

# SUBSEA

PROTECTION AND PERFORMANCE



Magazine

260



Per Gabriëlsson Subsea Industries representative in Finland.....	4
Say farewell forever to cavitation damage on running gear.....	8



# Corrosion damage very repair made ✓ easy



**S**ubsea 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.

Subsea Industries NV  
+ 32 3 213 5318  
info@subind.net  
www.subind.net



# Editorial: Extending the drydocking interval

**D**rydocking a ship is a complex, expensive, time-consuming and stressful activity, regarded by most ship owners, operators, officers and crew as a necessary evil. Time spent in drydock is time spent out of service. It is becoming increasingly difficult to find drydock time available when and where one would like it.

Drydocking often takes a vessel well away from its normal operating route. Many different activities need to be scheduled for accomplishment during a drydocking and these activities may interfere with each other. The weather can be an important factor, particularly since drydocking usually involves painting.

Currently the usual interval between mandatory drydocking for most ships is five years, depending on type and age of ship. This has been extended to seven and a half for certain ships. A ten-year drydocking interval would reduce operating expenses and lower the cost of marine transport.

The main challenges to a ten- or even twelve-year interval between dockings are hull protection and fouling control. The continual attack by salt or fresh water, cavitation, oxidation, abrasive particles (gravel, lava, sand), ice and occasional solid contact renders the hull of a ship particularly prone to damage, erosion, corrosion and general reduction or weakening of the steel, aluminum or other material from which it is made. Salt water is potentially more damaging than fresh.

The accumulation of biofouling in the form of plant and animal life which naturally adheres to any submerged object, man-made or not, causes the hull to become rougher



and can also damage the protective coating. This in turn adds friction or drag to the hull and propellers. The result is that more fuel must be burned to achieve the ship's cruising speed. The rougher the hull and propellers become, the higher the fuel penalty incurred. This not only shows up in higher costs to the operator but also in increased environmental impact through additional noxious gas and particulate matter emissions resulting from the higher fuel consumption. With conventional coatings, the longer the vessel remains out of drydock, the rougher the hull will become.

The protection of the hull over a ten- or even twelve-year period can be accomplished with Ecospeed. This coating system of hull protection and fouling control can easily last for ten or twelve years without any need for drydocking. It can keep the ship's hull well protected and virtually free of biofouling for that length of time, avoiding the fuel penalty and preventing the translocation of non-indigenous species (NIS).

Ecospeed is non-toxic and environmentally benign. It is also cost-effective and will, when standardly applied and maintained, result in considerable savings for both owner and operator over the service life of a ship when compared to conventional coating systems.

**We have published a White Paper that focuses on hull protection and fouling control to lengthen the interval between mandatory drydockings. If you are interested in receiving a digital or printed copy of this White Paper, contact me at [info@subind.net](mailto:info@subind.net) or +32 3 213 53 18.**

Subsea Industries NV  
Boud Van Rompay  
Founder



# Per Gabriellsson Subsea Industries representative in Finland

**P**er Gabriellsson, sole proprietor of Independent Coating Inspections and Consultation in Mynämäki, Finland, has been the agent for Subsea Industries in Finland since May, 2010. He continues to bring his extensive experience in marine surface preparation and paint coating application to many interesting and successful Subsea Industries projects in his country and beyond. Per is more qualified than most to represent Subsea Industries, owing to his background and expertise in coatings, surface preparation and inspections.

## A long career

Per began his career in 1960, working for a major paint company in Finland, where he graduated up to Technical Manager. He supervised



*Eckerö Line's Finbo Cargo Ro-Pax, sailing between Helsinki and Tallinn, has had decks and hull coated with Ecospeed for long-term protection.*

over 100 newbuildings and dry-dockings both in Finland and internationally and was in daily contact with ship owners, shipyards and the technical personnel of heavy industry companies. In 1984, Per decided to go independent, and has worked

as a freelance ever since, specializing in steel preparation and welding condition monitoring, surface preparation and paint coatings as well as passive fire-proofing inspections.

## Representing Subsea Industries

In 2010, Per came across Subsea Industries, and it seemed a natural fit. "Working on various projects worldwide, I realized that the maritime industry needed something else than the ever-increasing pushing of more and more hazardous biocidal products, impacting all marine life in a negative way," he recalls. "Then I ran into an article describing the functioning of Ecospeed. I contacted Subsea Industries and, after a while, I decided that this type of environmentally-friendly, brushable coating is something worth promoting to Another factor which led to my decision [to represent Subsea In-



*The damaged vehicle decks of the Finbo Cargo were coated with Ecospeed for protection from the heavy wear of vehicle traffic, with excellent results.*



*Per was the coating inspector in 2012 for the blasting and coating of icebelt and rudder of ice-breaking tug Jääsalo of the City of Kemi, at Naantali Repair Yard in Naantali.*

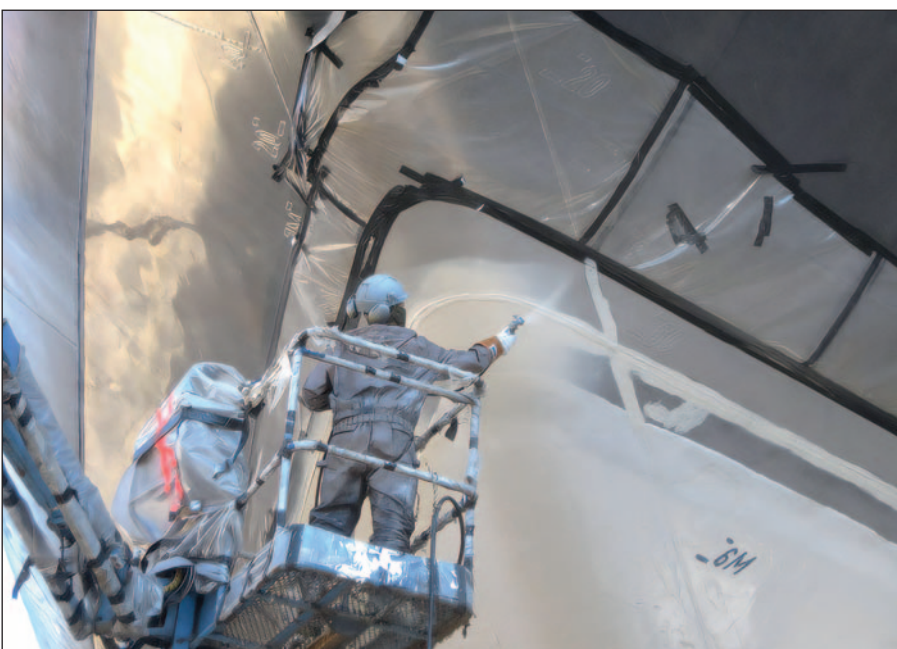
dustries in Finland] was the possibility of being able to recommend Ecospeed to my clients for its abrasion resistant properties, much needed

for the Finnish merchant fleet and also for other ice going vessels.” Per adds.

Since that time, Ecospeed has been certified by class as an ice-abrasion resistant coating PC1 - PC7. Polar Class 1 - 7 basically means that ships protected with Ecospeed can sail in any sea at any time of year. It also means that plate thickness of certain parts of ice-going ships and ice-breakers can be reduced by a considerable amount when they are protected with Ecospeed. The coating has been thoroughly tested and proved as very effective protection against ice.

### **A steady stream of projects**

Not surprisingly, given Finland’s tradition of building high quality icebreakers and ice-going boats and ships, many of the projects with which Per has been involved concern such vessels. These projects have involved entire hulls, rudders



*In 2022, Per oversaw a test application on icebreaker Kontio of Ecoshield on top of stainless steel plating, at Turku Repair Yard, Naantali.*





*Per was Subsea Industries' agent and inspector of the Ecoshield application on the thruster tunnels of the Finnlines Ro-Pax MS Finnfellow at Turku Repair Yard, Naantali, Finland in 2016.*



*The completed Alfons Håkans Selene, one of two Tundra icebreakers built in 2020 at Sanmar Shipyard in Yalova, Turkey. Per was there as representative for Subsea Industries.*





*In addition to being Subsea Industries' representative for Finland, Per Gabrielsson is active as an inspector and consultant specializing in steel preparation and welding condition monitoring, surface preparation and paint coatings.*

and running gear and also decks.

Only a few of the projects Per has been responsible for as representative and as inspector are given here. There are many more.

### **Langh Ship rudder protection**

The first project which Per undertook for Subsea Industries was the application of Ecoshield to the rudders and ice sea chests of three Langh Ship cargo ships in Remontowa, Gdansk, Poland in 2012. Ecoshield was chosen to prevent further cavitation damage to these specific parts of these ships.

### **Eckerö Line, *Finbo Cargo***

This was a very interesting project. The *Finbo Cargo* is a Ro-Pax ferry

belonging to Eckerö Line and sailing between Helsinki and Tallinn. The constant heavy vehicle traffic had resulted in serious damage of the cargo decks. Eckerö needed a solution that would extend the life of the decks. In 2019, they chose Ecospeed, and Per oversaw the application at Turku Repair Yard in Naantali, Finland. Five years later the deck coating is still holding up well.

Based on this successful application to the decks, the following year Eckerö decided to apply Ecospeed to the ice belt, rudders, bow thruster tunnels and lower topside of the vessel. Per again oversaw and inspected the application, this time at Öresundsvarvet, Landskrona, Sweden. This application has also held up very well over the intervening years.

## **TUNDRA icebreaking tug newbuilds for Alfons Håkans**

In 2020, Per oversaw the application of Ecospeed to the entire external hull and propulsion units of two TUNDRA icebreaking tug newbuilds, later christened the *Helios* and *Selene*, for Alfons Håkans. The coating was applied from gunwale to keel and has remained intact and in excellent condition since it was applied.

### **Looking ahead**

“The relationship with Subsea Industries has been very good and fruitful,” says Per, who continues to work long past the usual retirement age. He says his pace has slowed down a bit but he is still very active.

The future? “I predict that the use of so-called “antifoulings” will be phased out within ten to fifteen years, and hard, brushable coatings will replace them,” says Per. “Periodical brushing of external, submerged hulls will still exist, but ‘grooming’ of such areas will be available during port arrival/departure. As a result, vital marine life will survive and the ‘milking cow’ for paint manufacturers (anti-fouling paint) will vanish.”

Since Subsea Industries was founded with the clear goal of “Clean Oceans, Seas and Rivers,” Per’s prediction is exactly aligned with our own vision. ■

# Say farewell forever to cavitation damage on running gear

**I**n the last few months more than twenty ships received Ecoshield protection for their rudders, bow thrusters (and tunnels), Mewis Ducts, Becker Twisted Fins, and in some cases scrubber outlet areas. The applications were carried out in China, Gibraltar, Spain, Turkey and the U.K. on a wide range of vessels. These included container ships, ro-ro ships, a navy vessel, bulk carriers, a tanker and general cargo vessels. The running gear of these ships will be protected against cavitation and corrosion damage for the rest of their service lives without the need for recoating.

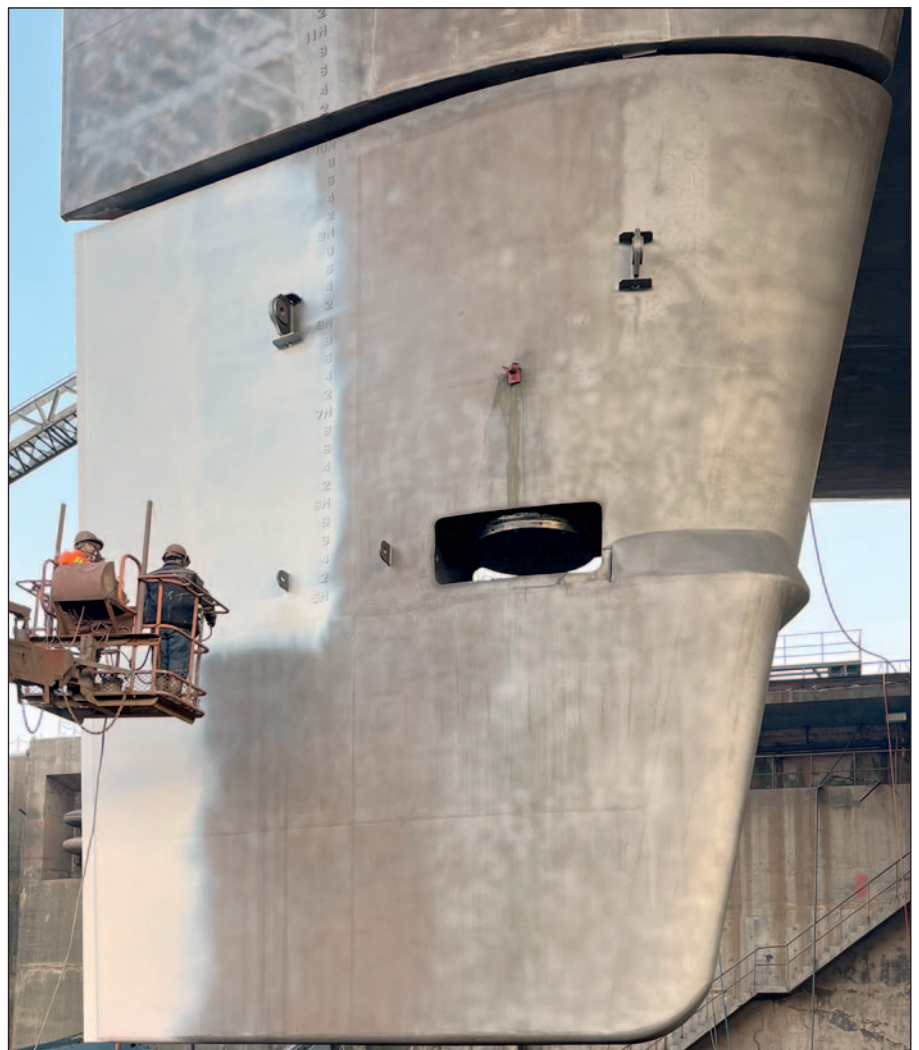
The ships belonged to a number of different owners. Some of them were new customers, others returning ones. The returning customers had seen firsthand that Ecoshield solved the cavitation erosion problem on the rudders of other ships and wanted the same protection for the rest of their fleet. The new ones saw the excellent results obtained by other owners and chose Ecoshield to prevent corrosion and cavitation damage from reoccurring on their own ships.

## Groundbreaking protection

In the last couple of years, Subsea Industries' sister company Hydrex has noted a substantial increase in the number of enquiries for underwater rudder repairs. This clearly shows the need for a cost-saving and lasting solution. A great deal of effort goes into the design and manufacture of rudders because they



*Application of second Ecoshield layer on propeller nozzle.*



*Only two, identical layers of Ecoshield are required to offer full and lasting protection.*





*All running gear, like thruster (tunnels), can be protected with Ecoshield.*



*Application is simple if the correct procedure is followed.*

are such an important part of a vessel. If a rudder is not given the proper protection against cavitation and the resulting erosion and corrosion damage, there can be major financial consequences for the owner.

Ecoshield puts an end to this. By blasting the rudder or other running gear back to bare steel and applying our coating, 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. Ecoshield provides a very thorough and lasting protection for a ship's entire service life. No repaint beyond minor touch-ups of mechanical damage will be required during future drydockings.

### **The Ecofix and Ecoshield combination**

If a rudder has already suffered corrosion damage, Ecoshield can prevent any further damage from occurring. In such case the coating can be used in combination with another product in the Subsea Industries family: Ecofix.

Ecofix is a superior, tested and proven filler that restores the steel to its original shape with a smooth surface prior to recoating. Because it uses the same basic resin, Ecoshield can be applied just one hour after the filler.

Slot welds can also be filled with Ecofix on a newbuild rudder prior to Ecoshield application. Ecofix can replace much more costly and time-consuming hot work in most cases.

### **Easy and flexible application**

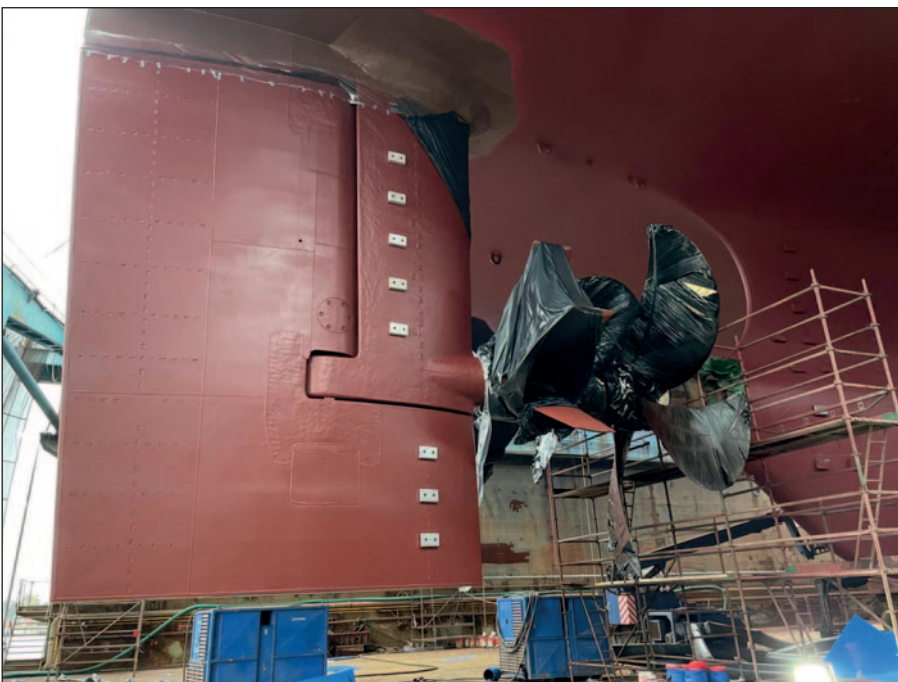
With time at a premium in drydock, the speed of application of Ecoshield is a further advantage.



*Paint applicator measuring the wet film thickness during application.*



*Application of Ecoshield can be done before or after installation of the running gear without any effect on the quality of the coating.*



*No repaint will be needed during future dockings.*

Ecoshield's flexibility makes it easy to adapt the application schedule to the rest of the activities at the shipyard or drydock in a way which does not interfere with them. Overcoating time can be as short as three hours. With the right planning, grit blasting, filling with Ecofix if needed, and application of the two required layers of Ecoshield can be performed in just one day.

### **Suitable for all running gear**

Besides offering rudder protection, Ecoshield is also suitable for thrusters, azimuth thrusters, Azipods®, thruster nozzles, thruster tunnels and other underwater ship gear which needs special protection from corrosion. The extra strength coating protects these areas for the service life of the ship. There is no need for recoating or major repair. For this reason, several of the vessels treated recently had their thrusters, thruster tunnels, propeller nozzles and stator fins coated with Ecoshield in addition to the rudders.

### **Results speak for themselves**

Evidence of the success of the coating is the number of companies that began by coating one rudder experimentally and have ordered Ecoshield for the running gear on other ships after seeing the results in service. Most have plans to convert their entire fleet. Shipowners who have previously applied Ecoshield to rudders on ships in service are specifying the coating for the rudders and other underwater gear on their newbuilds.

Ecoshield comes with a ten-year guarantee. It is the only coating known to fully protect a rudder from all cavitation damage. ■



# Subsea Industries is looking for representative agents



**T**o 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**

+ 32 3 213 5318  
agents@subind.net  
www.subind.net

# SUBSEA

PROTECTION AND PERFORMANCE



**S**ubsea Industries NV, was founded in 1983 specifically to take care of the design, development and marketing of what has become an evolving line of underwater hull and propeller

cleaning equipment as well as the line of hard hull coating systems.

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.

Subsea Industries NV  
+ 32 3 213 5318  
info@subind.net  
www.subind.net