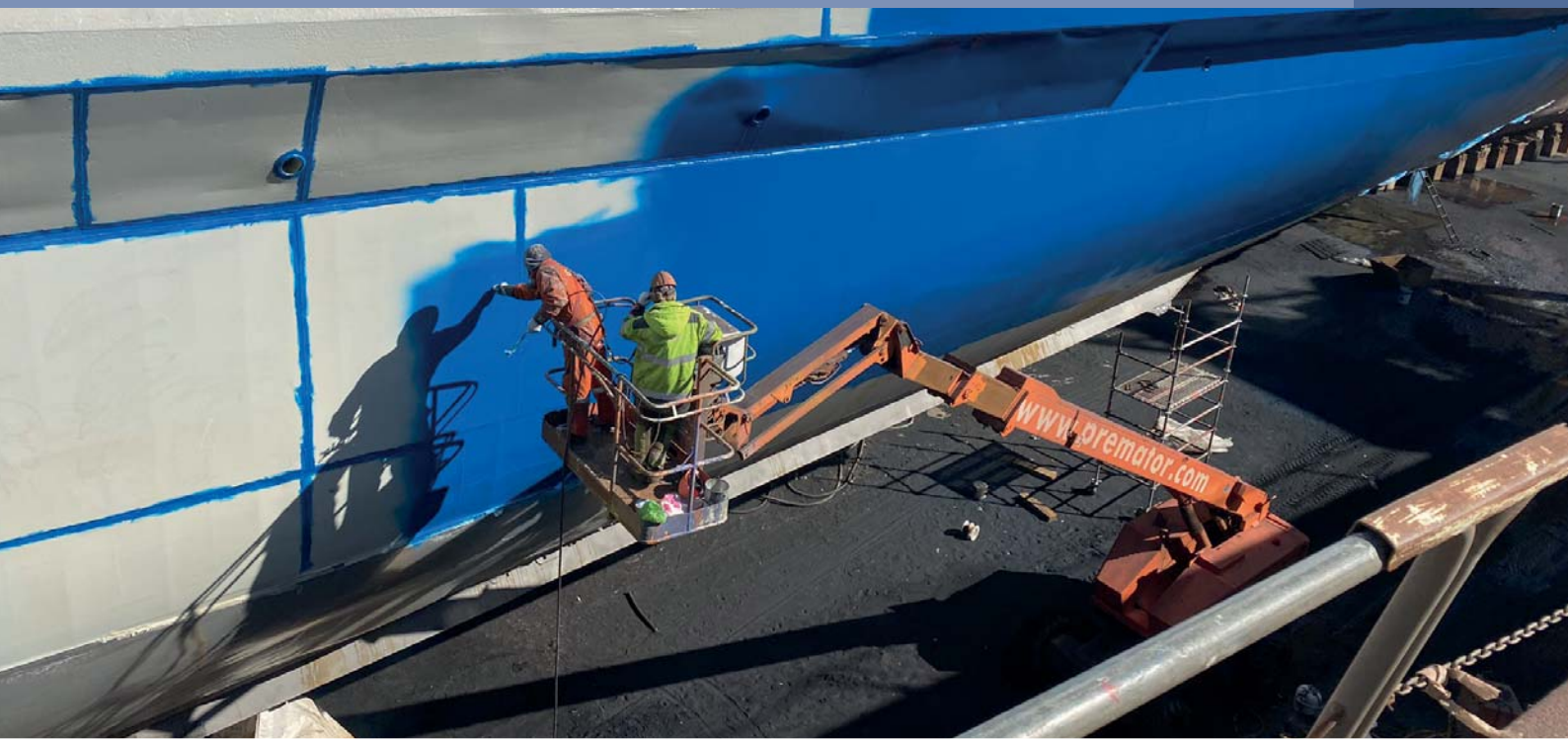
SUBSEA

PROTECTION AND PERFORMANCE

Magazine



Subsea Industries is looking for representative agents

To support our continuous growth, we are expanding our worldwide network of Subsea Industries agents. This allows us to reach a much bigger public directly than would otherwise be possible.

Subsea Industries NV was founded in 1983 to take care of the design, development and marketing of an evolving line of underwater hull and propeller cleaning equipment as well as a line of hard hull coating systems.

The purpose of the Ecospeed range of coatings and cleaning technology is to offer a long-lasting, non-toxic protection for all ships with a system that keeps a hull ultra-smooth and free of fouling for the service life of the vessel with minimal repair and no replacement. Instead of using chemicals to kill and repel marine fouling organisms, Ecospeed uses a hard, impermeable, impenetrable coating along with manual removal of fouling at an early stage.

Contact us if you are interested in joining our network and help us build a strong relationship with our prospects and customers. We look forward to hearing from you.

SUBSEA INDUSTRIES

Phone: + 32 3 213 5318
Fax: + 32 3 213 5321
agents@subind.net
www.subind.net

Editorial

Here at Subsea Industries we have a very clear goal: Clean rivers, seas and oceans. This has been so since I founded the company in 1983. Back then it was called Subsea Cleaning Systems and we offered a line of underwater cleaning equipment to the market. Since then we have expanded our portfolio greatly, first with Ecospeed and later with our other non-toxic coating systems.

Stringent independent tests were carried out in the Netherlands to provide scientific data and to authenticate the non-toxicity of our coatings. Similar testing was conducted in Canada with the same results. This research proved that the coatings are 100% non-toxic and that there is no negative effect on the water quality or the marine environment at any point of their use. The massive amounts of toxic materials, VOC and zinc emission associated with conventional coating systems are reduced to almost zero.

Another important outcome of the independent test was the submission of the results to port authorities and environmental agencies worldwide in order to allow the underwater treatment of our coating systems. As a result several economically important ports, including Rotterdam and other major ports, have made an exception to the ban and this only for our coatings.

One of the many unique characteristics of Ecospeed is that with repeated underwater hull cleaning the coating's surface improves. By optimizing hull surface friction and using the best possible surface hydrodynamic characteristics, fuel savings over the lifetime of the ship are most often found to be in the 20-40 % range. In contrast with AF compounds that rapidly degrade over time, our coating lasts. Therefore the performance of the ship does not degrade either.

If 80% of the world fleet would switch from biocidal antifoulings to our coating systems, this would save an estimated 28.5 million tonnes in annual fuel consumption and 90 million tonnes in annual CO2 output.

Subsea Industries NV
Boud Van Rompay
Founder

Ecospeed can be used to protect the underwater hull of any vessel afloat today. *©New SIGHT Photography.*

More Ecospeed protection for roro ferry after excellent results

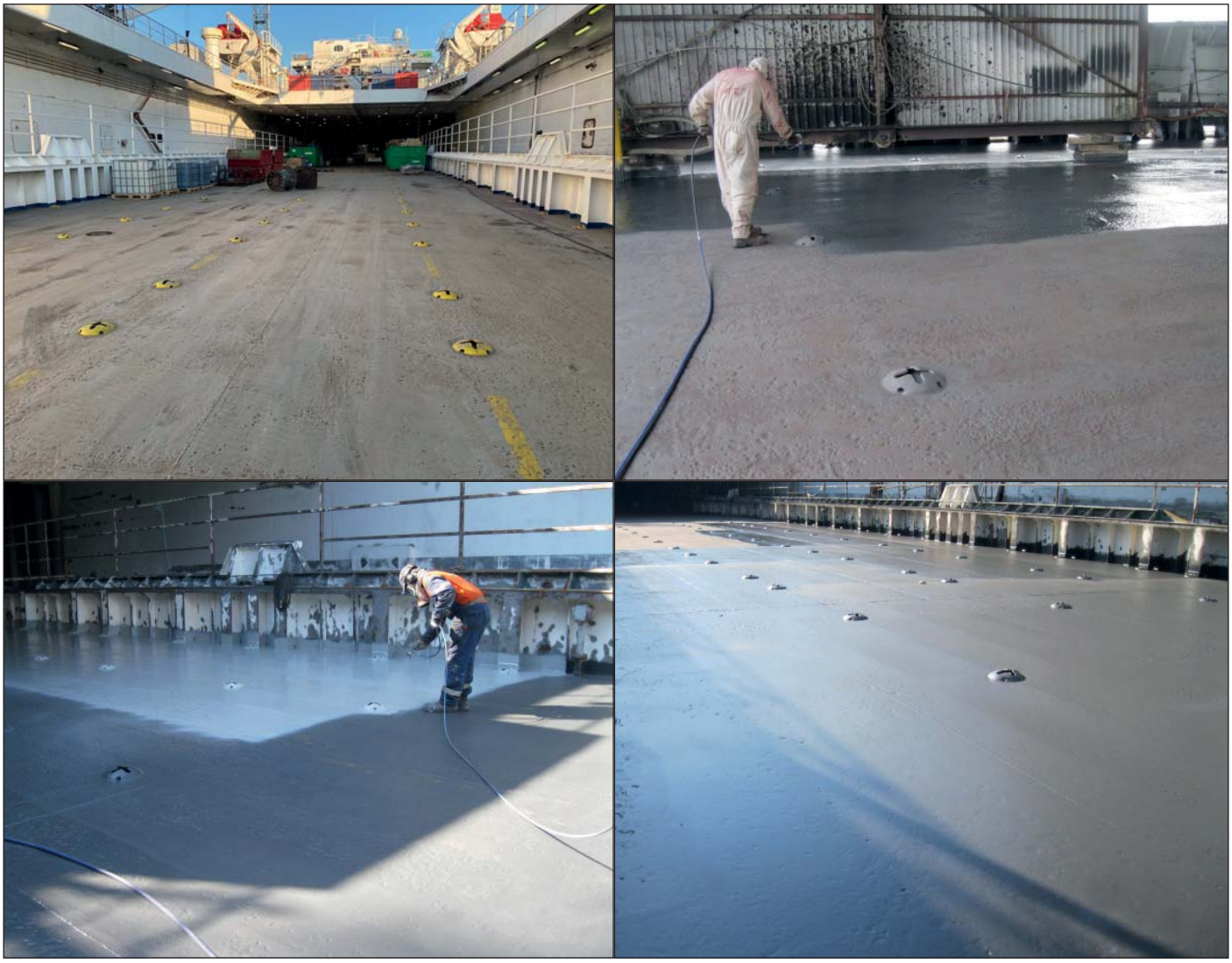
In 2019 Finnish shipping company Eckerö coated the open cargo deck of their roro passenger ferry *Finbo Cargo* with Ecospeed. This was done to protect the deck against damage from cars and cargo. One year later the deck was still in excellent condition, in strong contrast to previous years. As a result, Eckerö decided to coat the ice belt and most of the hull with Ecospeed to offer it the same lasting protection.

"We coated the weather deck with good result," says Mr. Olsén, Technical Manager with Eckerö Group. "After one year in traffic and many thousands of cargo tons there are no failures to the coating at all."

Eckerö Line was founded in 1994 and is part of the Eckerö Group. They offer reliable and high-quality cargo services on the Helsinki-Tallinn-Helsinki route. As a Finnish shipping company, they provide the Finnish export industry a reliable and regular contact to the European market and ensure that consumer goods are available to the whole of Finland.

Lasting protection against ice

M/S Finbo Cargo was upgraded to an Ice Class program this year. "We decided quite fast that we needed a coating that we knew could handle the ice conditions in the Baltic Sea," says Mr. Olsén. Ecospeed's resistance against ice is ideal to



Top left: Open cargo deck of roro passenger ferry Finbo Cargo. *The deck needed extra protection from damage occurring from traffic and cargo handling. Top right and bottom left: Application of Ecospeed in two identical layers to prevent damage from occurring. Bottom right: No repainting will be required.*

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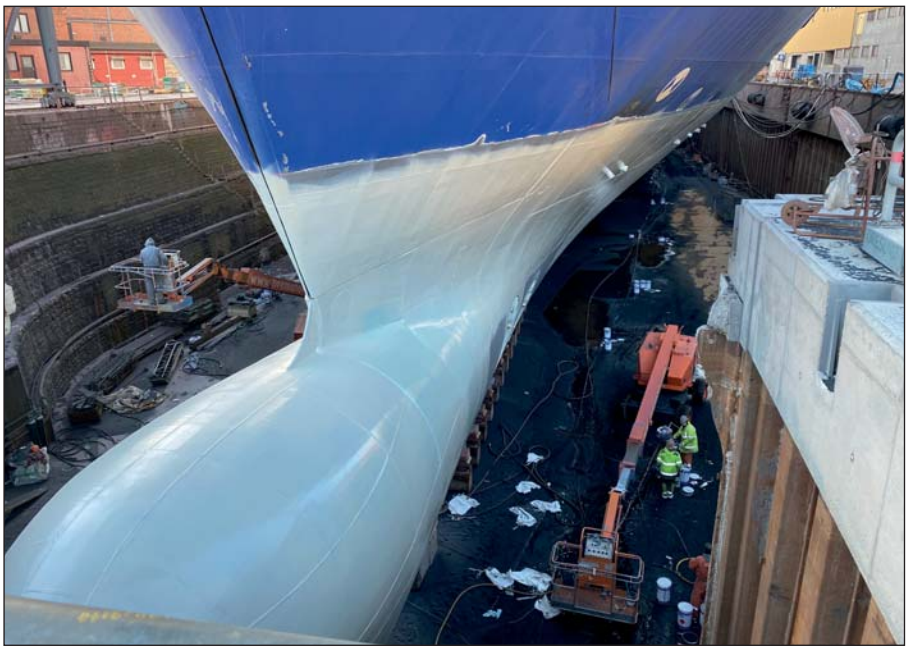


The bulbous bow and other areas prone to ice impact needed extra protection.

complement the ship's new structural ice protection.

For over 10 years several ships coated with Ecospeed have been sailing the most northern parts of the Baltic Sea during the winter season when they are completely frozen. Despite the frequent impact of large floes, none of these ships have required more than just a few touch-ups during their drydock visits. The evidence these dockings gave of Ecospeed's durability and protection against harsh winter conditions convinced the owners of *M/S Finbo Cargo* that the coating was ideal for their ferry.

Easy application, no repaints

During the busy tourist season ferries need to be sailing frequently so the best time for drydocking is the low season when there is less cargo and fewer passengers. "We decided to choose a system that initially costs a bit more but in the end saves us a lot in maintenance cost," continues Mr. Olsén. "That is an important factor for us since our dockings are mainly done during winter in bad weather conditions when the quality of repair work to the paint system cannot be guaranteed." For this reason it was essential to reduce the necessary maintenance and paint work during future drydockings.

Application of Ecospeed can easily be geared to the schedule of the yard.

The durability of Ecospeed makes the planning of future dockings far easier.

Most of the underwater hull was coated with Ecospeed to make sure no repaint would be needed.

The rudders were also given the same lasting protection.

The initial application of the Ecospeed underwater hull coating can easily be geared to the schedule of the yard. This flexibility can be achieved with Ecospeed because the coating has versatile application potentials. Either of the two required layers can be applied at any time during the building process, even when there is a winter period or serious bad weather between applications.

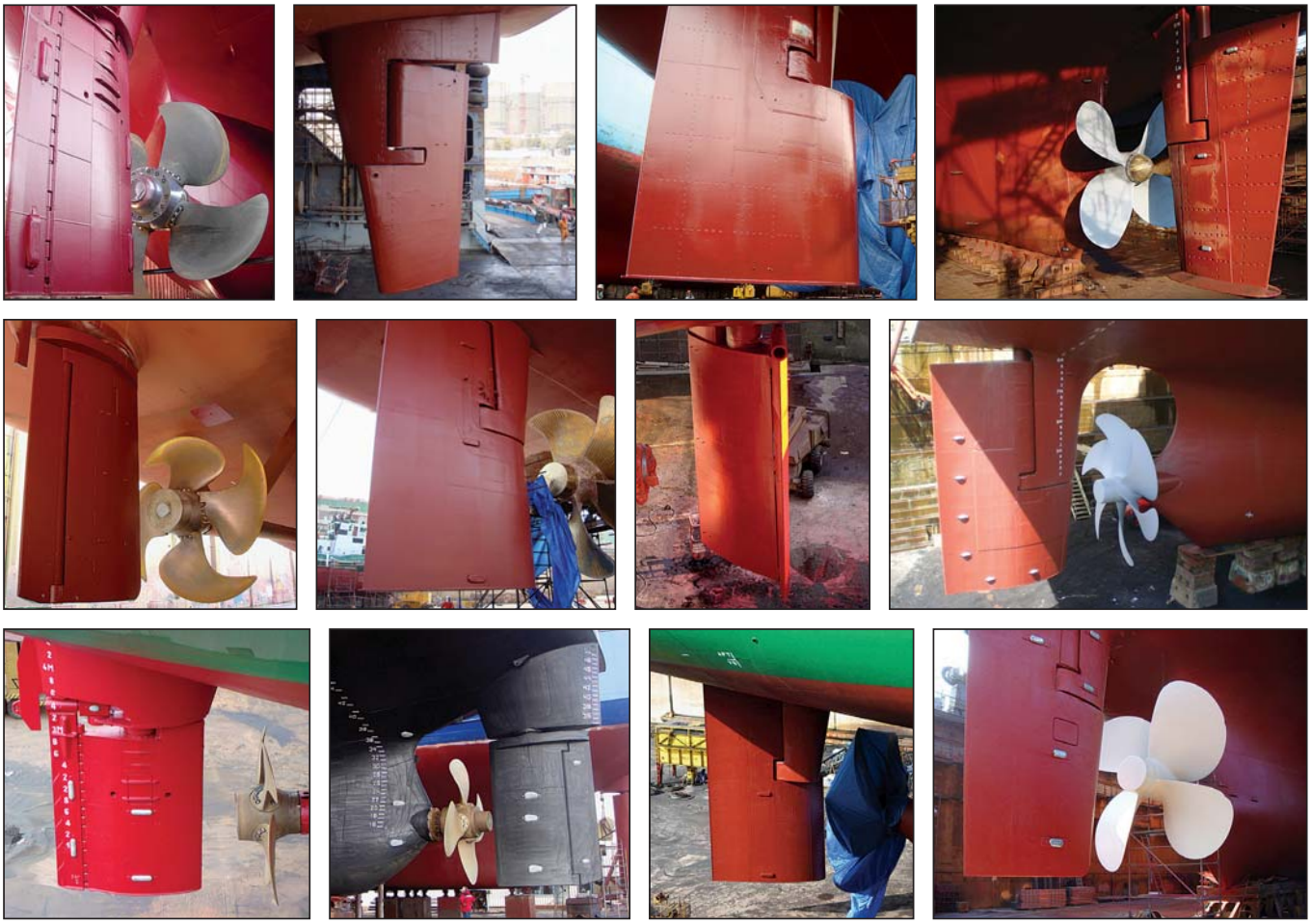
The durability of Ecospeed makes the planning of future dockings far easier for the shipowner and the shipyard. No repainting beyond minor touch-ups will be required. These touch-ups can easily be done during a short visit.

Conclusion

The application on *M/S Finbo Cargo* clearly demonstrates that Ecospeed is not only the best option for the underwater hull of a ship but can also be used for a wide range of other purposes. The result is always the same: a lasting, non-toxic protection against corrosion, cavitation and even mechanical damage. ■

ECOSPEED®
SHIP HULL PERFORMANCE TECHNOLOGY

LASTING PROTECTION



Ecoshield gives a very thorough and lasting defense against cavitation and corrosion damage for a ship hull's entire service life.

The coating equally provides the rudder with an impenetrable protective layer while its flexibility enables absorption of the forces that are produced by cavitation. This prevents the damage normally caused by this phenomenon.

Without proper protection against cavitation and the resulting erosion and corrosion damage, the financial consequences can be severe.

By removing the existing paint layers and applying Ecoshield on the rudder we can break the never ending cycle of painting, suffering damage, having to perform extensive repairs in drydock followed by a full repainting, again and again.

With an Ecoshield application no full repaint will be needed during drydocking. Ecoshield is guaranteed for ten years. At the most, minor touch-ups will be required.

Subsea Industries NV
Phone: + 32 3 213 5318
Fax: + 32 3 213 5321
info@subind.net
www.subind.net

ECOSHIELD®
ULTIMATE PROTECTION

How to protect ice-going vessels for their entire lifetime

We have been coating ice-going ships for over 15 years. The technical, economic and ecological results we have witnessed are nothing less than spectacular.

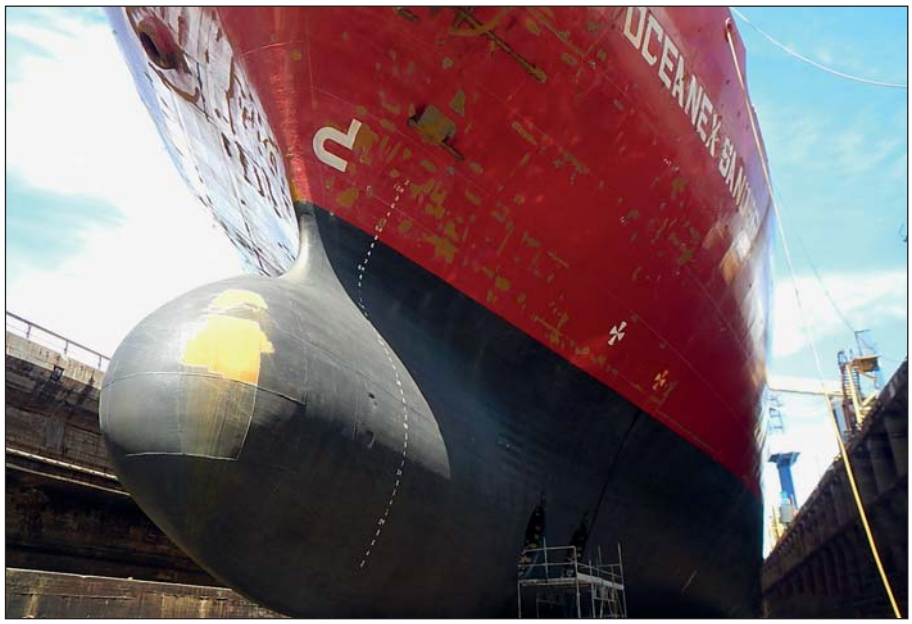
Technical

The first thing one looks for in an ice-going coating is a resistance to the ice. The reason why Ecospeed is such a success in ice is because of the adhesion to the steel. In itself the coating is not flexible, but due to its superior adhesion the coating flexes with the steel. There is no delamination and no detachment from the substrate.

Economic

Ecospeed ships do not have to be recoated. Ice-breaking (and other) ships save an enormous time in dry-dock. Instead of twelve days you only have to spend four or five days in dock because only small touch-ups are required. These are very easy to do, even in bad weather and any repair done to an Ecospeed coating will have the same qualities and strength as the original layers. This is even the case if they have been applied 10 or 15 years before.

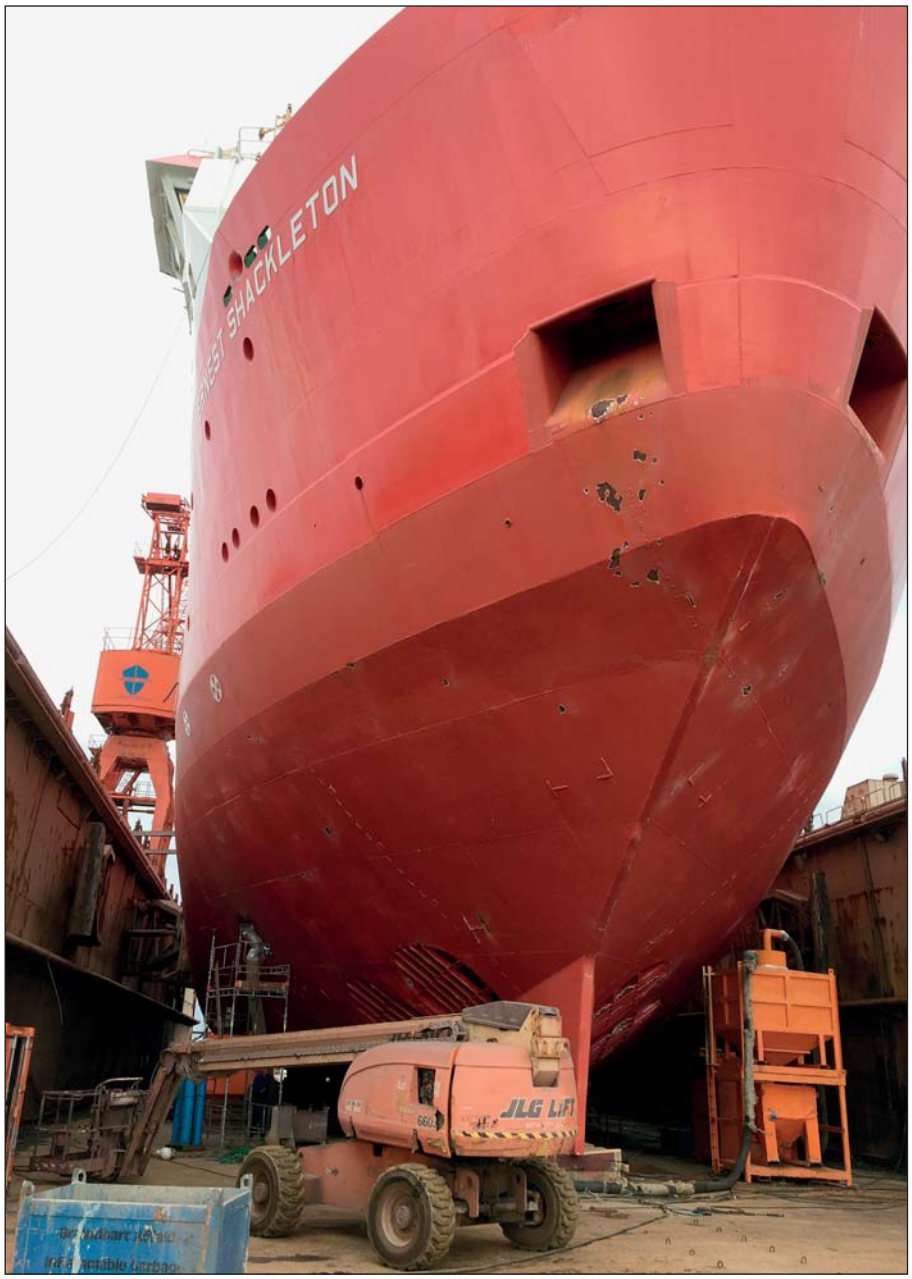
Many case studies have shown that our coatings can withstand the impact of ice for many years on end.



Only small touch-ups are needed to those areas of the underwater hull most prone to mechanical damage.

Ecospeed has proven on many occasions that it can withstand even the harshest winter conditions.

Applying Ecospeed is quite straightforward.



In eight seasons operating RRS Ernest Shackleton *with Ecospeed coating, only those areas most susceptible to ice impact needed minor touch-ups.*

A combination of the corrugation of the coating and the absence of marine growth in ice results in a proven reduction of consumption. Depending on the size of the ship, the engines used and other specifications these fuel savings can go from 10%, 20% or even 30%.

The smoothness of the coating also provides for easier breaking of the ice. The ship slices through the ice because hull friction is substantially reduced.

Ecospeed has been recognized as an abrasion resistant ice coating by Lloyd's Register. Using our coating allows the plate thickness to be reduced by 1 mm. Ships can be build with less material and will be less expensive to build and lighter to use.

Ecological

With Ecospeed on the underwater hull there is no loss of coating. There is no disbondment, no detachment and no delamination caused by ice impact. Our coating systems leave no paint behind. There is no spreading of anti-fouling toxic particles and heavy metals, because they are simply not used in our coating. Ships can safely be taken to the Polar regions without having a damaging effect on the environment or coloring the ice.

Because of the quality of the coating Ecospeed requires no use of anodes. As a result there is no loss of zinc materials in the Polar or other regions. No corrosion takes place on ships coated with Ecospeed.

When the cleaning effect of the ice is not sufficient all animal growth can be removed easily with intermediate underwater cleaning. There is no detrimental effect on the marine

Ecospeed is not a coating system that you get for one or two years, it is a system that you get for twenty years and longer.

Before Ecospeed

General cargo ship, before Ecospeed, one season trading in Baltic ice.

After Ecospeed

Same ship, same conditions, five years after Ecospeed applied, no repaint.

life. There is no chemical influence. The problem of biofouling is therefore completely handled. The animals are removed and left behind in their native environmental zone. They are not transported to another environmental zone. We promote this as a total solution because achieving this only depends on the cleaning of the ship.

Conclusion

Well over a hundred ice-going ships have been coated with our products with great and conclusive results. Our Ecospeed coating was also selected for the newbuild research vessel *RRS Sir David Attenborough*.

Over a period of fifteen years these have shown that Ecospeed can withstand the impact of ice for many years. It is not a coating system that you get for one or two years, it is a system that you get for twenty years and longer. ■

Corrosion damage repair made easy

Subsea Industries has a product for filling and building up a corroded and pitted steel surface to its original form prior to recoating with Ecoshield. Ecofix is as tough as the steel itself, machinable, and can be used to repair most pitting or corrosion damage on rudders, stabilizer fins, thrusters and other underwater gear.

Ecofix is used in combination with Ecoshield, the ultimate rudder protection coating. When a rudder or other piece of underwater ship gear has not been properly protected, the surface will become corroded.

Cavitation can cause severe pitting. The steel needs to be restored to its original shape with a smooth surface prior to recoating.

This is where Ecofix comes in. It is a superior, tested and proven filler. Because it uses the same basic resin as Ecoshield, the coating can be applied just one hour after the filler. The bonding and hardness are extraordinary. This is the effective alternative to very expensive fillers. And because it is part of the Ecospeed/ Ecoshield family, it is fully compatible with our coatings.

ECOFIX®
CORROSION REPAIR

Subsea Industries NV
Phone: + 32 3 213 5318
Fax: + 32 3 213 5321
info@subind.net
www.subind.net

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All products produced by Subsea Industries have the same goal in mind: To keep the underwater part of your vessel in the best possible condition for its entire lifetime at the best possible performance.

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