was developed by Germanischer Lloyd classification society, "because there is no global optimum trim for a vessel. Besides the specific hull shape, the optimum value depends on the operating parameters, such as speed, water displacement and water depth."

An optimal position of the vessel's hull during cruise reduces water and wave drag, and translates into considerable fuel savings. When the forward and aft draught is perfectly aligned, a particular trim optimizes speed, along with main engine and propeller efficiency. If the cargo and ballast water on board is distributed accordingly, fuel savings of up to five tons or more per day are achievable.

The pilot phase covers 3.500 TEU LISA SCHULTE, HELENA SCHULTE, PHILIPPA SCHULTE and MARIA SCHULTE, the sister ships built at Shanghai Shipyard. Shortly after application, the first evaluations indeed indicated potentials for significant reductions of fuel consumption.

Saving fuel means reducing emissions and resource conservation, which cuts operational costs. Therefore Reederei Thomas Schulte cooperates closely with charterers to further develop the fuel saving software program, making it available to a larger number of ships within the fleet. ■

*A ship engineer works in the red glow of the engine room.*





*MAXIMILIAN SCHULTE passing through Magellan Straits.*

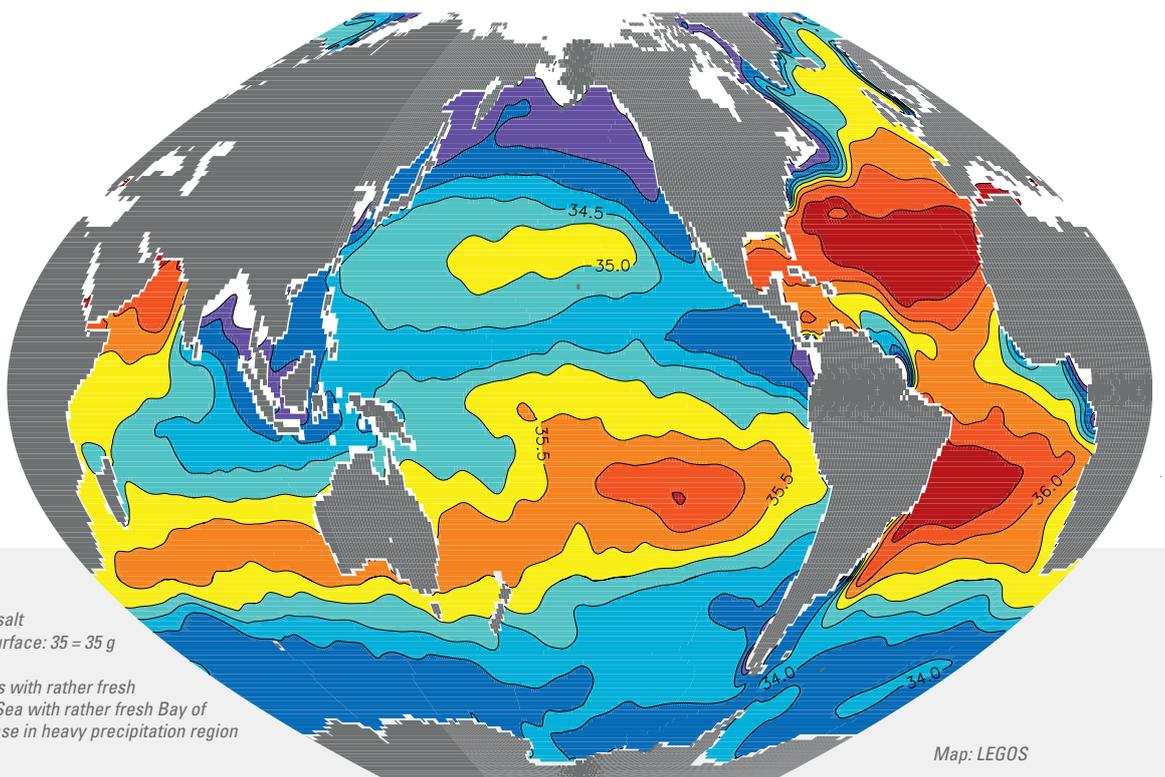
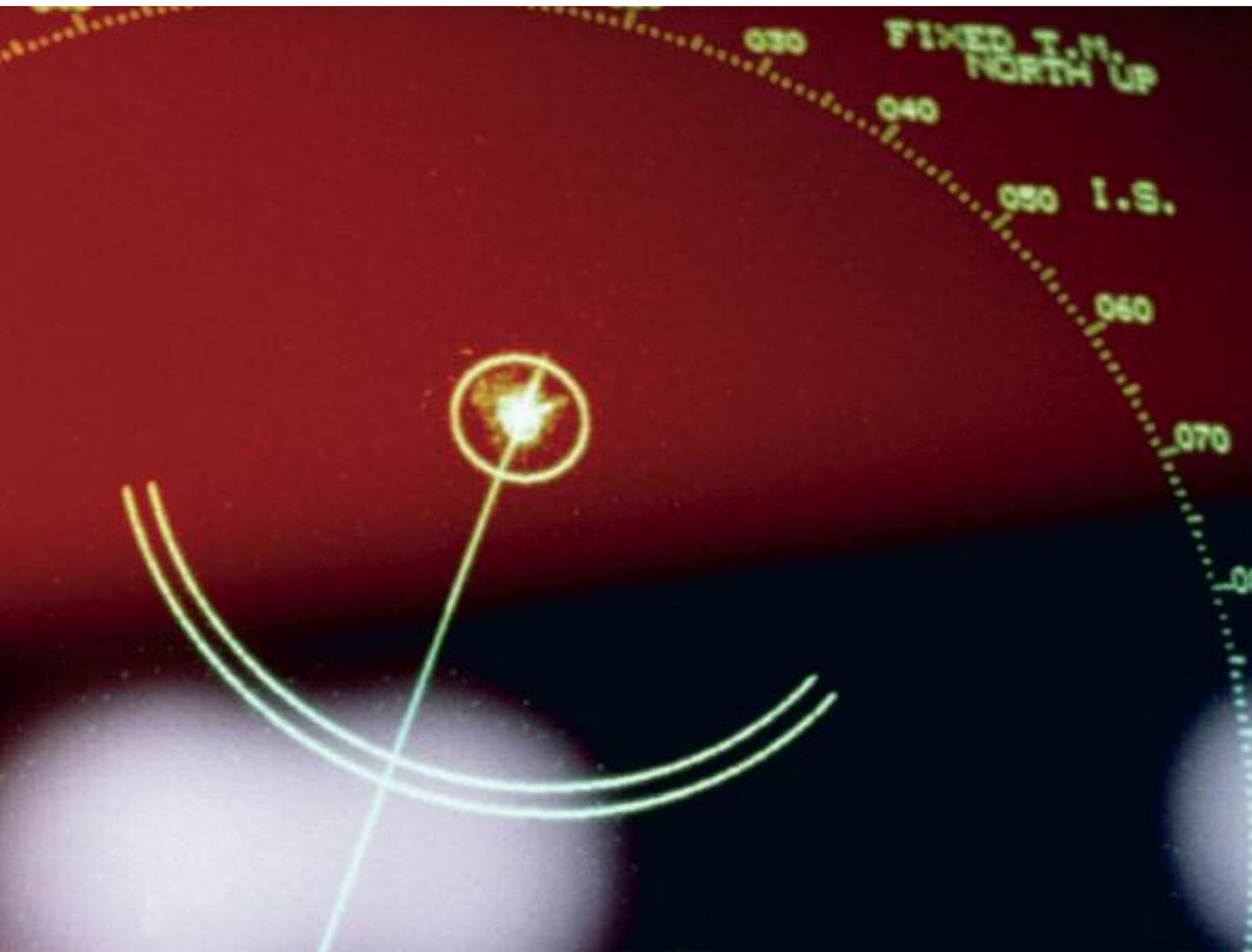


## Global Science On Board

**VALERIE SCHULTE** participates in the **Sea Surface Salinity Observation Service of Laboratoire d'Etudes en Géophysique et Océanographie Spatiales**, in Toulouse, France. **LEGOS** is a multi-disciplinary research organization, concerned with environmental research, centred, among other fields, on physical oceanography.

The ship has been equipped with a Thermosalinograph (TSG), located close to the ship's engine cooling water intake. TSG digital measurements of salinity and temperature are collected every 15 seconds. The electronic system allows real time data acquisition, ship position recording and satellite data transmission to the scientists' databases.

Ocean temperature and salinity distributions are important features for understanding the effects of the oceans upon the global climate. The collected data provides knowledge about the earth's water cycle, in order to better understand the periodic climate variability, quantifying the impact of salinity on sea level changes and advancing El Niño predictions. ■



Global distribution of mean Sea Surface Salinity, SSS. The contour lines denote the salt concentration at the ocean surface: 35 = 35 g of salt per liter/mean value. Salty Atlantic Ocean contrasts with rather fresh Pacific Ocean, salty Arabian Sea with rather fresh Bay of Bengale. SSS tends to decrease in heavy precipitation region and vice versa.

Map: LEGOS

# Modern Weather Forecast for Safer Navigation

**IT based satellite technology opens up new possibilities to counteract the oldest threat to seafarers: bad weather.**

Reederei Thomas Schulte purchased sophisticated weather information software, enabling the ship's command to retrieve the latest weather forecasts through digital pictures. Facilitated by satellite communication and IT equipment, a comprehensive data model is forwarded to the vessel. The master has the option of choosing among different forecast models and parameters, like wind speed, wave height, tide current and pressure. The software translates the data model to a colour coded weather chart. An ON/OFF-function allows for concentration on one specific forecast parameter.





*Interface of the weather information software.*

Not very long ago, communication capabilities of an ocean going vessel were limited. Weather information was received more rough than ready on a so-called weather fax or radio fax. The black and white weather chart was difficult to read, as bottom and top were confused easily. The weather fax is standard equipment on the bridge until now, having improved from thermal to normal paper only.

The new digital weather routing assistance with clear and detailed charts makes shipping safer. The ship's command is rapidly able to identify potentially hazardous weather situations

crossing the planned track. The Captain can respond in advance, preparing the vessel for heavy weather or deciding to deviate from the planned course to avoid the low-pressure area in precaution.

The weather tool offers an extra benefit. It provides information about wind speed and direction, wave and current, so the Master is able to optimize his route in order to reduce fuel oil consumption. The software therefore supports the ship's operations, not only in terms of safety but also being clean and protecting the environment. ■







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Published by  
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