SUBSEA
PROTECTION AND PERFORMANCE

Magazine 228

Looking back at 2021

Corrosion damage very 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.

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ECOFIX®
CORROSION REPAIR

Editorial

It has been quite a year for Subsea Industries. There have been major accomplishments with Ecospeed for ice, Ecoshield on rudders and pitted/corroded steel of running gear that was repaired with Ecofix. The test of our coating systems comes when the vessel drydocks five, ten, fifteen or more years after the original application. One for one our longevity expectations have been confirmed, often to the astonishment of the owner or operator. You can read all the details in the main article in this newsletter.

Now we are looking ahead with major expansion plans for 2022. Ecospeed has proven itself to be the toughest and longest lasting protection against the ravages of operating in ice. For this reason increasing numbers of owners and operators of ice class vessels are turning to Ecospeed to protect their hulls. Photos of these icebreakers and ice-going ships with hull coatings intact after years of ploughing through thick ice are becoming more and more common.

At Subsea Industries we do not operate on a repeat business model, replacing the coating again and again. With Ecospeed, one application is all that a ship will need for its entire service life. We provide lasting protection for ice going ships, one hull at a time, and then move on to the next.

The same philosophy applies to Ecoshield. Once we have insulated and isolated a rudder, thruster tunnel, Kort nozzle, twisted fin or any other part of a ship that is vulnerable to cavitation damage, erosion and corrosion, we know that we will not have to redo that piece of running gear – ever. Next time that ship is drydocked, the most it will need is a small can of Ecoshield for touch-ups.

Not repeat business, but once-and-forever business. It's a different approach.

We wish you a very prosperous 2022 and hope we will have an opportunity to bring lasting protection to your vessels in the coming year.

Our coatings do not have to be replaced after initial application, they offer lasting protection.

Subsea Industries NV
Boud Van Rompay
Founder

Looking back at 2021

The past year has been a very successful one for Subsea Industries. Several ships came into drydock after sailing with Ecospeed for many years, some well over 10 years. The result was always the same: Our coating was still in excellent condition and did not need to be replaced. We have also completed a large number of new applications of our different coating systems this year.

In this article we will be looking back at some of the major Ecospeed results and projects of 2021.

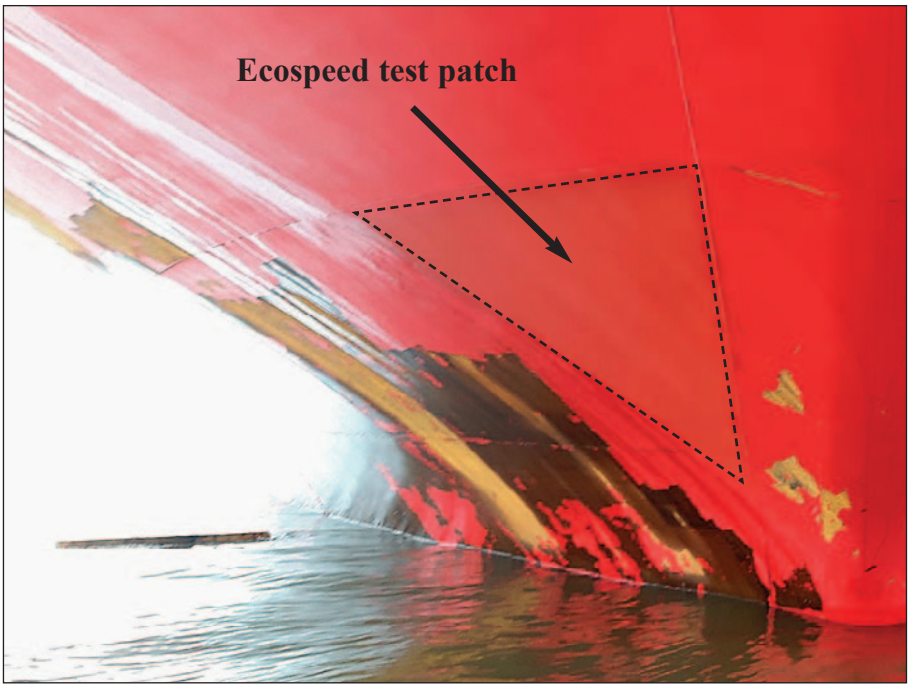
New applications

Icebreaking bulk carrier *Umiak I*

In April 2021 the icebreaking bulk carrier *Umiak I* was coated with Ecospeed. The application was carried out at the leading European ship repair and conversion yard Remontowa Shiprepair Yard in Gdansk, Poland. The ship is owned by Fednav and managed by Canship Ugland Ltd.

Umiak I was built in 2006 and is one of the most powerful of its kind. The vessel operates year round on the Labrador Coast, delivering supplies to a remote mine, and hauling nickel concentrate to southern facilities. The hull is reinforced to navigate unassisted through ice that is 1.5 meters thick. On its regular run down the Labrador coast, *Umiak I* contends with some of the world's most rugged ice conditions, including icebergs, from November to July each year.

On its regular run down the Labrador coast, Umiak I *contends with some of the world's most rugged ice conditions, including icebergs.*



One of two test patches on Umiak I *after sailing in ice for several seasons.*

During the 2016 dry docking, it was decided to apply two test patches of Ecospeed coating to areas most prone to damage. Over the next five winter seasons the condition of the Ecospeed test patches was examined and found to hold up to the very dif-

M/V Selene *after completion.*

ficult conditions despite the continuous impact with ice. The decision was made to replace the entire underwater hull coating with Ecospeed at the next docking.

The application was completed during *Umiak 1*'s scheduled main survey and BWTS installation in drydock. The ship's rudder and nozzle were also protected with our coating system. Corrosion damage on the nozzle was first repaired with Ecofix. This restored the surface back to its original shape with a smooth surface prior to recoating with Ecoshield.

Application of first Ecospeed layer on icebreaking tug Helios.

TundRA 3200 icebreaking tugboats *Selene* and *Helios*

Two Robert Allan Ltd. designed icebreaking tugs constructed at Turkey's Sanmar Shipyards have been protected with our coating system. The pair of 67 tonne bollard pull ice class ASD tugs include a number of special features to cater for Arctic conditions. They are specifically designed for year-round service in the Baltic Sea. They are capable of performing multiple tasks including escort, ship assist, icebreaking and ice management, and open sea towing.

Experience has shown that Ecospeed stays on the hull longer and resists the ice far better than other generally-used specialized ice coatings. Ecospeed remains bonded to the ship's plates even as they flex and bend under ice pressure and impact.

Because the topside of these tugs also needed extra protection against ice, Ecolast was applied to this area of the vessels. This coating is ultraviolet (UV) light resistant and preserves its color while at the same time offering the corrosion and abrasion protection all our coatings are known for.

Prior to delivery, the OEM applied our Ecoshield coating to the azimuth thrusters of both vessels to give them lasting protection. Ecoshield offers permanent protection against cavitation damage for rudders, bulbous bow, stabilizer fins, thruster nozzles and other underwater ship gear which needs special protection from corrosion.

Largest US-built aluminum pilot boat: *Spindletop*

When pilot boat *Spindletop* was delivered in 2021 its underwater deep V-bottom hull was coated with Ecospeed to protect the vessel against corrosion. The 27.4-meter boat was built by Louisiana boat builder Breaux's Bay Craft.

M/V *Spindletop* has individual seating for one operator and 15 pilots or passengers. The pilot boat can reach speeds of up to 30.6 knots and will sail at an estimated running speed of 27 knots during daily operations.

For a fast-going vessel like this it is important to have a coating that will last and will help the boat maintain design speed. Ecospeed gives an underwater hull the best possible hydrodynamic characteristics. What is more, the performance of the ship does not degrade. Large fuel savings are the result which brings huge financial benefits over the vessel's lifetime.

Ecospeed can be applied to steel, aluminum and polyester surfaces. In all cases the same lasting protection is offered. For aluminum vessels corrosion can become a big problem if the hull is not protected properly. Applying our coating will remove this issue completely: No corrosion will appear on Ecospeed hulls.

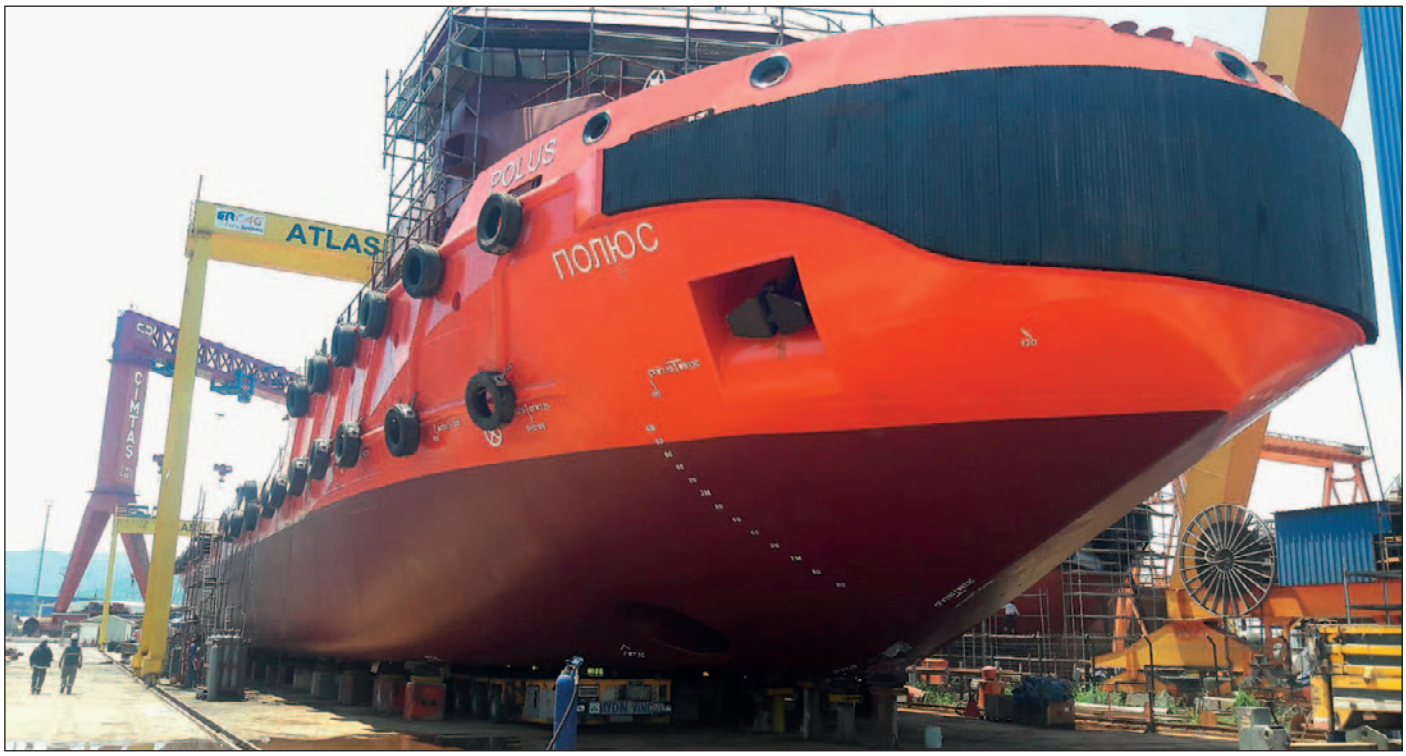
Spindletop *ready for delivery with lasting Ecospeed protection.*

Application of second layer.

Shallow draught AHTS vessels *Polar* and *Polus*

In 2017 Ecospeed was applied to *Antarctic*, a shallow draught anchor handling tug supply (AHTS) vessel owned by Ark Shipping Company. The success of this application led the owner of the boat to order the same protection for his next two shallow draught AHTS vessels: *Polar* and *Polus*. Coating of these vessels took place at the Atlas Shipyard in Kocaeli, Turkey where they were built.

As part of their unique design, *Polar*



Polus *after application.*

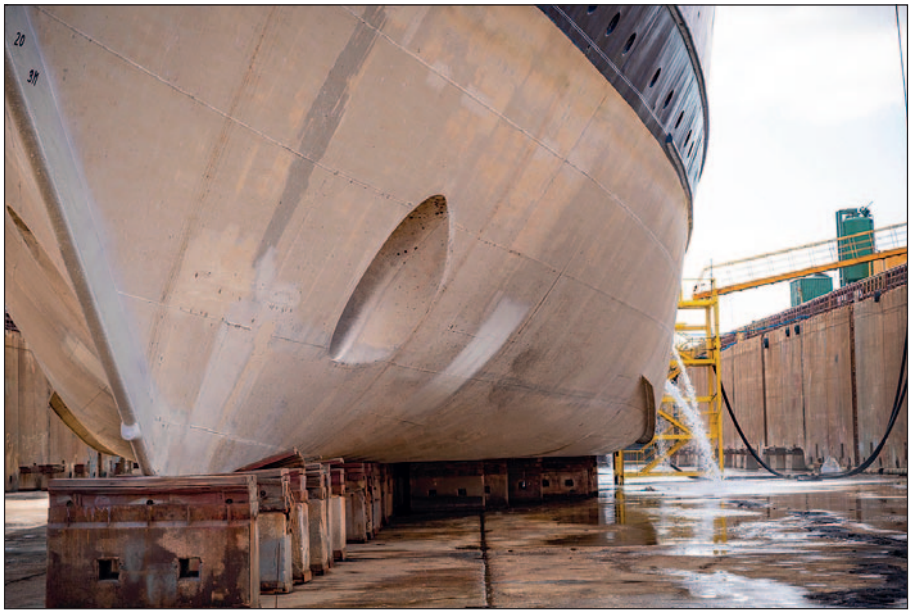
The hull of this tug was coated with Ecospeed, the rudders and nozzles with Ecoshield.

and *Polus* have six rudders each. These were all coated with our Ecoshield coating as were the propeller nozzles and thruster tunnels.

Ark Shipping Company originally selected our coatings amidst strong competition because of their proven performance in polar waters. The Ice-Class 1A, 65m tug *Antarctic* carries out anchor handling and oil recovery duties in the ecologically sensitive Arctic in compliance with the IMO Polar Code requirements.

Orkun Çomuoğlu, Managing Director of Amat Engineering, Subsea Industries' agent in Turkey, said: "These are super ice-class vessels that require extensive hull protection for the operations they undertake. The positive experience with the *Antarctic* made the choice for the next two vessels much easier for the owner."

Excellent results



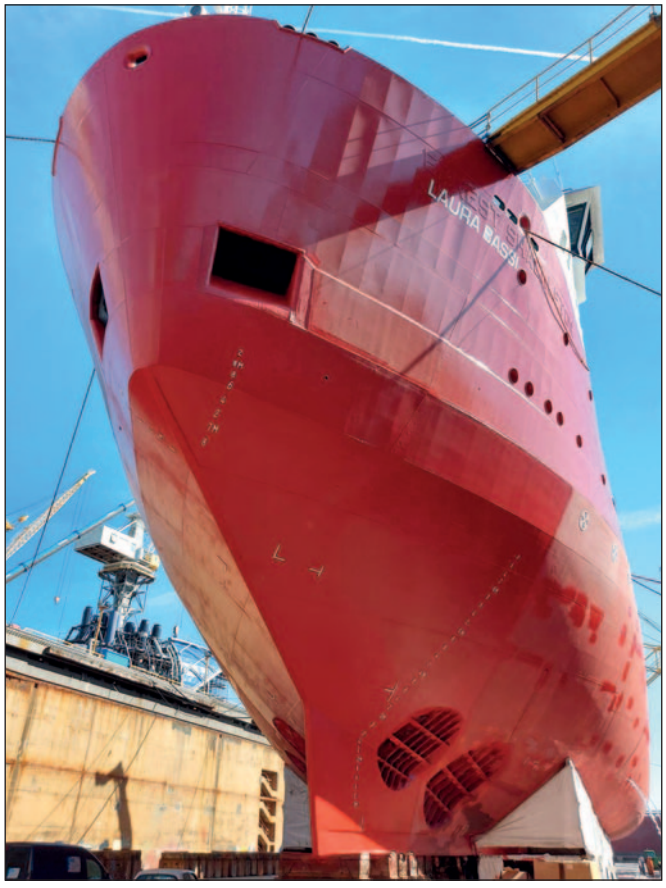
Ecospeed still intact 13 years after application on cruise ship.

When Navy vessel *Godetia* was withdrawn from service in June 2021 after 55 years afloat, the command and logistical support ship of the Belgian Navy had been sailing with Ecospeed on its hull for the last 16 years without needing to replace it.

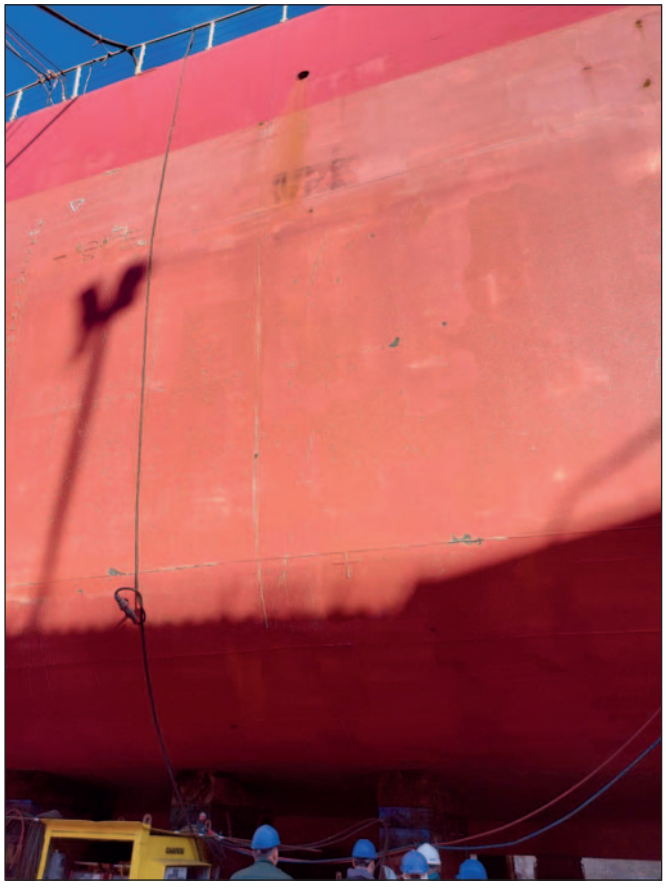
A cruise ship that was coated 13 years ago is still going strong and needed only touch-ups during its most recent docking. The ship often remains stationary in the Caribbean for several months. After this period, Ecospeed's qualities always permit a complete removal of all fouling from the underwater hull of the vessel. This is done during an underwater cleaning without causing any damage to the hull coating.

Icebreaking research vessel *Laura Bassi* after 12 years

When icebreaking research vessel *Laura Bassi* docked in Italy earlier this year, only touch-ups were applied to the underwater hull coating. Even though the hull was originally coated with Ecospeed twelve years ago, there has been no need for a full repaint since then.



Application of touch-ups is simple and fast.



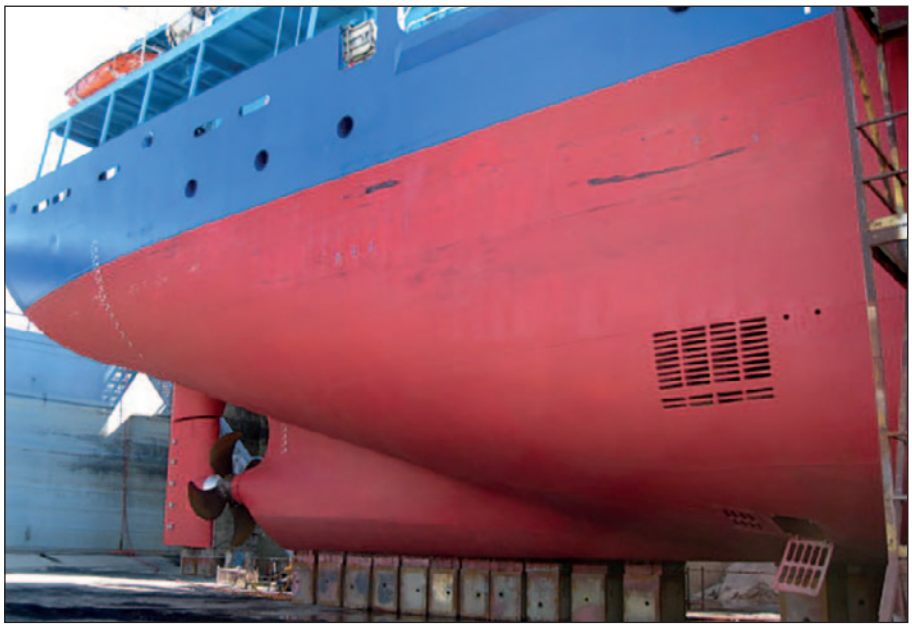
The coating on the vertical sides still looks amazing, even 12 years after application.

Back in 2009 when the coating was first applied, the ship was still called *Ernest Shackleton*. In ten seasons operating RRS *Ernest Shackleton* with an Ecospeed coating, the British Antarctic Survey (BAS) had to touch-up Ecospeed only in areas of mechanical damage and carry out minor repairs around the bow, the most susceptible area to ice impact.

Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS) acquired *Ernest Shackleton* in 2019. They renamed her *Laura Bassi* in honor of the first woman to earn a professorship in physics at a university and the first woman in the world to be appointed to a university chair in a scientific field of studies.

After its first Antarctic mission for OGS the ship is still protected by the Ecospeed coating as it has been for the last 12 years. Mr. Rosario Martino, Naval Architect & Marine Engineer for the vessel's ship managers, ARGO s.r.l. said: "It was impressive to see the Ecospeed paint in an excellent condition even after so many years of service. We have performed only touch-ups in the bow area affected by the impacts with the ice layer."

Ecospeed coating still in excellent condition on EcoCoaster Eeva VG *during docking in Finland.*



Only very minor touch-ups were needed.

Energy efficient dry cargo carrier *Eeva VG after 5 years*

When the 4700dwt *Eeva VG* docked in Naantali, Finland in June 2021, the Ecospeed coating on its hull was still in excellent condition. The ship was coated at the start of 2016. During the most recent docking only very minor touch-ups were needed, despite the severe ice conditions the ship has encountered.

Eeva VG is one of two energy efficient dry cargo carriers built in 2016 and managed by VG-Shipping. Both ships operate in the Baltic region and are designed to cause considerably less environmental impact than conventional dry cargo vessels.

When the ships were first coated Ismo Saaros, Director, Project Management, VG-Shipping, explained: "We wanted to produce the cleanest, most environmentally-efficient coasters of their class so we specified several 'green' solutions, including a ballast water management system, a Selective Catalytic Reduction system for reducing NOx emissions and the Ecospeed hull coating.

With these vessels operating in arctic waters, the owner requires a coating capable of withstanding ice impact. Polar trading is one of the biggest challenges for coatings manufacturers, since abrasive waters scratch and scrape conventional anti-fouling paints resulting in hull recoats after just one season. Subsea Industries' hard coatings are developed to survive even in the harshest of environments.

Hydrex workboat after 11 years

Eleven years after Ecospeed was applied on two of the Hydrex workboats, one of them docked in Antwerp. Just as on its sister ship that docked a year earlier, the coating was still in near-perfect condition and no repaint or touch-ups were required.

Ecospeed on workboat after 11 years.

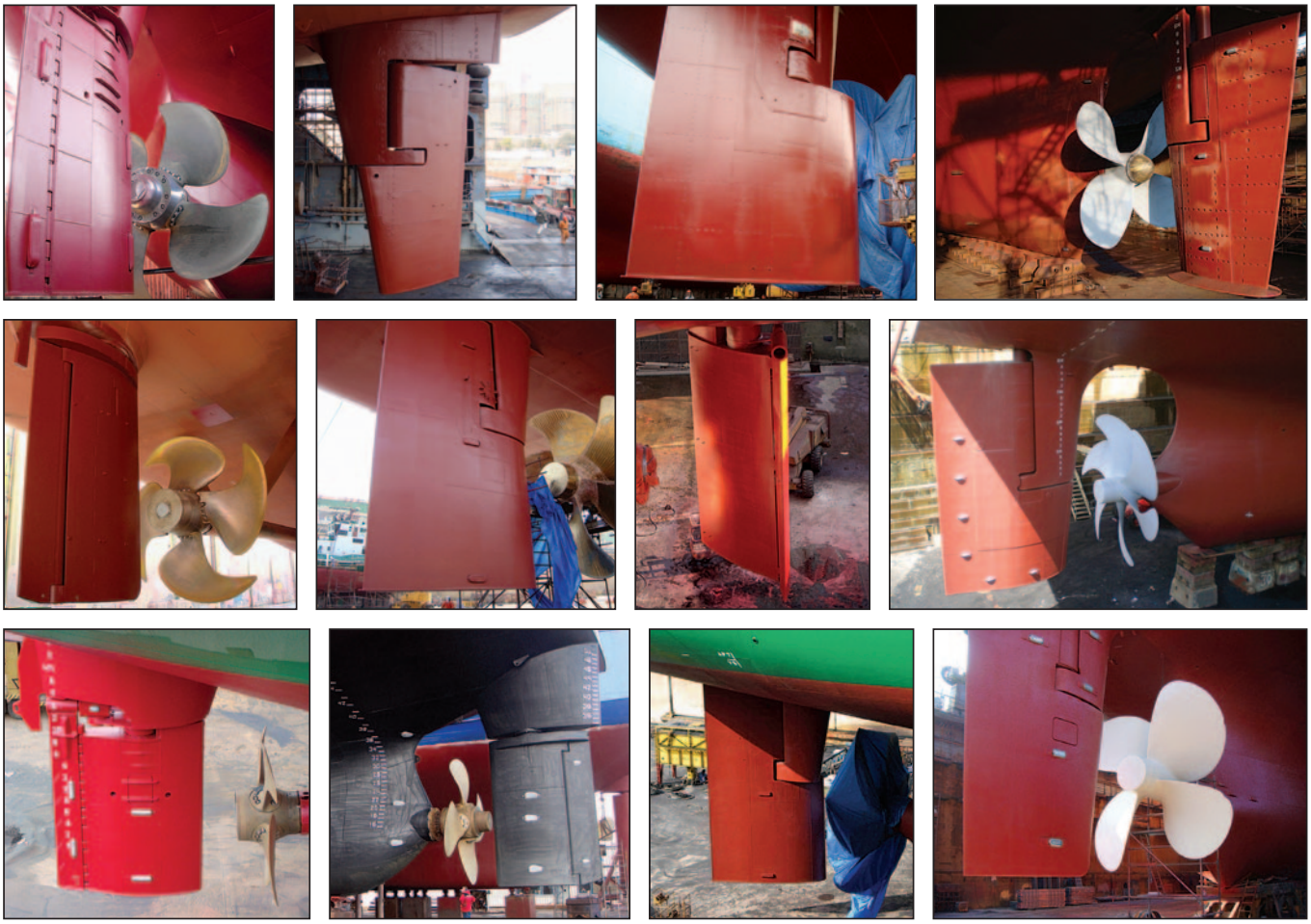
For the Hydrex divers that regularly clean the workboats this came as no surprise. “When we clean the hulls, the surrounding water remains clean. Only fouling is washed off the vessel,” said one of them. “Inspecting the hull of the vessel underwater always shows the pristine condition of Ecospeed. This is in sharp contrast with the regular anti-fouling coatings on other underwater hulls we see.”

Subsea Industries’ Executive Director Boud Van Rompay explained: “With Ecospeed there is no need to reblast and recoat the hull; no chance of corrosion, no impact on the environment and, if regular hull cleaning is carried out, large fuel savings can be achieved.”

“Vessels coated with Ecospeed can be cleaned effortlessly and legally in ports such as Rotterdam which have banned the underwater hull cleaning of conventional hull coatings. There is zero environmental impact. The simplicity of cleaning hulls protected with our Ecospeed hard coating system allow Hydrex divers to clean our workboats in just two hours. They use our specially-designed tools and equipment,” said Van Rompay. ■

No repaint or touch-ups were required after 11 years.

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.

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ULTIMATE PROTECTION

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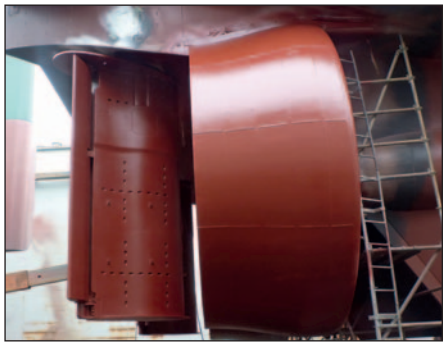
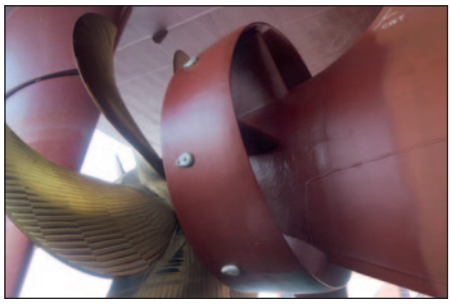
PROTECTION AND PERFORMANCE





Subsea 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.

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