

Swedish Shipping Gazette

DSM17 Edition

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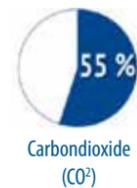
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Contents



24

Always a solution

LNG has become the number one choice among early movers who are seeking the environmental benefits of alternative fuels. But other alternatives are out there and it is just a question of time before they are adopted.



22



32

- 7 Welcome to Donsö
- 8 The shipping community
- 12 Cooperation is the key
Rikard Engström
- 14 Long-term focus vital
Hans Rothenberg
- 16 Northern Group
- 18 The guardian of the Baltic
- 20 SMTF
- 22 Ready for a challenge
Karin Orsel
- 24 There is always a solution
- 30 Alfa Laval
- 32 Building for the future
- 34 Terntank's newbuilding
- 36 The Fure West conversion
- 38 Coralius
- 40 Clipperton
- 42 Power House
- 44 ZVT
- 54 MarineShaft
- 56 DG-Diving Group
- 58 List of newbuildings

Welcome to Donsö

We never thought when we first embarked upon this journey in 2009 that there would be so much interest in the Donsö Shipping Meet. But here we stand, humble to the fact that this year there are more than 2000 delegates gathered on the island all eager to discuss shipping and shipping related topics.

OUR AMBITION has always been to take genuine care of our visitors, industry partners and affiliates staying true to our origins on the island. That is why we made a conscious decision to continue arranging the event as we always have done, using all available local resources to cater for a multitude of participants. We offer transportation, catering and guides ensuring that everyone attending will have the warmest of welcomes. We believe in a freedom of choice, in sharing knowledge, and in all that is unique and inspiring to this industry. We unite challenges, solution-makers, innovators, operators and owners under a common theme - shipping - contributing in different ways and with a diverse understanding of industry needs at a time when they are unambiguously required.

HERE ON DONSÖ, we offer an arena to do just that - to contribute and share knowledge - and we know that this will

safeguard a sound and robust shipping business climate.

DSM-2017 will be officially opened by our main sponsor, Alfa Laval. As always, we offer speed meetings where you are guaranteed to connect with people that you are truly interested in speaking with. But even if you haven't pre-booked an appointment, spontaneous discussions are always an option as with so many of us gathered here on the island, there is bound to be a need to talk.

OUR OPENING BANQUET will be held in the port of Donsö on September 5th. We expect 1800 guests to attend this exceptional three-course dinner. And we are delighted to announce that our keynote speaker is none other than Petter Stordalen, CEO of Strawberry who will address our delegates as the true entrepreneur and investment guru that he is. We will also be entertained by the outstanding Tommy Körberg - a musical experience not to be missed.

New to the 2017 meet is a focus on HR and crewing issues analysing their importance during this time of change. As well as this, two significant seminars will be held on the island. The first is that of "Entrepreneurship, sustainable shipping, vision and challenges" where you will meet the founder of St1, Mika

Anttonen as well as the CEOs of Preem, Petter Holland and Skangas', Kimmo Rahkamo. The objective of this meeting is to offer an opportunity to discuss the potential of fuel-based green shipping in the future.

"GREEN TEAM - a work plan for green technology, alternative fuels and green incentives" is a forum where governmental and authority representatives from HELCOM and The Council of Baltic Sea States will discuss fundamental issues pertaining to our industry. This seminar stems from the need to create an awareness of the requirements - seen from both public and private perspectives - which support and outline a new standard for the industry regarding green investments, defining a future blueprint for the Baltic and North Sea areas. Here, you will also gain an insight into what will happen when Sweden takes the Chair of CBSS and its environmental committee. As part of this, there will also be a guided tour of the pioneering LNG bunkering vessel, Coralius.

So, to you all: Welcome and let's meet!

Donsö Shipping Meet
Dick Höglund,
Jonas Backman,
Ann-Sofie Ankarcrona



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Moving with the ever-shifting world of shipping

THE SHIPPING COMMUNITY on Donsö is often characterized by its long-standing traditions. But the ability to embrace changes also makes it influentially modern.





Donsö is probably the most shipowner-dense island in the world with a total fleet of more than 50 tankers.

The island's shipping community has shown a remarkable ability to change with the times, be it new regulations, tougher demands from the oil majors or the shift from operating locally to having the entire world as its workplace.

"We have managed to assimilate changes. When the vetting inspections came about 20 years ago, it was too much for the older generation who wouldn't deal with the increased meddling in everything on board. We, the younger generation, were ready for it. The ISM code came around then too. We took up the baton", says Donsö native Tryggve Möller, board member of Terntank. He continues:

"I remember saying to an older master who was disillusioned about the new rules: This is the future, we need to run with it, change gear and make it a business concept."

Newbuildings

Dominating events in the community during the past few years are the newbuilding orders placed by Donsö's shipowners. Terntank, Älvtank, Sirius, Furetank and Ektank have ordered a total of 13 state-of-the-art tankers, some of them already delivered. The ships are

all examples of significant efforts being made to lessen the environmental impact of sea transportation using technical solutions that in many cases are unique.

"The orders are revolutionary. Not many shipowners around the world operating in our segment invest in shipping like we do. In discussions inhouse, we always think about the environment. It's everything from buying environmentally friendly hand soap to installing LNG propulsion. The great fuel saver of our newbuildings is an efficient hull shape that we have developed together with engineering consultants FKAB", says Jonas Backman, Managing Director of Sirius Shipping - a company that recently took delivery of the LNG bunker vessel Coralius, co-owned by Sirius and Anthony Veder.

A matter of survival

For the tanker shipowners of today it is a matter of survival to invest in ship technology that not only complies with regulations, but is well ahead of them.

Lars Höglund, Managing Director of Furetank says that the shipping community of Donsö has a long tradition of being an active part in the development of the trade, but at the same time finding

the benefits of new conditions:

"Long before double hulls were a requirement our ships had them. We saw that with double hulls, we no longer needed to take on ballast water, thereby we had a much faster turnaround in port since we were ready to load immediately when calling."

No standard concepts

The Donsö shipowners do not go with the shipyards' standard ship concepts, developed from a production point of view. Instead they develop their own custom-made designs with the ship's operation in mind. The designs are made together with consultants and not least their customers - the oil companies. This approach secures newbuildings that fit operations and drive the development toward environmentally friendlier shipping. It also means higher costs.

Tryggve Möller of Terntank points out that none of the developments over the past few years would have been possible without the support and engagement from the customers of Donsö's shipowners.

"We are tremendously grateful that the oil companies have accepted our ideas and are taking our ships on charter. De facto, they pay slightly more. But they

get some of the additional cost back over time, due to the energy efficiency of our ships. Without Neot, ExxonMobil and Preem this would not have been possible. It is obvious that they want more than just stating in their annual reports that they care for the environment."

Increased level of expertise

Another significant shift in the last few decades of shipping is the increased level of expertise within the maritime industry in general and for the individual shipowner and maritime employee.

"It is a fantastic development. I started working on board when I was 16 years old and I have never done anything else. I never thought I would one day sit here managing a shipping company with so many ships in a complex logistics system. To think that we could go along with that shift, from just being a family business of sailors to what we are today", says Lars Höglund.

Tryggve Möller of Terntank says



that it is a true pleasure to meet young crew members and experience the great knowledge that they possess. He describes himself and the others of his generation in the Donsö shipping community as "the bearers of culture", cultivating

the legacy of their ancestors and passing it on to the next generation.

"I think we are succeeding in that. We have a tradition of conveying knowledge. The regrowth is promising", he says.

Anna Lundberg

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PAR-HENRIK SJÖSTRÖM

“We are constantly making progress”

Rikard Engström, Swedish Shipowners' Association

announced by the Swedish Maritime Administration.

“We are not happy about this development. We would like them to listen to what the industry and other administrations and politicians has to say. The suggested system might not reach the aim regarding the environment and to have more freight and passengers transported by shipping.”

United industry

Even though it is important to talk to politicians and decision-makers to try to change things, Rikard Engström also says that the industry itself can do better in some areas.

“Our members are very innovative and we are constantly making progress - especially in green technologies. But we are not good at communicating the benefits of shipping to the wider community.”

This summer, a new Minister of Infrastructure, Tomas Eneroth, was appointed. He succeeded Anna Johansson.

“We will invite him and talk to him about what the shipping needs and try to establish a relationship with him. And it will be done under the Blue Growth banner”, says Rikard Engström.

Blue Growth is a cooperation between SSA and the unions Seko Seafarers' branch and the Merchant Marine Officers' Association.

“This is a very important collaboration which gives us the strength and determination to show that all parts of the shipping community stand united.”

Apart from the Blue Growth cooperation Rikard Engström would like to widen cooperation further.

“We would like to see even closer ties between the business community, government and the academia. In that way we can make Swedish shipping grow even further.”

Adam Bergman

Cooperation is the key to growth in shipping

Politicians are becoming more aware of the benefits of shipping, but everyone can do better.

“Our most important task right now is to get the politicians up and running on sustainable transports and what role shipping has in this system”, says Rikard Engström, CEO of the Swedish Shipowners' Association (SSA).”

Rikard Engström has been the CEO of SSA since June 2017. And even though he, and his colleagues, are always working to promote shipping to the politicians he emphasizes that most Swedish political parties are becoming more aware of the value of shipping for the Swedish society.

“Politicians, independent of party colour, are now talking about the benefits of shipping. And we are very happy to see that. But it can always be better.”

“A good start”

“There are a few parameters that must be adjusted for the Swedish flag to become more competitive. The recently introduced tonnage taxation system is a good start but it is not the finishing line!

A larger Swedish fleet is also important, Rikard Engström says, as more ships mean not only more tax income.

“It is also important that Swedish ships are owned by Swedish companies to safeguard Swedish interests in the event of major international conflicts. If so the ships that have flagged out belong to the flag state's total defense and not the Swedish.”

Increased transports

“And by 2030 we see that the international transports will have gone up by 50 per cent, compared to 2010. Shipping will have to take on a significant share of that increase. The land infrastructure cannot be extended to deal with this challenge alone if we are to pass on a sustainable future for the coming generations.”

Rikard Engström mentions one particular thing that is actual today - the new model for fees that has been

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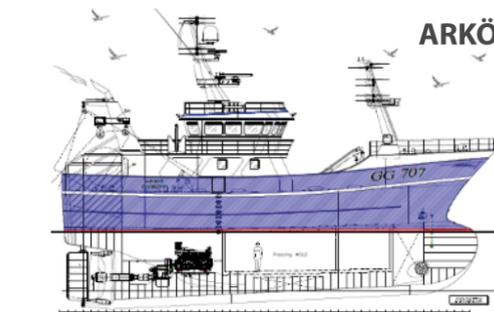
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“Like the world in miniature”

Hans Rothenberg, the Swedish Parliament

“If you had asked me three years ago I would have said without a doubt tonnage tax. Today, I can’t point to a single issue that outweighs the rest. I think they are all linked together. Regarding the introduction of tonnage tax, I am convinced that it is of the utmost importance that the shipping industry embraces the fact that it has been implemented. This should lead to existing vessels being transferred back to the Swedish flag and that newbuildings are Swedish flagged from day one. If it doesn’t, then the future of the tonnage tax and its intentions are at risk.”

He thinks that when vessels are flagged back to Sweden it will send a strong signal that the industry is still important for the country.

“I know that shipping is a strategically important industry seen from a global trade perspective. It is therefore vital that Sweden maintains a strong balance of trade with the world beyond our borders on equal terms. For that, shipping is one of our most important instruments.”

Inland waterways

If he is to look at other troubling problems that Swedish shipping is currently facing then it is the question of what should be done about the poor state of Sweden’s inland waterways.

“In the long-term I think that shipping can play a very active part in the growth of business in this country contributing to an even more sustainable and connected transport system by utilizing inland waterways.”

When talking about inland waterways in Sweden, he says that it is impossible to ignore the locks at Trollhättan that separate the Göta Canal from Lake Vänern -

Long-term focus vital for Swedish shipping

Hans Rothenberg, conservative member of the Parliament and a member of the Committee on Industry and Trade is a resolute supporter of commercial shipping and its value for trade.

Hans Rothenberg was the driving force behind the reinstatement of the Maritime Network in the Swedish Parliament in 2015. Its mission is to spread knowledge and awaken interest in issues pertaining to commercial shipping.

“Quite simply, we want people to understand that shipping is a prerequisite for almost every form of trade carried out in this country.”

Parties unite

The variation of participants and topics addressed at these gatherings proves, as Hans Rothenberg already understood, that shipping matters are deeply intertwined with a myriad of other trade issues.

“This includes road and rail transport, the environment as well as

cross-border commerce and economics which ultimately affects the labour market making shipping something of a political priority.”

To this end he believes that a ship is like “the world in miniature”.

“There are many different nationalities represented on a vessel and they all have to coexist, otherwise the vessel simply does not function. It is an excellent model to show how the world could be if it was like a ship. I think it would work much better than it does today if there were a strong cooperation between nationalities.”

No specific topic

Hans Rothenberg thinks that currently there is no single topic within the shipping industry that overshadows the collective debate.

Sweden’s largest inland lake covering an area of 5 650 km².

“I am afraid that elements of the political establishment have not fully understood the importance of inland waterways and their contribution to our future transport infrastructure. A considerable part of all cargo shipments carried out on this waterway ultimately affects Sweden’s industrial and economic base and it is important that we alleviate the pressure that is currently overloading existing road and railway networks.”

Create incentives

Cargo flows may be redirected due to political decisions, but Hans Rothenberg thinks that the best incentive is to provide a financially and logistically functional transportation system with a diverse mixture of viable alternatives.

“There isn’t a single day when there are not news reports about rail disruptions somewhere in Sweden. However, it is almost unheard of that there is con-

gestion at sea and that ships are backed up due to sea lane technicalities. The reliability of shipping is a competitive factor and I am convinced that my fellow politicians must look carefully at this as an alternative to other more vulnerable options. Cargo transport, irrespective of type, is all about availability.”

Initiatives should be promoted

Another key issue for Hans Rothenberg is the protection of the environment.

“Promoting initiatives that add value to the use of environmentally friendly fuels within shipping is a key future objective. It is interesting that these initiatives usually come from family-owned companies as part of lasting investments. In turn, this requires a long-standing ownership perspective which demands stable and predictable conditions for that ownership. It is quite natural that there are many family-owned companies in shipping that are not listed on the stock exchange. It is a stable and rarely

short-sighted industry. We must defend enduring ownership if it is to prosper.”

Best case scenario

For Hans Rothenberg, the ideal situation for the Swedish shipping industry is to create a long-term perspective regarding transport legislation.

“Best-case scenario - the strategic role of shipping would be clearly defined as part of an interconnected transport system. The preconditions for this are already in place which makes it viable to invest in the industry. The best form of control is to have an autonomy that allows integration between various means of transport while meeting customer requirements. On my wish list are long-term criteria for trade and a sustainable, stable transport policy. This makes it interesting to flag Swedish again. Sweden is fortunate to have its own merchant fleet and for the shipping companies it is an advantage to be based in Sweden.”

Pär-Henrik Sjöström





A new generation of shipowners

The rapid expansion of the Northern Group has been driven by a new generation of entrepreneurs with their origins deeply rooted on the island of Donsö.

The Northern Group can look back on more than one hundred years of shipping experience.

The Group's CEO, David Kristensson, lives on Donsö and comes from a long line of ship owners. When he initiated the founding of Northern Offshore Services (N-O-S) in 2008, his intention was to develop a shipping company operating crew transfer vessels (CTVs) for the offshore wind farm industry. As one of the very first European operators in this particular segment, N-O-S became an overnight success.

Problem solver

"When we created the Northern Group, we wanted to form a group of companies that our customers and partners in the marine industry would see as long-term partners in areas such as offshore wind, renewable energy, ship supply and lubricants", explains David Kristensson.

He says that the group is seeking a

position in the forefront when it comes to safety, innovation and flexibility in order to create a win-win situation for its customers.

"We should add value to our customers' processes and through that they should gain increased efficiency. We want to be perceived as a solution provider, problem solver and a partner that is easy to do business with. A partner that our customers can turn to with their assignments and tasks with the confidence that their issues would be resolved."

Substantial fleet

Northern Group's headquarters is located at Saltholmen in Gothenburg. The company also has offices in Copenhagen and Lowestoft in the UK.

The Group's fleet consists of some 30 vessels most of which are modern, custom-built CTVs. These multi-purpose, high-speed catamarans are designed to deliver high performance and flexibility.

Fredrik Hallqvist, CCO at N-O-S, explains that the offshore wind industry is a business in constant change.

"Our versatile fleet makes it easy for our customers to contract the most suitable vessel for their assignment and our experienced crews provide an excellent support for them. One very important part of our setup is our strong back office solution that provides 24/7 support regarding things as reports and technical information."

He is proud of the fact that N-O-S has been successful in keeping its fleet employed.

"We are a CTV operator with the broadest geographical coverage through our presence in the UK, Germany, Belgium, the Netherlands, Denmark and Sweden. Our ambition is to be able to support both our existing and new customers when offshore wind generation takes off in regions like Asia, Southern Europe and the US."



David Kristensson, Group CEO.

N-O-S' sister company, Northern Energy & Supply (N-E-S) specializes in the provision of oil and lubricants and in undertaking a wide scope of supply operations for the shipping industry. It is the result of a merger between two companies within the group which took place about a year ago.

N-E-S is a flexible and versatile company. With its three business areas Energy, Logistics and Recycling, it is mainly active in the commercial market. Its engagement in the Energy sector means that it works with the distribution of fuel oils and lubricants to marine customers.

Henrik Malm, CEO of N-E-S, explains that the company primarily supplies cargo vessels in coastal or short sea traffic with fuel. N-E-S is also the marine distributor of ExxonMobil lubricants in Sweden.

The business area Logistics provides logistics services for shipping.

"It is based upon classic ship supply in a collaboration with agents in Gothenburg regarding the transport of supplies to vessels and performing crew changes", he says.

N-E-S also provides storage services

in its own warehouses on behalf of their customers.

"We supply the whole chain from land to sea. We have warehouses, delivery trucks and can also deliver supplies to external customers using the vessels operated by our sister company, N-O-S."

Among many contracts, the Group's Recycling business is the supplier of choice to the Port of Gothenburg.

"This means that we are responsible for the handling of sludge from vessels visiting the port. The service is included in the port fee and our company, on behalf of the Port of Gothenburg, transports removed waste for recycling. We also take care of slop from tankers at anchorages in the area between the west coast of Sweden and the east coast of Denmark."

No limits

The owners of the Northern Group are focussed on growing their business and according to Henrik Malm, they have an organisation with the flexibility to achieve this.

"As far as we are concerned, there are virtually no limits to what we can provide for our customers. Our owners and employees are open to new ideas much due to the fact that we have a young team

"We are a solution provider"

David Kristensson, CEO Northern Group

with a passion for innovative thinking and a keen eye for additional areas of potential expansion", he concludes.

Rasmus Johansson, CEO of N-O-S, agrees.

"Over the years, N-O-S has grown its business year-on-year and our target is to continue along the same path. In order to do so we believe that it is important to continue to grow our core business as a crew transfer services' provider both in our established markets and by entering new geographical areas that are currently launching new ventures in offshore wind."

Rasmus Johansson says that globally there is huge interest in this power generation segment and that the Group is determined to be part of this expanding technology.

"We would certainly like to be part of the globalisation activities currently taking place," he concludes.

Pär-Henrik Sjöström





JOACHIM SJÖSTRÖM

The guardian of the Baltic Sea

HELCOM has become synonymous with the Baltic Sea and efforts to ensure that it is not subjected to irreversible environmental burdens.

The Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area, or as it is more commonly known - HELCOM - was first signed in 1992 and was officially ratified in January, 2000.

HELCOM is based upon a set of principals whereby legislative, administrative and other applicable measures are applied to prevent and/or eliminate pollution and to promote and preserve the ecological recovery of the Baltic Sea Area.

Germany, Denmark, Poland, Lithuania, Latvia, Estonia, Russia, Finland and Sweden are all member nations with coordination carried out under the auspices of the EU.

Undertakings

Preventive measures, best environmental practices, best available technologies and a polluter-pays approach are just some of

the undertakings that the convention is assigned to enforce.

Harmful substances enter the Baltic Sea from many different sources. Land run-offs, shipping activities, dumping at sea, waste water discharge and the exploration/exploitation of the seabed all play a part.

Not only does the Convention encompass the Baltic Sea, but it also includes the inland waterways that feed into it and the catchment areas which surround it.

When HELCOM's Baltic Sea Action Plan was first adopted in 2007, four priority areas were identified: eutrophication (e.g. algae growth and dead seabeds) caused by an excess of nutrients commonly resulting from land-based activities such as farming and sewage release; hazardous substances such as those dumped at sea and contaminants originating from old shipwrecks and an-

ti-fouling coatings; biodiversity - working towards the conservation of Baltic Sea biodiversity and; maritime activities which must be conducted according to pre-determined environmental practices.

Data provider

HELCOM has been monitoring the state of the Baltic Sea for decades providing an extensive data-base that documents how the marine environment has transformed over time. The HELCOM Initial Holistic Assessment of 2010 marked for the first time that a full ecosystem evaluation of the Baltic Sea was possible. The assessment was based on data gathered between 2003 and 2007.

A Second Holistic Assessment is now underway, and the results will be published in mid-2017.

By monitoring the marine environment and how it responds to management and preventative measures, com-

monly agreed indicators are regularly updated. Data pertaining to the effects of shipping is also gathered. This includes traffic Statistics (cargo and passenger movements), atmospheric emissions, accidents, incidents and illegal dumping, ballast water emissions, invasive species not common to the region, the effectivity and use of port reception facilities and response capabilities in the area.

Baltic Sea Action Plan

HELCOM's Baltic Sea Action Plan (BSAP) is a programme aimed at restoring the ecological status of the Baltic marine environment. The ambition is that this should be achieved by 2021. Originally adopted by all the coastal states and the EU in 2007, it is a key document which defines how HELCOM should function using the latest scientific breakthroughs and pioneering management solutions so as to enable strategic and tactical policy implementation while encouraging target-oriented multilateral cooperation.

Fact gatherer

HELCOM is not just a policy maker, but is also a provider of facts and figures regarding the state of the Baltic Sea environment. Ensuring that current conditions are publicized makes it simpler to adopt initiatives that form the basis for the decision-making process. The Commission meets annually, reviewing and analysing recommendations for the protection of the Baltic marine environment. Decisions are based on a principal of consensus. In addition, Ministerial level meetings are also held.

Chairmanship rotates every two years according to the alphabetical order of member nations. A number of observer organizations (intergovernmental and international NGOs) hold observer status, but must prove that they can actively contribute to HELCOM and its principals. HELCOM can also invite any state, not party to the Helsinki Convention, to be represented at its meetings. This has proved to be an advantageous approach and there is now an extensive network of observers who actively participate.



JOACHIM SJÖSTRÖM

The sensitive Baltic Sea

While the Baltic is not the only inland sea in the world, it is regarded as one of the most sensitive due to its brackish water.

Fed by waterways from nine different countries, it is relatively small in size covering an area of just 425 000 km². Despite this, the Baltic Sea provides a shipping highway that is unmatched with regard to cargo volumes, passenger numbers and ship movements.

In 2016, some 84 000 vessels docked at Swedish ports with 44% of all imported goods arriving on ships. This equates to around 196 million tons of dry and liquid products while close to 38 million people travelled on Baltic waters.

Untreated water

Anna Petersson, Head of the Swedish Board of Transports' Environmental Group and Chair of the HELCOM Maritime Group, together with representatives from various governmental and environmental organisations, has been at the forefront of legislative change that is designed to stop the dumping of grey and black water into the Baltic Sea.

"Through HELCOM we defined what was required with regard to the dumping of untreated water", she says.

This was back in 2014, but it was not to be a quick-fix. Entrenched political viewpoints meant that progress was slow. Russia, Poland and Germany did

not agree with the other HELCOM members. However, after lengthy discussions, German and Polish authorities joined the other states in backing a resolution to ban wastewater dumping in the Baltic. This left Russia as the only opponent to the concept.

Sulphur paved the way

There was already a predicate in the form of the IMO Marine Environment Protection Committee's decision to reduce sulphur emissions from 1.0% to 0.1% in designated Emission Control Areas which came into effect in 2016.

"When Russia declined to ratify the agreement, we had to ask if they could be left out of the final document?" said Anna Petersson.

A proposal was put forward that sidestepped Russian objections. Eventually Russia joined the other HELCOM nations and legislation was approved in April, 2016 with the IMO announcing ferries and cruise liners must cease dumping untreated wastewater in Baltic waters in a two-phase program. The first phase comes into effect in 2019 and regulates all new vessels while the second phase will begin in 2021 governing older tonnage.

Daniel Cooper

Swedish Shipping Gazette



PÄR-HENRIK SJÖSTRÖM

SMTF - Promoting Swedish innovation

SMTF - the Swedish Maritime Technology Forum - is a forerunner in shipping innovation and a staunch advocate of Swedish marine-tech developments.

There are many projects on SMTF's list of priorities. Lightweight materials, emissions and new business models for ports are just some of the activities that member companies are working on.

With its extensive network of suppliers and experts the organization can match available technology with business requirements that are often the result of problems encountered by owners and operators with specific needs.

Establish cooperations

SMTF is a network-oriented entity bringing the business community, NGOs and government agencies together. Its purpose is to establish cooperations that promote innovative and commercially viable applications for the shipping industry. SMTF comprises three networks; Offshore Sweden, LNG Bunkering and the leisure boat industry.

Shipping has always been pivotal to Sweden. Therefore, SMTF represents a broad range of suppliers thereby enhancing its competitiveness, nationally and internationally.

Even if the environmental impact of shipping is still comparatively low regarding units-of-freight transported and distance covered, there is room for improvement. And SMTF is working to create sustainable remedies.

Daniel Cooper

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Always ready for a challenge

She is a master of networking, manager of 60 ships and has a thing for Swedish shipping. Meet Karin Orsel, the Managing Director of Thun Tankers.

Karin Orsel is first and foremost the owner and CEO of Dutch ship management company MF Shipping Group. However, her list of other activities and appointments within the maritime industry is long, including leading posts in ICS, Iswan and WISTA.

Further, she is the Managing Director of Swedish Thun Tankers and in July she took on another heavyweight appointment when she became the president of the Dutch Shipowners Association.

On the move

Karin Orsel is the kind of person that always looks for a better way to do things. She is quick to seize opportunities and seemingly fearless in the face of challenges, which makes her an accomplished networker as well as a sharp and versatile business executive. She is constantly on the move, physically as well as mentally, describing herself as

a person who would be very unhappy stuck behind a desk.

“I like a challenge. I like building bridges and making connections”, says Karin Orsel.

She began working in the shipping industry when she was 18. The decision to start her own business came after a few years, when it became apparent that the generation change where she was employed did not work out as planned.

“So when I was 23 I had a choice, either to join another company, and I had got proposals, or to start my own business. Together with two others I decided to found a company within ship management of dry cargo vessels.”

That company was Management Facilities Group, a name that now has changed to MF Shipping Group. Today, the company manages a fleet of 60 ships and has customers in many countries, among them Germany, Finland, Norway,

USA, Russia and not least Sweden.

“From the beginning we had a very strong connection with Sweden. I have worked with clients from the Swedish community ever since I was 18. I think the good cooperation comes from a combination of social and cultural similarities”, says Karin Orsel.

A lasting relationship

Erik Thun AB, established in 1938 and the parent company of Thun Tankers, has been her customer since the very beginning of her career.

In 2012, when Maersk closed Broström and sold off their smaller tankers, Thun took over the twelve vessels and the commercial management team working with the ships. The new subsidiary Thun Tankers was founded and the reinstatement of Erik Thun AB on the tanker market was a fact.

Karin Orsel, whose company already

had the technical management of the vessels when they were owned by Broström, became more deeply involved as the MD of the new subsidiary. By then, Orsel’s MF Shipping Group had become a strong player on the North European tanker market.

MF Shipping Group handles the crewing and technical management of the 15 vessels in the Thun Tankers fleet of today. 13 of the ships are fully owned.

The new generation

Erik Thun AB went through its generation-shift in 2013 when the company celebrated its 50th anniversary. The third generation of Källssons, the cousins Johan and Henrik Källsson, then took over corporate management.

“I really like the way they handle the business and how they have taken control of the company. My role as the leader of Thun Tankers is based on trust. I’m very straight forward and I feel that there is a lot of mutual respect. Those who report to me must have faith in that my decisions are made with the long-term relationship in mind and not just my own interests as the owner of a ship management company.”

When the Swedish Shipping Gazette met Karin Orsel in Groningen it had just

been announced that Thun Tankers had placed orders for four 17500 dwt product and chemical tankers to be built in China. Thun also has four 7999 dwt tankers on order at Dutch Ferus Smit and another 16300 dwt tanker order placed earlier in China.

“Now was the perfect timing. What I really appreciate is that the orders are part of a long-term vision.”

Karin Orsel explains that the Thun newbuildings will fill gaps in the market. The orders are the result of a close dialogue with the oil majors, identifying what vessel types and sizes are needed, thereby securing a long-term market position for the new vessels.

Karin Orsel is also a shipowner in her own right, with part ownership of no less than 18 tankers. She explains that her shipowning came about as “one of those opportunities” she could not let slip her by.

“Sometimes you just meet people and seize the opportunity”, she says.

Endings ...

Karin Orsel is nearing the end of a six-year period as the President of WISTA, Women In Shipping and Trading Association, a global network of female shipping executives. During her two terms as

“I like building bridges”

Karin Orsel, CEO MF Shipping Group

President the association has grown to nearly double the number of members. At the same time, WISTA has gained a closer, stronger and more visible position in the global maritime web of business and policy making. Today, WISTA has about 3000 members in more than 40 countries.

“Even if I don’t continue as President I will always help the organisation. Being a part of the ICS and ISWAN with close connection to the ITF trust, WISTA and I can go on strengthening each other”, says Karin Orsel.

She remains vice president of ICS, the International Chamber of Shipping, for another year, then that term too will end although she will probably continue as part of the ICS board.

... and beginnings

Some of Karin Orsel’s appointments are ending, but she is taking up new ones, recently becoming part of the World Maritime University Board of Governors. Members of the board are appointed by the IMO Secretary-General Kitack Lim and report to the IMO Council.

After years working with an international scope, she is now reverting some of her focus homewards. It is with pride that she reveals that she is now the new president of the Royal Dutch Shipowners Association, KVNVR. In July, it was announced that KVNVR will be led by a two presidents, Karin Orsel and Sibrand Hassing, Director of Fleet Operations Europe of the Holland America Group.

“Now the time is right to go back and hopefully make a difference on a national level. We are going to be the first shipowner’s association with a duo in charge. We will add value to each other and to the organisation.”

Anna Lundberg



Picture from KVNVR’s general assembly in July. From left: New President Sibrand Hassing, former President Tineke Netelenbos, Dutch Princess Margriet and Karin Orsel.

There is always a way

LNG HAS BECOME the number one choice among early movers who are seeking the environmental benefits of alternative fuels. But other alternatives are out there and it is just a question of time before they are adopted. So what are they?





The ropax-ferry Stena Germanica has been converted for methanol operation (dual fuel).

PAR-HENRIK SJÖSTRÖM

In 2013, the price of Brent peaked at USD 120 a barrel, but by February 2015 it had plummeted to USD 61. It is now running at USD 53 in an upward trend.

Oil production has propelled the economies of many countries - most notably those of the Middle East - into almost stratospheric status.

Norway and Russia have also exploited their reserves of oil and gas creating financial stability. In the boom days, the notion that all this would change was not on anyone's mind. But it happened. While demand for oil fell, output remained constant and in some cases, increased.

Companies with long-established production infrastructures consolidated their operations, but for emerging oil sources such as fracking, the reality of the fossil fuel recession hit hard while in Norway, many support and supply companies laid up vessels, among them

newbuildings and they have terminated contracts with more than 7500 employees since 2015.

LNG

The LNG market has fared better. In the US, LNG is priced according to available volume rather than spot sales so prices have remained relatively stable. However, in Canada and Australia, where comparison with oil prices (the Brent Crude benchmark) is the pricing of choice, things are different.

LNG is a by-product of oil production and is sold according to BTUs (British thermal units) while crude is sold in volume (barrels). When the price of crude nosedived the value of BTUs was cut in half in all markets except the

United States. This may explain the fact that new LNG facilities are still coming on line in the US while in other markets, investments have been either postponed or stopped.

Even though LNG prices are currently running at around 40 per cent less than IFO, is LNG a viable alternative? LNG generates 80 000 Btu (British thermal units) per gallon whereas bunker provides around 137 000 Btu. However, with the current price of LNG, it seems to make financial sense to embrace this fuel, especially if it is used to generate electricity that drives pods.

Conversion is viable

For most cargo operators, fuel accounts for up to two thirds of total operating

costs. For those who opt for LNG, the reduction in overhead is augmented by an adherence to greenhouse emission legislation.

Even so, LNG does have its challenges. Space must be found for top-side tanks while deck structures need to cope with the weight of the tanks and fuel. It also raises stability issues and crews must be trained to operate the vessel. There is also the limited maximum range of LNG to be considered due to the lack of refuelling facilities available. Even if LNG vessel growth predictions turn out to be correct, the world-wide fleet will only account for 8% of total fuelling requirements in 2020.

Scrubbers

While NOx emissions can be reduced by modifying the combustion process inside an engine, scrubbers must be used to reduce sulphur levels in engine exhaust gasses. Even if operators switch from

sulphur rich, heavy fuel to low-sulphur alternatives (0,5% HFO) this still doesn't meet the 2015, IMO regulations. There are two kinds of scrubber solutions - the open loop scrubber and the closed loop scrubber.

The open loop alternative uses sea water which is introduced into a chamber placed in the exhaust system before the gases exit through the stack. Here, sea water and sulphur combine and sulphuric acid is formed. Alkaline elements in the sea water then neutralize the acid. Used water is returned to the sea after passing through filters that remove any particulate matter.

The closed loop scrubber takes a different path to achieve the same result using fresh water mixed with caustic soda before being sprayed into the scrubber chamber. Caustic soda has the same neutralizing effect as sea water and reduces the size of the unit while using far less water meaning a reduction in the

energy needed to run the system. This is a relatively new method and is being tendered by companies such as Wärtsilä and AEC Maritime.

There are also dry scrubber solutions that use limestone granules as the neutralizer. However, this creates on-board storage problems for the byproduct. It does, however, mean that sulphur cannot be released back into the atmosphere.

Hydro

Some say that the answer to our future fuel needs lies in hydrogen fuel cells. But it is not quite as simple as that. Hydrogen gas needs to be produced and made readily available. Then there is the cost of the fuel cells themselves and their projected operational lifetime.

Basically, a fuel cell generates DC current that is used to power an electric engine. They are like self-generating batteries and as long as fuel is pumped into the system they will produce electricity.



Scrubber installation on the ferry Robin Hood at Oresund Drydocks, Landskrona in 2014.

PAR-HENRIK SJÖSTRÖM



The Aurora will be converted into a battery ferry.

ANNA LUNDBERG

The most likely candidate for marine transportation applications are Polymer Exchange Membrane Fuel Cells (PEMFC). Powered by hydrogen gas, PEMFCs provide a high-power density and operate at relatively low temperatures - between sixty to eighty centigrade. Another alternative is Solid Oxide Fuel Cells (SOFC). However, their high operational temperatures make reliability and heat damage an issue. Despite this, SOFCs are stable when in continuous use and provide the longest operating life of any fuel cell available today.

Even though there are currently no large vessels powered by hydrogen, fuel cells could be used for auxiliary power generating between 1.5 and 2 MW.

Methanol

Stena Line converted its Stena Germanica to methanol operation in a joint-venture with Wärtsilä, the ports of Gothenburg and Kiel, Gothenburg-based methanol technology specialist, ScandiNAOS and one of the world's largest manufacturers and suppliers of methanol, the Methanex Corporation.

The ship was retrofitted at the Remontowa Yard in Gdańsk Poland at a cost of 22 million Euro. The result was a dual-fuel solution with methanol being the primary fuel and MGO as a reserve fuel.

To make biomass-generated methanol you have to create a synthesis gas which comprises carbon monoxide and hydro-

gen. This means that if the raw material used was once a plant, it can be converted (this also includes biomass generated at wastewater treatment plants).

Once the synthesis gas has been created, a secondary process, using a catalyst, converts this into methanol.

Methanol prices are, at the time of writing, averaging USD 330 per ton.

Emission figures for methanol operation are impressive: a 99% reduction in sulphur, a 25% reduction carbon dioxide and a 60% reduction in nitrogen while particle emissions are 95% lower compared to standard fuels.

Electric

Companies like Nilar are at the forefront of battery propulsion. A stable, efficient and safe bipolar design has been utilized which optimizes battery stack output providing decreased resistance and stable pressure within the cell.

Overall utilization is above 98 per cent of the cells' theoretical capacity which means a larger available discharge capability than has previously been possible. Nilar's bipolar nickel metal hydride (NiMH) batteries can be charged using a 600-kW connection.

Corvus Energy and Scandlines cooperated to create a new generation of hybrids back in 2015. The first hybrid conversion, the ferry Prinsesse Benedikte, was fitted with a 2.7 MWh Energy Storage System (ESS) consisting of 399

Corvus Energy AT6500 lithium polymer batteries integrated with Siemens drive systems.

Another large-scale electric ferry cooperation was formed between Norwegian shipyard, Fjellstrand and Siemens who together developed the world's first electrically powered car ferry for operator Norled.

The 80-meter long vessel can carry 120 cars and 360 passengers. It entered service in 2015 on the twenty-minute route between Lavik and Oppedal across the Sogne Fjord in Norway. But with a lack of available power to charge the batteries during the short in-port turnaround, a stop of just ten minutes, a significant infrastructure problem had to be resolved.

A system where the battery unit is removed when the ship docks and is then replaced with a second, fully charged unit, allows the depleted battery to be charged at a rate that doesn't overload the local power grid. And the concept means that diesel consumption has been reduced by around one million litres annually.

These are just some of the ways forward. Others are bound to emerge. The shipping community has always been looked upon as a producer of greenhouse gasses, but with new technology and forward thinking there is always a way.

Daniel Cooper



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Alfa Laval - where challenges meet solutions

Energy efficiency and environmental concerns are the driving force behind today's maritime industry. So how does Alfa Laval play a part?

Alfa Laval was the life-work of Gustaf de Laval. Born in Sweden in 1845, he was one of the country's foremost engineers developing the first continuous centrifugal separator in 1878 proving that separation could be done efficiently irrespective of the substance chosen.

AB Separator (the forerunner to Alfa Laval) launched its first oil separators in the early 1900s and deliveries of the Alfa Stack separator were subsequently shipped to customers all over the globe. As the technology was refined, designs aimed specifically at the maritime industry emerged including self-cleaning centrifugal separators and decanter centrifuges.

In the early 1950s heat exchangers were added to the mix with the introduction of the P12 plate heat exchanger (PHE) which was the first PHE sold to the shipping industry. From there the range

grew further and international expansion was the obvious way forward. The company changed its name to Alfa Laval in 1963.

Alcap and Pure arrive

In 1983, a major advancement in separator technology was launched - Alcap which used a water transducer in the oil channel to automatically regulate the separation process. This meant that low-grade oils could be treated with minimal losses.

In 2004 "Pure Thinking" became the basis for Alfa Laval's future growth strategy in marine environmental solutions. The company now offers a range of Pure solutions; PureBilge, Pure Vent, PureDry, PureSOx, Pure NOx and PureBallast which was the world's first commercially available ballast water treatment system.

The portfolio now comprises technol-

"A major headache for the industry"

Peter Leifland, President, Marine & Diesel Division, Alfa Laval

ogies that not only comply with international environmental legislation, but in some cases, is the only available technology for specific needs.

Hurdles and purity

When in 2004, the International Convention for the Control and Management of Ships' Ballast Water and Sediments, as defined by the IMO, were announced there were seemingly no solutions available.

"Ballast water treatment was a major headache for the industry. It is the same regarding emission control today."

Peter Leifland, President of Alfa Laval's Marine & Diesel Division explains that there were already a number of ballast water solution providers at the time, but they were not looking at the problem from a future perspective.

"It was obvious that tighter environmental legislation was on the cards and we knew that our customers would have to comply without harming their bottom lines. Therefore, Pure Thinking was born as a platform."

Core knowledge

"This was by no means a gamble on our part, but rather a way to utilize our core knowledge in innovative ways", says Leifland. "Separation, fluid handling and heat transfer are Alfa Laval's business cornerstones, even when it comes to environmental issues."

PureBilge, an industry changing centrifugal separator, became the very first Pure Thinking product. It is also used to stabilize a vessel's pitch and roll eliminating the reliability issues associated with static bilge water treatment solutions. With the addition of PureDry, which allows waste fuel recovery in accordance

with MEPC.1/Circ.642, a paradigm shift in centrifugal separation was achieved.

PureBallast was not yet commercialized, but it was just a matter of time before it hit the market. Other Pure solutions were to follow and the portfolio now comprises new and adaptive concepts.

PureDry and PureBilge are an integral part of integrated waste oil and bilge water handling systems providing three distinct advantages - clean water, a significant reduction of super-dry solids and reusable ISO-quality fuel with operators able to recoup up to 2% of their consumed fuel volume. Solid bowl and disc stacks that have self-cleaning capabilities are also available.

Emissions

Energy efficiency is the most pressing issue on every shipowner's agenda today. But it is not just about fuel costs, compliance with new stringent emissions

regulations are equally as important.

Alfa Laval launched an air separator that cleans crankcase gas which was later augmented by the PureSOx and PureNOx systems. The PureSOx scrubber was first introduced in 2012 and allowed operators to meet SOx limits while continuing to use HFO. PureSOx is primarily used as a main engine scrubber in installations as large as 28 MW.

"PureSOx has more reference installations than any other single SOx scrubber on the market today", says Leifland.

When other suppliers have either developed or purchased multiple scrubber technologies, Alfa Laval has continuously refined and upgraded its PureSOx platform.

Wash water cleaning is a part of the PureNOx concept and is a vital component in a complete Exhaust Gas Recirculation (EGR) solution. Developed by MAN Diesel & Turbo for their low speed engines, EGR uses PureNOx to increase efficiency

while protecting engine components and enabling the discharge of excess water in accordance with IMO criteria.

Development is on-going within the Pure Thinking portfolio. Much of the work is carried out at the Alfa Laval's Test & Training Centre, in Aalborg, Denmark. Here, the interaction between the company's products and entire process lines is analysed. It is as close as there is to an engine room of a full-sized commercial vessel on land. It was recently announced that the facility will be expanded to cover an area more than five times its current size.

The centre is an innovation hub where existing solutions are refined making them smaller, simpler and more energy efficient and where new concepts are developed. While continuing to work with products for existing fuel types, focus is also directed on alternatives for the future as a way to ease their implementation.

Daniel Cooper

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FKAB

LNG-powered cement carriers while UECC, a joint venture between Wallenius Lines and NYK, operates two LNG-powered PCTCs.

Swedish owners are leading the way in other fuels as well. Stena Line has converted the ropax ferry Stena Germanica to operate on methanol as an alternative to marine gas oil. Another example of methanol propulsion comes from Marininvest who initiated the building of the world's first ocean going methanol dual-fuel tankers.

More tankers

Swedish owners in the intermediate tanker segment have been particularly active placing new alternative fuel orders during the past few years. Not all are LNG-powered, but they are highly energy-efficient designs.

An interesting LNG newbuilding project includes Furetank Rederi AB, Thun Tankers and Rederi AB Älvtank. Together the shipping companies have ordered a total of six 16300 dwt sister vessels due for delivery 2018-2019. These product carriers will be built to a design developed by FKAB and Furetank with specific focus on minimal impact to the environment.

According to the owners, the reduction of CO2 emissions will be close to 50 per cent compared to conventional fuels. The vessels will also conform to Tier III regulations. All the ships will be equipped with dual fuel/LNG propulsion, including LNG in-port consumption and inert gas production, floating frequency power production and battery backup (UPS) for all vital functions which will minimize the use of auxiliary engines.

Three of these vessels will be delivered to Furetank, two to Älvtank and one to Thun. All will be commercially managed by Furetank Chartering as part of the Gothia Tanker Alliance.

Thun Tankers has also contracted four 17500-dwt product tankers slated for delivery in 2019-2020.

In addition, Thun has contracted four 8000 dwt coastal tankers with delivery

scheduled for 2018-2021, and two ice classed dry cargo ships which will be delivered this year. The ambition is that some of these will be fitted with dual fuel engines.

LNG Ready

Sirius Shipping, who will take delivery of the new LNG tanker and bunker vessel Coralius (see article on page 38), also has two 7999 dwt LNG-ready product carriers on order for delivery in 2018. Their design was developed in a cooperation between Sirius and FKAB and is based on a proven hull form.

According to the owner, these vessels will be among the most efficient operating in this segment. Their MAN B&W two-stroke engines are designed to be converted to run on LNG. Also, the ships' deck strength and stability allows LNG tanks to be mounted top-side. As the main engine will be equipped with HPSCR and the auxiliary engines with a

Catamizer, NOx levels will be below 2 g NOx/kWh.

Another company building LNG ready chemical/product tankers is Ektank. In 2018, the company will take delivery of two 18 600 dwt vessels built to ice class 1A. They are designed by FKAB for cost-efficient performance and will meet future environmental regulations.

Bitumen and IMOIMAX

Tarbit Shipping, specialised in high-heat tanker operations, is poised to take delivery of two 9400 dwt ice class 1A bitumen carriers built by RMK Marine Shipyard, Turkey. The design is a collaboration between Tarbit and FKAB. The vessels feature a special hull form that offers minimum resistance and low fuel consumption.

An innovative tanker design in the MR (Medium Range) segment is Stena Bulk's 50 000 dwt IMOIMAX chemical/product tanker. This series totals 13 vessels of

which three are still under construction.

There are also two ropax vessels being built for a Swedish owner. Rederi AB Gotland has two LNG-powered car and passenger ferries on order for its Destination Gotland service between the island of Gotland and mainland Sweden.

Described as "gas ready", Stena Line has a series of four 3100 lane-metre ropax vessels which will be delivered in 2019 and 2020 respectively in the pipeline. Stena says that the vessels will run on traditional fuel, but are classed as "gas ready" and are also configured for scrubber and catalytic converter retrofitting giving a high degree of flexibility for the future. The plan is to operate the vessels on the Irish Sea, specifically on Stena Line's routes to and from its expanding Belfast hub.

Pär-Henrik Sjöström

There is a list of Swedish related newbuildings on order on page 58.

Swedish shipowners building for the future

A remarkable number of vessels on order by Swedish shipowners are designed to operate using new fuels.

There are some 40 ships of various sizes currently on order by shipowners that have some kind of connection with Sweden. Almost half of these newbuilds are designed to operate using alternative fuels such as LNG and methanol instead of conventional bunker oils. Equipped with dual fuel engines, owners will have the option to switch from natural gas or methanol to conventional fuels such as marine gas oil if required.

Some of the vessels on order are "LNG-ready", meaning that a future conversion to natural gas and in some cases methanol, is part of the design configuration.

The shift has begun

This indicates that, in Sweden at least, the shift from traditional bunker oils to more environmental friendly fuels is not just talk, it is already a reality.

Although the first vessels to use LNG as a fuel were Norwegian ferries and off-

shore support vessels the Swedish 25 000 dwt Bit Viking became the first product tanker to operate on LNG in 2011. Owned by Tarbit Shipping, she was also the first vessel to be converted from heavy fuel oil to LNG.

Another pioneer is Sirius Shipping, in this case in the field of ship-to-ship LNG bunkering. The AGA-owned LNG bunker vessel Seagas, which is managed by Sirius Shipping, entered service in 2013 and supplies the LNG operated car and passenger ferry Viking Grace.

LNG most popular

Today LNG has become a first-choice fuel among Swedish shipowners. Terntank is one early mover, operating four recently delivered product tankers equipped with LNG-powered dual fuel engines (see article on page 34).

The joint venture JT Cement AS, where Erik Thun AB and Jepsen each hold a 50 per cent stake, operates two



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TERN-TANK

LNG powers Terntank's newbuildings

When planning their latest generation of newbuildings, Terntank focussed on energy efficiency using the latest eco-friendly technology.

Tryggve Möller, Board Member at Tern-tank, is obviously proud of the company's latest newbuildings.

"We are talking about technical solutions that we will have to run for twenty years or so. It therefore makes perfect sense to concentrate on areas such as energy efficiency and a reduced environmental footprint using the best technology available. At the same time, we were committed to build ships that are safe and comfortable for our crews", he says.

ZVT-project

Terntank was the first shipping company to order tankers compliant with the Zero Vision Tool (ZVT) principal. Initially started as a JIP (joint industry project) designated as LNG4Solution, Terntank, Wärtsilä, Wega, NEOT and The Swedish Shipowners Association obtained partial financing from the EU to build the first vessel in the series, Ternsund.

Terntank contracted Finnish energy

and environmental consultancy Wega to coordinate the various project components regarding contacts with the EU administrators and ZVT.

"It is a pioneering step for shipping when a tanker company invests in four consecutive LNG powered newbuildings while also adopting a completely new type of engine technology. The culmi-

nation of this is that there are now four environmentally and energy efficient ships suited for services within the SECA area that produce emissions that are far lower than that of conventional vessels", explains Eija Kanto, Wega's Environmental Director.

She thinks that this isn't just a result of the use of LNG, but also a consequence of the optimization of all the other auxiliary systems that have been employed when designing and constructing the new vessels.

"Obviously, this is a calculated risk seeing as how ships like Ternsund can cost as much as thirty per cent more than a conventional vessel which meets all current regulatory requirements."

Long term contracts

The four newbuildings all have long-term contracts with various charterers. Ternfjord operates under an agreement with Esso Norway while her sister vessels

TERNSUND, TERNFJORD, TERN SEA, TERN OCEAN	
Builder	Avic Dingheng, China
Class	Bureau Veritas
Length	147.0 m
Beam	22.0 m
Draught	9.0 m
Dwt	15 000
GT	11 374
NT	4 780
Cargo capacity (98%)	16 559 m ³

Tern Sea and Ternsund are chartered to NEOT. The latest addition to the fleet, Tern Ocean, has been chartered by Preem.

Designed by Rolls Royce Marine AS in Norway, one of the most important criteria throughout the design and building processes has been to create an energy efficient hull form.

"Commonly, fuel savings of 1.5 tons come from a low resistant hull form, a further 1.5 tons is provided by the output of the main engine and approximately 2 tons is saved by the efficiency of the propeller. In all, this means a fuel reduction of between four and five tons per operational day compared with conventional tankers in the same size class", says Tryggve Möller.

Seven paired tanks

The cargo space is basically the same size as the company's previous series of tankers. Each ship has seven dual tanks of which the starboard tank - number four - also functions as a slop tank. All of the tanks are coated with MarineLine 784-polymer.

"The aim has been to create robust workhorses. The operational lifespan of our new ships is going to be about 20 years and we know that we won't have to touch the cargo or ballast tanks during that time. There won't be a speck of rust in them in twenty years' time", says Tryggve Möller.

Two LNG fuel tanks are mounted on the forward deck with a capacity of 313 cubic meters.

Energy efficiency

Excess heat is recovered as far as possible. Gothenburg-based Gesab supplied the system which comprises a Catamiser, an exhaust gas boiler mounted on the main engine and two oil fired thermal oil heaters. One of these can either be used as a pure thermal oil heater or as an inert gas generator", explains Björn Sandholm, production manager at Gesab.

"A considerable amount of heat is produced when the inert gas generator is in operation. Now we recover a major part



PÄR-HENRIK SJÖSTRÖM

of that and then feed it into the heating system. We discussed this solution with Terntank for a couple of years before it was adopted", he continues.

Two-stroke engine

The main engine is a five-cylinder Wärtsilä RT-flex50DF. The maximum output is equivalent to that of a diesel-powered unit generating 8 725 kW. In the dual-fuel version used in Terntank's four new tankers, output has been restricted to 5 850 kW. This, combined with a large propeller means that around 65 per cent of the total output is sufficient to maintain a cruising speed of 14.5 knots. At twelve knots, the consumption of LNG is said to be 9.7 tons per operational day.

"This is the first two-stroke engine in recent years to use low-pressure gas. What is revolutionary is that the low gas pressure is capable of efficiently powering the engine. Combustion is achieved using the Otto Principle - a lean burn method providing greater energy efficiency", explains Göran Österdahl, General Manager, Marine Solutions Sales Scandinavia & West Europe at Wärtsilä.

Using LNG means that the main engine meets Tier III criteria without the need for additional emission reducing equipment.

Power House has delivered and commissioned the three gensets for Terntank's vessels. They are powered by

"We are very proud of our new ships"

Tryggve Möller, Terntank

Mitsubishi MAS 850-S diesel engines.

The vessels have a GloEn-Patrol Ballast Water Treatment System, supplied by Pannasia. This solution uses a combination of filtration and UV technology and provides a treatment capacity of 1 200 cubic meters an hour.

Appreciated by the crew

The bridge layout has been designed by Terntank and is based upon its previous series of newbuildings that were constructed at Shanghai Edward Shipbuilding, China. Simbo Marine Systems provided all the bridge equipment using a Transas ECDIS with the bulk of the navigational instruments coming from Furuno.

In all there are twelve crew members which offers the opportunity to take on board apprentices.

"We have created a pleasant ship environment that crews appreciate ensuring that they will want to stay working for us. I would say that this has proved successful and something that I am very proud of", concludes Tryggve Möller.

Pär-Henrik Sjöström



PÄR-HENRIK SJÖSTRÖM

The Fure West conversion

Furetank is very satisfied with the performance of Fure West despite some bumps in the road.

In 2012 the engine manufacturer MaK - a part of the Caterpillar Group - had launched its new dual-fuel engine, the 46 DF that is a derivative of its existing 43 C engine with which it shares the same engine block design.

“As a shipping company, we are continually monitoring pending legislation and are always interested in emerging technologies and their impact on our operations. So we decided to apply for EU funding as part of the TENT program to ensure that we would be an early adopter, converting our vessels that have engines of this type to LNG fuel”, explains Lars Höglund, CEO of Furetank.

After consultations with MaK it was determined that Fure West was suitable for LNG conversion.

The project commenced under the auspices of the ZVT platform. Several technical challenges had to be resolved before the company was ready to commit to a firm conversion order in November 2014. The conversion process was slated

to be carried out at Fayard in Denmark the following year. The LNG system was to be supplied by Caterpillar.

Renovated engine

The main engine was converted by the manufacturer.

“Basically, everything apart from the engine block and crankshaft were affected by the rebuild. The cylinder diameter was increased from 430 mm to 460 mm which means that new cylinder liners, pistons, cylinder heads, exhaust receivers and turbo were needed. The entire control system had to be upgraded with additional sensors increasing the number of gauging points from 50 to around 900”, says Clas Gustafsson, CTO of Furetank.

The installed LNG fuel system included piping, a GVU (Gas Value Unit), the vent-system and the two deck-mounted LNG tanks of each 255 m³.

“If something in the system fails, then fuel flow is automatically switched to

diesel”, explains Clas Gustafsson.

“As LNG fuelling infrastructure is still in its infancy, we are not able to re-fuel everywhere which means that we have to be able to operate for 30 days at a time to ensure that we can secure continuous LNG propulsion”, Clas Gustafsson points out.

It was a matter of defining the correctly sized LNG tanks so that they would fit on deck without compromising any existing equipment already installed on the vessel. Prior to the LNG installation, the vessel’s stability and hull strength were analysed. The conversion was done without the need to repair the coating in the vessel’s cargo tanks.

Delays

Classification and manufacture of the tanks took longer to complete than expected as the supplier was unable to deliver a complete package of components to the yard.

“The yard did a magnificent job, but with an incomplete delivery they were not able to finish work on time so we decided to return the vessel to the yard in April the following year to complete the conversion”, says Lars Höglund.

During this supplementary installation, which was carried out in April/May 2016, everything went according to plan. That is until the first LNG fuelling began. It emerged later that there was a minor but crucial flaw in the design of the LNG tanks.

“As an early adopter of innovative technology, you expect these kinds of difficulties”, says Lars Höglund.

Fure West returned once more to Fayard in the Autumn of 2016 when adjustments were made to her LNG tanks to ensure safe and reliable operation. In October of last year, Fure West was fuelled in Norway and began operations according to plan.

When she was first delivered in 2006 the tanker had a dwt of 15990 tons. Thanks to design margins, the vessel’s deadweight could be increased to 17200 tons.

Pär-Henrik Sjöström



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A versatile LNG tanker

The new LNG bunker vessel Coralius sails under the Swedish flag with Donsö as her home port.

The combined LNG bunker vessel and tanker, Coralius complies with all the IMO's IGC classification requirements. At the same time, anticipated future standards and charterers' needs were included as an integral part of its design.

Built to Finnish/Swedish ice class 1A standards, the Coralius is designed for both short sea shipments of LNG and ship-to-ship LNG bunkering of all types of vessels both inshore and offshore.

Bodewes

The Coralius was built by Dutch shipyard, Royal Bodewes for Sirius Veder Gas AB, a joint venture comprising Sirius Rederi and the Anthony Veder Group. The hull was built in Poland and towed to Papenburg, Germany, where the Hoogezand-based shipyard has an outfitting yard.

The vessel is employed on a long-term charter agreement with LNG provider Skangas, a subsidiary of the Finnish Gasum Group (with Norwegian Lyse

Energi AS as a minority shareholder with a 30 per cent stake).

The Coralius was built as part of a Joint Industry Project (JIP), Flexi as a component of the umbrella project, Pilot LNG. Co-funded by the EU under the TEN-T program and part of the Zero Vision Tool (ZVT) platform, the objective of the project is to develop LNG bunkering infrastructures by offering LNG refueling in the Skagerrak/Kattegat area in a cooperation with the Skangas Brofjorden Terminal in Lysekil, Sweden. The development of a rapid, efficient and safe system with associated practices for LNG bunkering inshore and offshore was a vital part of this endeavor.

Two tanks

LNG is carried in two Bilobe tanks which together provide a total volume of 5800 m³. Designed for a working pressure of 4.5 bar(g), the Bilobe tanks were constructed by TGE Marine in Germany. The tanks are subdivided by a bulkhead thus

creating 4 self-contained cargo holders.

The four cargo pumps each have a capacity of 250 m³/h while the two cargo compressors provide 532 m³/h per unit. The vessel's loading/discharging capacity is about 1000 m³/h.

Bunkering operations can be carried out without any release of methane due to a boiler that burns a mixture of methane and nitrogen. This solution means that methane slip equates to zero which is a crucial factor for the environmental performance of the ship.

Manifolds are located at two points along the length of the ship providing increased flexibility when transferring fuel to a receiving vessel or loading at a terminal.

The wheelhouse offers a 360-degree field of vision with maneuver stations located on each bridge wing. When maneuvering in bunkering operations the vessel uses a retractable bow thruster, a stern thruster and a high effect rudder. The dual-fuel main engine is a Wärtsilä 6L34DF with an output of 3000 kW.

Management

Management of the Coralius is handled by Sirius Shipping.

"I am very pleased that the development of this vessel could be realized thanks to close cooperation with Skangas and Anthony Veder. The addition of the ship to our fleet has strengthened our position in the LNG market and it is satisfying to say that we have contributed our know-how in this project," says Jonas Backman, CEO of Sirius Shipping.

Pär-Henrik Sjöström

CORALIUS	
Builder	Royal Bodewes, Netherlands
Class	Bureau Veritas
Length	90.0 m
Breadth	17.8 m
Draught	5.7 m
Dwt	3100
GT	6015
Cargo capacity (98%)	5800 m ³

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Pelagic trawler on order for Donsö-based company

In 2018 the fishing company B-C Pelagic will replace their old Clipperton with a new one.

Last year the owners of the fishing company B-C Pelagic of Donsö ordered a 63 meter long pelagic trawler from Karstensens Skibsværft A/S in Skagen, Denmark.

The newbuilding will be named Clipperton and replaces an existing trawler with the same name.

B-C Pelagic was founded in 2016 by some of the owners of the two fishing companies Bristol Fiske AB and AB Clipperton for ordering a new and larger pelagic trawler.

As common in Swedish fishing, BC-Pelagic is family-owned. The company is owned by three families.

Sister vessel

The new Clipperton is a sister vessel to the shipyard's newbuilding 437 Themis, which was ordered by the Swedish-owned Danish company Themis Fiskeri A/S.

The hull of Clipperton is built by Nautta Shiprepair Yard in Gdansk, Poland. The hull will be delivered to Karstensens in 2017, and delivery of the Clipperton is scheduled to spring 2018.



The Swedish pelagic trawler-fleet is employed mainly in fishing herring and mackerel.

Fewer but larger

According to the Swedish Pelagic Federation the fishing of pelagic species counts for about half of the total value of Swedish fishing. The development moves towards fewer but larger trawlers. The Swedish fishery industry goes hand in hand with its Danish and Norwegian counterparts.

Pär-Henrik Sjöström

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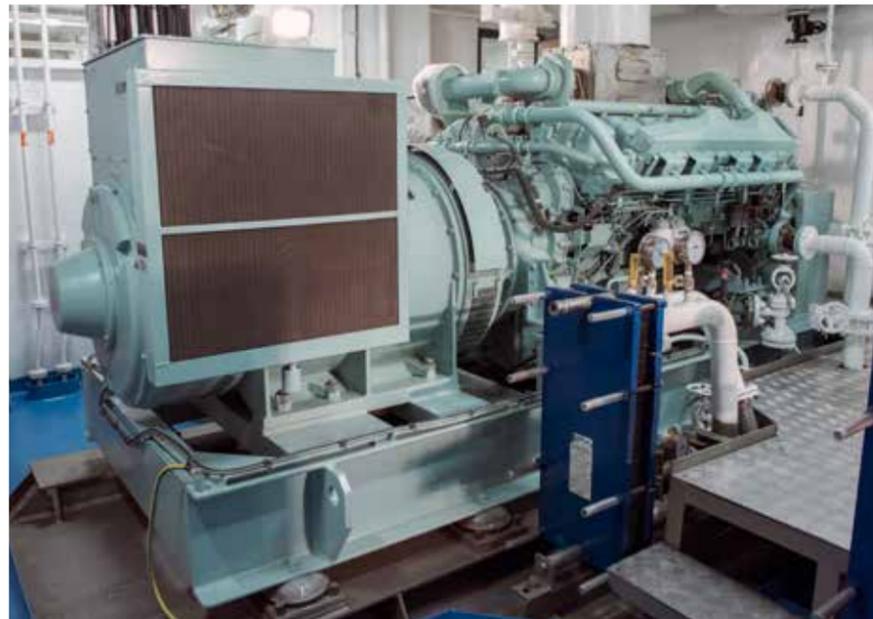
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“This is our core business”

Richard Johansson, Power House

we have been contracted to supply the entire engine room installation including the main engine, gearing, propellers, box coolers, mufflers and auxiliary engines.”

Power House also has a considerable presence in the South Korean market.

“We have delivered more than 20 Mitsubishi engines for fishing vessels and tugboats in recent years. It may seem strange that a Swedish company sells engines to Korea which is so close to Japan, but this is a collaboration that we have built up over many years. Our customers feel secure in the knowledge that we deliver according to the contract and provide them with trustworthy after-sales support”, Richard Johansson says.

Other products

Power House also offers other products and services to its clients such as those targeted at the OEM market.

“Spare parts and service are two very important business segments for us. We always try to have complete renovation sets in stock for Mitsubishi engines (for 25 litres up to 80 litre engines). We also have our own exchange system for cylinder heads, turbo chargers, water pumps and injection pumps.”

Another service provided by the company is the Marin Pro web-based application which assists customers in finding the right configuration of gensets for specific vessel requirements. This is either done by using a step-by-step configurator or by choosing a specified engine type from a product list.

“If customers are looking for new 70 to 2000 kW marine auxiliary engines or gensets, or perhaps they just need applicable documentation, they can access Marin Pro on our website. It is completely free”, says Richard Johansson.

Pär-Henrik Sjöström

A Swedish expert on marine power solutions

Power House aims to be a one-stop-shop partner for marine and industrial power solutions.

“We aim to be on the makers lists of marine gensets when Swedish ship owners build new vessels for example in China. This is our core business”, informs Richard Johansson, Sales Manager at Power House AB.

He says that so far, the company has lived up to its brand promise, especially among Donsö-based tanker owners. Products provided are for example Mitsubishi marine and industrial engines, Volvo Penta Marine Gensets, Danfoss sensors and Stamford generators.

“Power House is often contacted at an early stage of the design process when owners are seeking to find suppliers that can provide the required specifications for a particular component. We compile supporting documents when their calls for tender are sent to the shipyards. Obviously, this is no guarantee that we will win a contract and we may need to negotiate with a shipyard so that our

offer meets specifications and is deliverable at the right price.”

The company’s latest genset deliveries to Swedish shipowners include Tern-tank’s four newbuildings constructed by Avic in China, as well as Sirius’ newbuilding, Coralus which was constructed by Bodewes.

Tankers and fishing boats

Upcoming deliveries to Swedish owners this autumn include back-up gensets for Ektank’s latest newbuilding as well as main gensets and emergency gensets to Sirius’ newbuilding, both of which are under construction in China.

“This autumn we will also supply Swedish fishing vessel owners such as the Vrångö-based fishing boat Neptun. An ABC main engine will be installed at Ö-Varvet on Öckerö. In addition to this, Dyrön-based Arkö has ordered a new fishing boat from Tjörnvarvet and

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A benchmark for blue growth

It has long been understood that shipboard transportation stimulates fiscal growth while having a positive effect on the environment. That is why ZVT was created.

The Zero Vision Tool (ZVT) was developed in 2011 and launched that same year. Based on a white paper issued by the European Commission in 2009, its aim was to ensure a shipping industry that provides growth and economic sustainability without harming the environment.

ZVT is a reference tool that ensures sea transportation with a high level of energy efficiency, minimal impact on the environment and best-in-class safety standards.

Supporting the initiative is a cluster of shipping and commercial organizations together with universities, NGOs, international agencies and government administrations who collectively work to create a unified approach for mutually agreeable maritime practices.

ZVT comprises some 130 partner bodies from eleven countries who together share the same ideals of a balance between blue growth and eco-friendly technology.

As part of the UN Global Compact initiative, ZVT adheres to COE (Communication on Engagement) commitments

implementing universal sustainability practices while supporting UN goals. ZVT is a collaboration between stakeholders who are seeking solutions that meet the configuration of a specific vessel, the infrastructure it will require, finance, R&D and regulations.

Information transfer

Transferring information between various clusters relies on a tool that utilizes a “traffic light approach”. Red is flagged when there are significant problems.

Yellow means that guidance is required and the experience of experts comes into play. Lastly, green means that an issue can be solved as there is already the technology, knowhow and regulations in place to secure a viable solution.

Swedish Sustainable Shipping AB is responsible for overall project management while communications activities are conducted through the ZVT info sheet, seminars and workshops.

Commercial industry projects drive the ZVT process. Joint Industry Projects (JIPs) bring various companies and organisations together to find common,

sustainable solutions relating to a specific issue. Joint Authority Projects (JAPs) also contribute to safer, more environmentally and energy efficient sea transportation. JAPs comprise various stakeholders who must agree on proposed solutions and share knowledge. Joint University Projects (JUPs) contribute towards the same goals. Each JUP comprises stakeholders from the academic community.

A forward-focussed conundrum

Selecting the best way forward is a complex process, especially regarding older tonnage. LNG is the new fuel on the block, but it has its limitations. Methanol can also be used, but both require costly (seen as an investment) additions to a ship’s engine and fuel systems. Then there is scrubbing which, although no longer a new technology, has certain drawbacks even though significant progress has been made in recent years.

Effectively, this means that each vessel - be it a newbuilding or conversion - has to be considered according to its own merits. Size, employment, route, available fuelling infrastructure and a whole host of other aspects must be weighed in to safeguard viable, long-term solutions. It is a conundrum that needs to be taken seriously.

ZVT has never been a means unto itself, but rather a way to allow shipping stakeholders to develop and maintain activities that provide benefits for the environment, society and crews that are economically viable.

ZVT has always claimed to be a paradigm-shifter for shipping, entrusting the industry to work together with multiple stakeholders (often with conflicting agendas). Results can be measured in much more than a new vessel concept, a retrofitted engine or pioneering technology. What counts are the criteria that ZVT participants have created themselves - partnerships and a common understanding. Many small steps are needed to make the big change happen and this has been the cornerstone of the ZVT approach.

Daniel Cooper

ZVT undergoing reconstruction

Following a significant cut in funding by the Swedish Transport Administration in early 2017, the future of Zero Vision Tool (ZVT) is currently under evaluation.

Rikard Engström, CEO of the Swedish Shipowner's Association (SSA), says that following an audit of ZVT in late 2016, its brand owners concluded that new thinking was required.

"At present, we are seeking alternative funding so as to continue with our ZVT programs, but in a different way than before."

No surprise

EU funding has become more problematic to secure.

"There are various reasons for this and it is a natural part of the EU apparatus, but it didn't come as a surprise. Of course, ZVT has to adapt accordingly and change focus. It has to be said that

the Transport Administration in their evaluation stated that ZVT has been an important driver for a more sustainable shipping sector and has been very successful in its task. As the CEO of the Swedish Shipowner's Association, I am very proud of the work carried out by the program team and of course grateful to all the stakeholders involved. If all industries and associated bodies were as dedicated to a sustainable future as the ZVT group has been, then the world would be a much better place."

ZVT still exists and is currently undergoing reconstruction. How long this will take is hard to say and the content of "ZVT 2.0" is thus far unclear.

"We are looking into how we will conduct research and innovation programs in the future and our governing committee is scrutinizing all three platforms (Lighthouse, Sweship Energy and ZVT)

as a way to develop a new roadmap in which sustainability will be the most important pillar", says Engström.

Expand collaboration

A decision taken at the ZVTREF meeting November 2016, and welcomed by the HELCOM Head of Delegation in February 2017, meant that the ZVT method and its compiled knowledge base will be transferred to the public/private collaboration "Green Team". The first meeting of Green Team, hosted by HELCOM and CBSS, will be held at the Donsö Shipping Meet.

"The idea is to expand collaboration around the Baltic and North Sea areas encouraging more rapid change toward a sustainable future for maritime transport. It's one way to really move past the tipping point where green investments become a natural choice."

Daniel Cooper



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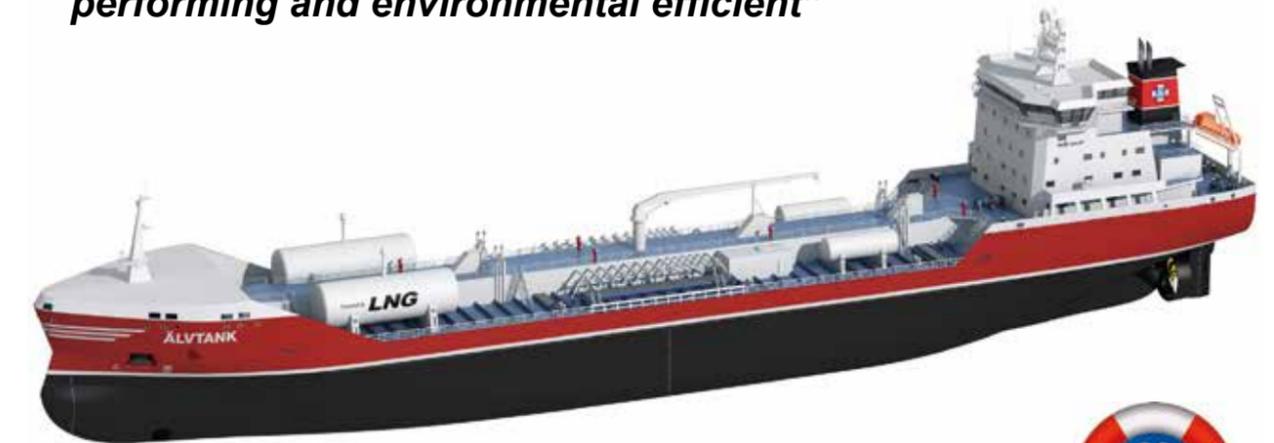


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Trimaran crew transfer vessel from Mobimar

The Finnish marine engineering company Mobimar began developing its CTV Mobimar 18 Wind trimaran back in 2011. The prototype Wind Servant was delivered in 2012. With its hull design and unique bow-mounted gripper system the vessel is Hs 4.0 classified and offers safe embarkation/disembarkation in waves of up to 2.5 meters. This technology enables operations in open-sea conditions for up to 30 per cent longer per year than other CTVs. Also, operational costs are significantly lower than competing vessels.

The vessel has a 180-degree variable approach angle which means that wind and sea current conditions are easily counteracted. Once the vessel is locked in place the gripper is in either in a locked-on or sliding mode.

“When locked on in calm seas the ves-

sel stays securely in place while when in sliding mode it can remain stable during transfers in seas of up to four meters.

Wind Servant is fitted with hydrostatic seats for up to 12 workers and the sound insulated bridge offers excellent all-round visibility”, says CEO Pauli Immonen.

Wind Servant measures 18 meters in length with a beam of 8,5 m. Its work deck is much larger than that of conventional monohulls and can be used for the transport of maintenance equipment and as a workspace for work that cannot be carried out up on the wind turbine itself.

“Conventional CTVs need to use full throttle to push against the wind turbine structure to remain in place. Wind Servant can approach the turbine from either side, lock on and run idle dur-



MOBIMAR

ing embarkation/disembarkation. The hydraulic gripper keeps the transfer platform securely and steadily in place while water jets mounted in the side hulls ensure that the vessel is easy to control. It is also far less sensitive to rolling and slamming compared to monohulls and catamarans” says Immonen.

“The three slim hulls offer low water resistance equating to lower fuel consumption. This means that we can reduce our customers’ fuel costs by more than 200 € per hour.”

Daniel Cooper



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Ship management is complex which is why AdMare's philosophy is one of asset protection. Founded in 2016, the company provides ship management services seen from an owner's perspective. Safety, environmental issues, preventative maintenance, cost control and watertight operation are their main focus. The company takes care of the needs of a range of operators with tankers, RoRos and general cargo vessels under its wing.

With its Document of Compliance for vessels flagged in the UK, Sweden and Panama the company can provide services across the globe. It also holds ISO 9001 and ISO 14001 Certification through Lloyds Register's LRQA.

ADMARE SHIP MANAGEMENT provides full crew management services jointly operated together with selected partners. It also offers technical management

services ranging from bridge command, propulsion supervision and logistics.

The company can even provide vetting in accordance with TMSA (Tanker Management and Self-Assessment) as part of the OCIMF Ship Inspection Report Program, ship sales and purchase inspections, insurance services, HSE (Health, Safety and Environment) guidance, quality assurance, site inspection, newbuilding project management and conversion/repair project management.

CLIENTS INCLUDE Nat Opal Ltd. (Ellingsen Shipping Group). Their Anuket Opal tanker is operated by Alliance Maritime. AdMare has full technical management for the vessel which is UK flagged.

Corona Seaways, Fiona Seaways, Jutlandia Seaways and Hafina Seaways are all owned by Ellingsen RoRo Ltd. and operate under a charter agreement with



PAR-HENRIK SJÖSTRÖM

DFDS. Even here, AdMare is the technical manager of choice.

SCA's SCA Obbola, SCA Ortviken and the SCA Östrand, all Swedish flagged, owned and operated by SCA Logistics, are technically managed (compliant with Lloyds Register) by AdMare.

Vikingland, Vasaland and Vinterland are owned by Swedish SOL AB and are on charter to Grimaldi Euromed S.p.A. These are also part of the company's management program.

And then there is Timberland, a British flagged general cargo vessel that is owned by Midlife Shipping Ltd. The vessel is on charter to Imperial Bulk Carrier.

Daniel Cooper

Visit us at Donsö Shipping Meet

Safer and quicker LNG-tanker mooring

Safe and efficient LNG tanker and shuttle tanker mooring is the theme of the Lankhorst Ropes stand at Donsö Shipping Meet. Lankhorst's Lanko force and Tipto ropes are widely used in LNG shipping. Recently, Sirius Shipping selected Lanko force 26mm with Tipto jacket mooring lines and Tipto Twelve mooring ringtails for the new Coralius LNG tanker.

Lanko force is a 12 strand braided rope, made from Dyneema yarn. This lightweight rope is an excellent alternative to heavy and cumbersome steel wire ropes in situations requiring manual handling of the rope. It is stronger than conventional steel wire rope yet the corresponding weight is 7 times lighter. Moreover, Lanko force enables safer and quicker moorings and significantly

reduces tug and line boat time and costs during mooring and unmooring. It also eliminates steel wire handling accidents.

Tipto Twelve is a high performance rope. Its strength, abrasion resistance and energy absorption characteristics ensure a long service life and low cost-of-ownership. Importantly, Tipto yarns do not absorb water, making these ropes ideal for arctic conditions as frost will not damage the rope.

Lankhorst Ropes' "Through Life, For Lif" service package gives operators a portfolio of rope service life support and sustainability benefits unmatched in the industry. It covers everything from development of a mooring plan to rope selection and management through predictive service-life rope testing and training.



"For Life", reflects Lankhorst's commitment to Green manufacture and sustainability which, combined with a longer lasting rope service life, and ultimately rope recycling, translates into levels of sustainability that make a significant contribution to an operator's environmental policies.

Source: Lankhorst Ropes

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MARINESHAFT

and repair. While working on the shafts in Hirtshals, the company sent a team to Rotterdam to weld and machine the lower rudder cone. When the repaired parts arrived in Rotterdam the rudder stock was smoothly fitted into the rudder and the vessel was ready to sail.

New manufacturing

When repair is not an option MarineShaft is fully prepared. Short delivery time can be provided thanks to an extensive stock of classed material valued at around two million euro.

“Having class-approved steel, round bars, plates, stainless steel and bronze material in stock means we are able to start manufacturing a new shaft the moment we get an order and this is an important factor for our customers”, says Head of Estimate Lisa Hjermtslev.

Traditional Ship repairs

MarineShaft also carries out traditional ship repairs such as those done on engines and gears, winch and deck equipment and all manner of reparations and services of RSW systems. Often MarineShaft is the contract holder for more extensive renovations of fishing vessels.

Earlier this year, the fishing vessel Brestir came from The Faroe Islands for a planned refit. During docking its owners decided that they also wanted a complete overhaul of the boat’s propeller equipment. MarineShaft welded the control and bearing surface onto the propeller hub using the laser cladding method. Also, the inner- and outer chrome liners on the propeller shaft were re-welded.

The fishing vessel Grimsholm came all the way from Tomsø, Norway, for repairing and modifications of its RSW cooling systems thus saving thousands of euros for the owner as the alternative would have been to install a new RSW plant. New pumps were installed and other hydraulic repair work was carried out where MarineShaft was instrumental in the overhaul of the Reintjes Gear as they are an approved service supplier for Reintjes marine gearboxes in Denmark.

Pär-Henrik Sjöström

Putting it straight

MarineShaft is renowned in the industry for their straightening repairs – an art based upon more than 40 years of experience.

Danish company, MarineShaft which is located in Hirtshals, northern Denmark is a longstanding specialist approved to straighten shafts with a time saving, cold-pressure hydraulic technique offering a permanent repair. With their new 180-ton hydraulic press they can straighten shafts of up to 1500 mm in diameter and offer press services of up to 8000 tons.

Fast repair solutions

“Every hour is important in the marine repair business and at MarineShaft we make decisions fast and provide our customers with the best solution within hours”, says senior project manager, Allan Nielsen.

“We are committed to delivering high quality service and, if needed, our team will work around the clock to meet a deadline. That is a must in this business if you are to be to be successful”.

Even though the straightening techniques the company uses are based

upon old craftsmanship, MarineShaft constantly keeps abreast with new repair techniques. Last year, the company invested in an automated laser-cladding system which means that parts which the classification societies do not normally allow to be welded onto a component now can be. Laser cladding is performed using a numerically controlled industrial robot which means that multiple geometric welding variants are possible.

Complete repair solution

With its extensive array of mobile equipment, MarineShaft can carry out almost any repair on site. This includes repair of propellers, laser alignment, the boring of stern tube, welding rudder cones and many other repairs.

Earlier this year, MarineShaft in Rotterdam carried out repairs on a Greek-owned vessel after it was grounded. The rudder stock and intermediate shaft were sent to MarineShaft for straightening

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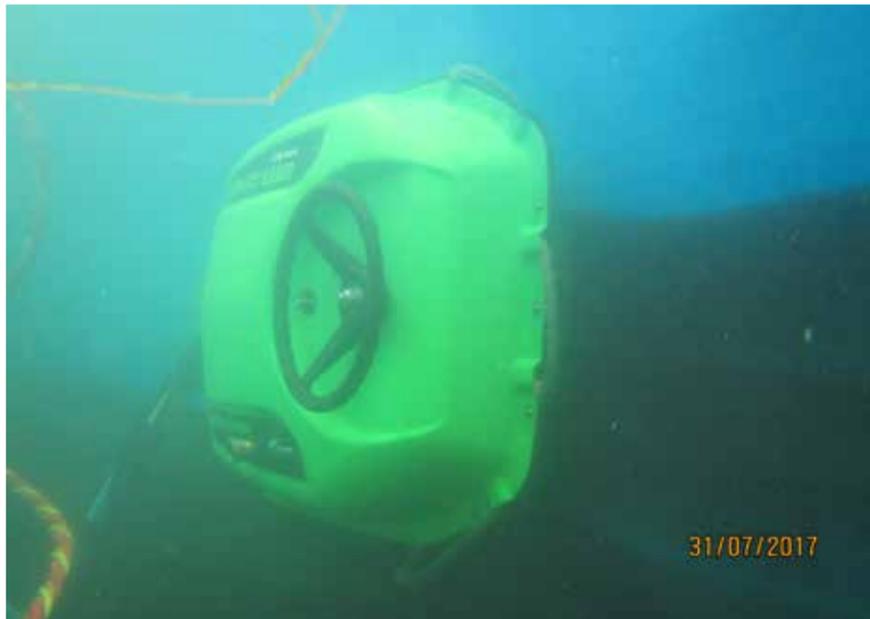
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www.veritastankers.com



DG-DIVING GROUP

31/07/2017

Cleaning hulls the DG-Green way

It typically takes between 6 and 10 hours to clean the hull of a 200 meter long vessel.

Following years of research and development, Finnish underwater maintenance specialist, DG-Diving Group, has been given the green light by environmental legislators to begin using its hull cleaning system in the ports of Gothenburg and Malmö.

Tools of own design

Mauri Kalliomäki, an experienced diver, entrepreneur and Chairman of this family-owned business has always had a passion for developing innovative technology that benefits the company's expanding customer base.

"This is a team effort based upon years of experience and learning", he says. "It's a never-ending process and we have made many improvements to our equipment since the company started with hull cleaning in 1983. Every time we have seen that something can be done better, we have made changes."

"Our latest innovation is a diver-operated, self-propelled system that not only cleans the hull, but also effectively collects residue for safe destruction on land", explains Mauri Kalliomäki.

First patented in 2015 by US and European authorities, the unit does away with conventional water filtration entirely.

"The tricky part in developing the system was finding a way to remove harmful contaminants from the cleaning water. Existing types of filters were immediately clogged by marine residue."

The new design has an effective wash water filtration system which exceeds today's emissions requirements regarding the release of nitrogen, phosphor other contaminants into the Baltic Sea.

12 teams

A three-man team is all that is needed to operate the machine system which is easily deployed and transported using

nothing more than a van and trailer. Today, the company has 12 units available for all manner of hull cleaning tasks.

"Two divers and one on-shore technician run the system. The unit is dimensioned so that it enables operation and support activities at a reasonable cost. Weighing in at a mere 40 kg, its relatively small size makes it easy to handle. We use the same cleaning unit for the entire hull, including bulbs, bilge keels and bilge strakes."

The unit is attached to the hull using the vacuum created by the rotating brushes. It is also self-propelled meaning that the diver can concentrate on effectively removing marine contaminants. Various kinds of brushes are used depending upon the type of coating to be cleaned - this even includes hulls which have silicon coatings.

Efficient method

Regular underwater hull cleaning has proved to be a very efficient way to remove marine residue eliminating the need for toxic anti-fouling paints.

The DG-Diving Group carries out more than 400 underwater hull cleaning assignments a year and Mauri Kalliomäki expects that number to significantly increase now that the company's services have been approved for the Swedish market.

"We are already up and running in Malmö and have recently been certified to perform hull cleaning operations in Gothenburg. As our solution is fully documented and meets all current environmental legislation, it is just a matter of time before we expand our business into other Swedish ports", he explains.

There is no doubt that Mauri Kalliomäki aims to grow his business significantly.

"So far, the DG-Diving Group has been a pure Finnish-based enterprise, but now when we are approved to work in Swedish ports we are either going to establish local franchises or alternatively form our own company in Sweden", Mauri Kalliomäki concludes.

Pär-Henrik Sjöström


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AdMare Ship Management AB provides management services for a wide range of vessels. Currently including but not limited to Tankers, RoRo's and General Cargo Vessels.

AdMare Ship Management AB is currently holding Document of Compliance for vessels flying flags under United Kingdom, Sweden and Panama.

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MD@AdMare.se
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Västra Hamngatan 19
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Sweden



WWW.ADMARE.SE



Newbuildings with Swedish connection

Vessels on order on 1 August 2017

Ordered by	Shipyard	Type	Dwt	Del	Remarks
ABB	Kleven, Norway	Cable layer		2017	Remøy Management
Ektank	CSSC Chenigxi Shipyard, China	Prod/chem	18 600	2018	LNG-ready
Ektank	CSSC Chenigxi Shipyard, China	Prod/chem	18 600	2018	LNG-ready
Furetank	Avic Dingheng Shipbuilding, China	Prod/chem	16 300	2018	LNG
Furetank	Avic Dingheng Shipbuilding, China	Prod/chem	16 300	2018	LNG
Furetank	Avic Dingheng Shipbuilding, China	Prod/chem	16 300	2019	LNG
Gothenburg University	Nauta Shiprepair Yard, Poland	Research		2017	Skagerak, 900 t
Mercy Ships	CSIC, China	Hospital	4 500	2017	Project: Stena RoRo
Rederi AB Gotland	GSI, China	Ropax		2017	LNG
Rederi AB Gotland	GSI, China	Ropax		2018	LNG
Sirius	AVIC Dingheng, China	Prod/chem	7 999	2018	LNG-ready
Sirius	AVIC Dingheng, China	Prod/chem	7 999	2018	LNG-ready
Sirius Veder	Royal Bodewes, Holland	LNG	3 000	2017	Coralius, LNG
SLU	Armon, Spain	Research		2019	69 m
Stena	AVIC Weihai Shipyard, China	Ropax		2019	3100 lane m, "gas ready"
Stena	AVIC Weihai Shipyard, China	Ropax		2019	3100 lane m, "gas ready"
Stena	AVIC Weihai Shipyard, China	Ropax		2020	3100 lane m, "gas ready"
Stena	AVIC Weihai Shipyard, China	Ropax		2020	3100 lane m, "gas ready"
Stena Bulk	CSSC OME, China	Prod/chem	50 000	2017	IMOIIIMAX
Stena Bulk	CSSC OME, China	Prod/chem	50 000	2018	IMOIIIMAX
Stena Bulk	CSSC OME, China	Prod/chem	50 000	2018	IMOIIIMAX
Stena Drilling	Samsung Heavy Industries, Korea	Rig		2017	MidMax
Tarbit Shipping	RMK Marine Shipyard, Turkey	Chem/bitumen	9 400	2017	
Tarbit Shipping	RMK Marine Shipyard, Turkey	Chem/bitumen	9 400	2017	
Thun	Ferus Smit, Holland	Minibulk	5 680	2018	
Thun	Ferus Smit, Holland	Minibulk	6 550	2018	
Thun Tankers	Avic Dingheng Shipbuilding, China	Prod/chem	16 300	2018	LNG
Thun Tankers	Avic Dingheng Shipbuilding, China	Prod/chem	17 500	2019	
Thun Tankers	Avic Dingheng Shipbuilding, China	Prod/chem	17 500	2019	
Thun Tankers	Avic Dingheng Shipbuilding, China	Prod/chem	17 500	2019	
Thun Tankers	Avic Dingheng Shipbuilding, China	Prod/chem	17 500	2020	
Thun Tankers	Ferus Smit, Holland	Prod/chem	7 999	2018	LNG
Thun Tankers	Ferus Smit, Holland	Prod/chem	7 999	2019	LNG
Thun Tankers	Ferus Smit, Holland	Prod/chem	7 999	2020	LNG
Thun Tankers	Ferus Smit, Holland	Prod/chem	7 999	2021	LNG
Trafikverket	Baltic Workboats, Estonia	Ferry	600	2017	Neptunus
Trafikverket	Baltic Workboats, Estonia	Ferry	600	2019	Battery
Waxholmsbolaget	Baltic Workboats, Estonia	Passenger		2018	27 m, "Hybrid ready"
Wallenius Lines	Tianjin Xingang Shipyard, China	PCTC	23 700	2017	Titus
Wallenius Lines	Tianjin Xingang Shipyard, China	PCTC	23 700	2017	Traviata
Wallenius Lines	Tianjin Xingang Shipyard, China	PCTC	23 700	2017	
Wallenius Lines	Tianjin Xingang Shipyard, China	PCTC	23 700	2017	
Wisby Tankers	GSI, China	Prod	49 999	2017	
Wisby Tankers	GSI, China	Prod	49 999	2017	
Älvtank	Avic Dingheng Shipbuilding, China	Prod/chem	16 300	2018	LNG
Älvtank	Avic Dingheng Shipbuilding, China	Prod/chem	16 300	2019	LNG

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