SUBSEA

PROTECTION AND PERFORMANCE

Magazine 240

Yearly review 2022

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.

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Editorial

Our underwater coating systems offer a TBT-free, copper-free, biocide-free and microplastics-free solution for the protection of ships. Our protection and performance systems are the best available technology for reduction of fuel consumption, GHG and other emissions through improved hull hydrodynamics and fouling control.

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. As a result of these tests, several economically important ports have made an exception to their ban on underwater cleaning and this only for our coatings.

Getting rid of repeated environmental hazards

All our systems require only two layers forming a homogeneous protective coating. They are applied once in the life of the vessel which is a major advantage compared with other coatings. If you have to reapply three to four layers of antifouling coating every three to five years a big environmental hazard is created each time. Repeat applications mean repeated VOCs and repeated debris when the conventional coatings are removed. This is in addition to their continual leaching of the toxic elements into the ports, rivers and oceans.

Solving the biofouling problem

The underwater cleaning of our coating systems prevents the spread of Non-Indigenous Species (NIS). The cleaning interval is optimized to minimize fouling. Regular cleaning prevents macrofouling from building up and at the same time presents an opportunity to inspect so-called niche areas. If only microfouling or locally acquired macrofouling is cleaned off the hull and niche areas there is no risk of translocation of NIS via hull fouling.

Fuel savings reduce ecological impact

The worse the fouling the more power will be required to keep the ship sailing at a given speed. This means higher fuel consumption. Depending on the degree of fouling, this can be as much as 85% more. Higher fuel consumption results in more greenhouse gases and other emissions which pollute the earth's atmosphere.

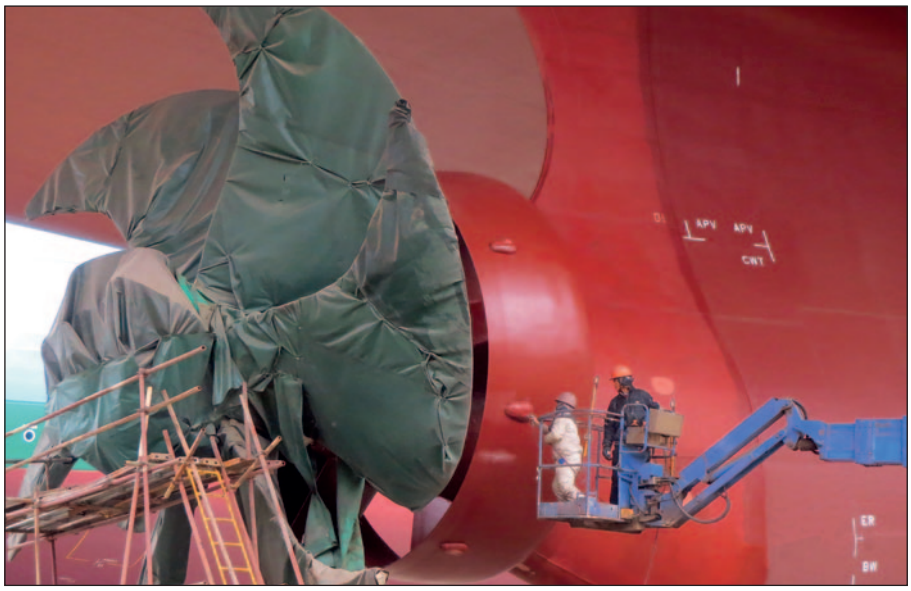
On a global scale the potential for the reduction in fuel consumption and greenhouse gas emissions from shipping is enormous. If 80% of the world fleet would switch to our coating systems, this would save an estimated 28.5 million tonnes in annual fuel consumption and 90 million tonnes in annual CO2 output.

Subsea Industries NV
Boud Van Rompay
Founder

Yearly review 2022

Over the years our coating systems' many superior qualities have been confirmed on numerous occasions. Examples of this are the certification and recognition given by independent organizations and the excellent condition of the coatings on the underwater hulls and running gear of vessels after sailing for many years.

The past year has been an especially successful one. In this article we will be looking back at some of the major projects and success stories of 2022.



The final coat of Ecoshield applied to the kort nozzle on a Seaspan ship in drydock.

EXMAR

Earlier this year the Floating Storage and Regasification Unit (FSRU) *Eemshaven LNG* drydocked in Rotterdam seven years after our Ecolock coating was applied. The original underwater coating on the unit was in excellent condition, with no repaint required.

This was the second project carried out for EXMAR, after the application on the *Tango FLNG* in 2013. Like the first project, the FSRU was built in blocks. These blocks are coated individually before assembly, leaving only the weld seams and the areas inaccessible due to the support blocks to be painted after the barge is assembled. Coating over weld seams after assembly is very easy. The Ecolock system then consists of a single, homogenous covering of the steel. It leaves a smooth finished surface and the erection joint paint blends in perfectly with the coating on the rest of the hull.

Keep an eye on our upcoming magazines for a full article on this case story.

FSRU in drydock after 7 years. No repaint required.

Seaspan

Seaspan has, to date, applied Ecoshield to rudders and other running gear on over 65 vessels in their fleet with such success that they plan to

The rudder of the Seaspan New York *after sailing for 10 years with Ecoshield. This was the state of the rudder with no repair or repainting. It was simply high pressure washed after docking.*

The Seaspan Chiwan *under the Bay Bridge in the San Francisco Bay. The* Chiwan*'s rudder and bow thruster tunnel have been protected with Ecoshield since 2011 and are still in excellent condition.*

continue using the specialized protective coating on newbuilds and on existing vessels. Early in 2022 we asked Mr. Emilian Jianu, in charge of all paint selection and application for Seaspan, for his insight and experience with Ecoshield.

Recalling the extent of the problems that Seaspan was encountering before they began using Ecoshield, Mr. Jianu said, "Most of our problem was with really huge cavitation damage. Huge! To the point of completely penetrated steel, making a hole so the rudder would even fill up with water. So, when it came to drydock, we were not just blasting and painting and letting the ship go – it was necessary to replace the steel plate. You can imagine the delays."

The company was ready to test Ecoshield to see if it would help.

"At the first drydock after application we were able to see that the coating was completely intact and there were no signs of the damage that we had grown so used to and were trying to solve," Mr. Jianu continues. "Last year I had a chance to see the rudders that were coated in 2012 or 2013. After high pressure washing we saw that no repair of Ecoshield was needed. In some cases, on the whole rudder blade there was perhaps 15cm of damage, clearly from mechanical impact. I have seen two or three ships after 10 years and it was the same story. Follow the instructions, prepare well before starting the job, and you won't have any unpleasant surprises, not in the near future or even the distant future."

Pleiades Shipping

Pleiades operates a fleet of five Panamax, three Aframax, three Chemical/Product tankers and has on order two new Aframax tankers to be delivered in early 2023.

Pleiades was experiencing erosion problems with the ships' rudders and propeller wake equalizing ducts resulting from cavitating flow.

The rudder of MT Asopos*, in drydock in 2020, five years after the Ecoshield application with no repaint.*

MT Aliakmon *in drydock in 2013, rudder blasted prior to Ecoshield application.*

MT Asopos *in 2015 after Ecoshield was applied to rudder and nozzle.*

"With all the Panamax sister vessels built in 2005 and 2006 we were experiencing erosion problems in way of the rudder blades and the wake equalizing duct of the propeller, especially in each forward part of the hydrofoil section that faces the water flow," explains Mr. Gyftopoulos, Naval Architect and Marine Engineer in the Technical Department at Pleiades for more than 20 years. "So, either we were welding up or we were covering up the deep pits with hard epoxy filler material and then grinding before applying paint." This had become standard part of every drydocking.

The first application of Ecoshield was on the *Evrotas* in drydock in Poland in 2013. Mr. Miltos Synefias recalls a few years later, "The decision to apply the coating on the first vessel was not an easy one, but the results obtained made the choice to extend the coating to other vessels obvious."

"I am the one who usually drydocks all the sisters, so I saw the result was astonishing," says Mr. Gyftopoulos, who is enthusiastic about Ecoshield. "Even now with *Xanthos* a few days ago – my memory is fresh – after the high pressure washing to remove all the slime and dirt from the entire hull, we could see that the rudder blade and propeller nozzle were in excellent condition. We did not have to do anything. The Ecoshield was applied seven years ago. It's still there. It's fantastic."

New customers

Seaspan and Pleiades are just a few of the growing number of shipowners who use Ecoshield strategically to protect the rudders and running gear of their entire fleet. They see the savings that are possible because there is reduced time in drydock at newbuild and when in service, no hot work is needed anymore.

Shipowners that began with a test on a single rudder have since ordered the same protection for the running gear of their entire fleet. Several have included the coating in the newbuild specs to make sure cavitation and corrosion cannot touch the steel of their ships' running gear. Even after years of service these owners are experiencing zero cavitation damage or failure.

Just in the last six months of 2022 Mediterranean Shipping Company (MSC) went from ordering just one rudder to having our coatings on 25 vessels with more planned for the near future. They follow the same routine as many other owners: as soon as a vessel is scheduled for

drydock they contact us with the specifications of the areas they want protected and we arrange for the coating to be delivered to the yard at the requested time and an inspector scheduled for the application. It's as simple as that. No further fuss or planning for the owner and, more importantly, no more worries about the condition of his ship's running gear for the remainder of its service life.

Trawler *Kennedy*

Marinus and Gerarda Scherpenisse bought their first ship, the *Tikerak*, in 1979. Between then and 2006, they owned four more ships and continued trading as far south as the Mediterranean and as far north as Finland.

In 2018, they built themselves a 12.8 m trawler-style yacht, the *Kennedy*, to make their home. This granted Marinus his longstanding wish to have Ecospeed on the hull of one of his ships.

In 2021 they made the trip down the English Channel and across the Bay of Biscay to the Mediterranean and eventually back to Rotterdam. The boat made the trip there and back with no trouble at all.

Now that he has been sailing with Ecospeed on the hull for a couple of years, Marinus is in a position to evaluate his decision to use this special coating which is not yet very common on smaller yachts and boats. "Overall, I feel good about it," he says. "What we have now will last for the rest of our lives, I think. So that's good. And besides that, for the environment it's the very best of course because you emit nothing at all into the water."

The trawler Kennedy *just after the hull was coated with Ecospeed in 2019.*

The trawler Kennedy *in 2020 showing off her beautiful waterline.*

Hydrex diver cleaning the hull of the Kennedy *with a hydraulic underwater cleaning tool in Antwerp. The coating was in perfect condition and cleaned very easily, leaving the hull even smoother.*

Marinus has also found a solution to the hull cleaning, which is to carry compact, in-water cleaning equipment on board with him when he sails, and do some cleaning himself when needed.

Hull Vane for the Royal Netherlands Navy

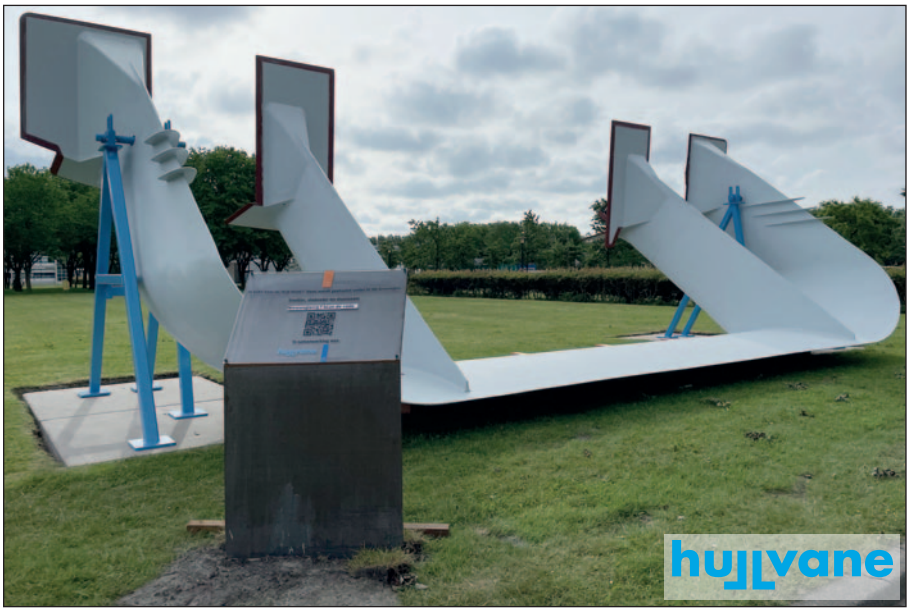
In May Ecoshield was applied to the Hull Vane intended for an ocean-going patrol vessel or OPV. Hull Vane is a Dutch invention designed by Hull Vane BV. It consists of a submerged transom wing at the stern of the ship or boat which renders ships more efficient and quieter, while improving their seakeeping. It essentially converts the stern wave's energy into forward thrust.

"It is by far the largest Hull Vane ever built and the first one to be installed on a naval ship," says Niels Moerke, managing director at Hull Vane BV.

Nowadays the design of the Hull Vane is customized and optimized for each specific vessel. It is therefore important that the device be given the best possible protection.

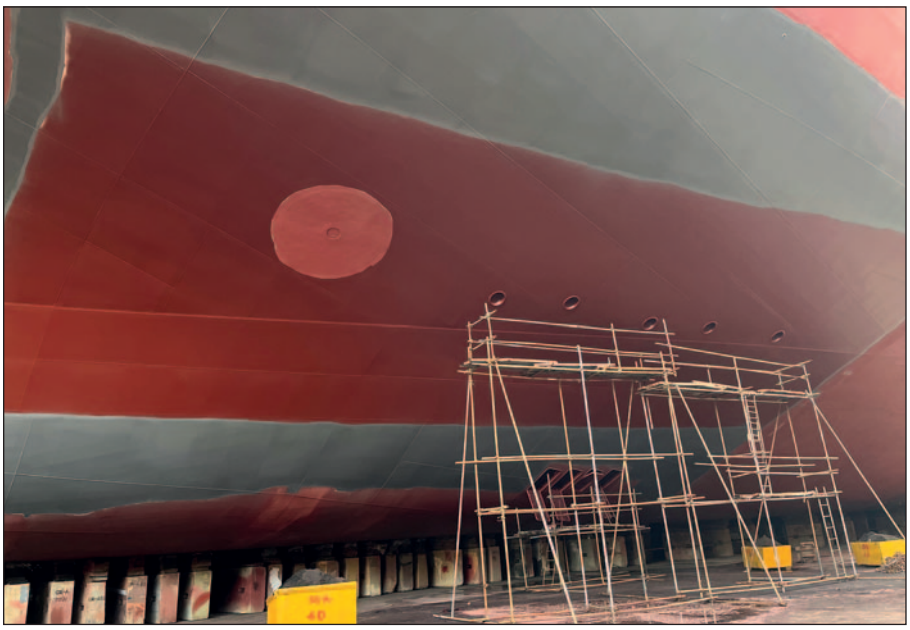
There is no better coating suited for this task than Ecoshield. A thick vinyl ester base with a very high concentration of glass platelets forms the impenetrable barrier needed to resist corrosion. Applied at newbuild, it will provide lifetime protection.

Ecoshield is primarily used to protect rudders and other running gear, but it can be used to safeguard any area that needs special protection from corrosion and cavitation damage. The extra strength coating protects these areas for the service life of the ship. There is no need for recoating or major repair.



The Hull Vane for the Dutch Navy is fully customized and optimized for maximum performance and operability.

Overcoating time of Ecoshield can be as short as three hours.



Ecospeed will protect the area around the outlets for the ship's entire lifetime.

Ecospeed application on scrubber outlet.

Scrubber protection

Over the last year our Ecospeed coating system was applied on the scrubber pipes, outlets and diffusers of over 30 vessels. Ecospeed fits in seamlessly with the environmental idea behind scrubber systems. It is a lasting, chemically resistant coating that will withstand the hazardous pollutants and protect the scrubbers for the lifetime of the vessel.

If an existing scrubber suffers corrosion damage, it is not too late to fix it. Subsea Industries' sister company Hydrex regularly replaces scrubber overboard pipes. This is done on-site without the ship needing to go to drydock.

In all cases the new pipes are protected with Ecospeed. If no welding work needs to be carried out in close proximity to the coated area, the new pipes are coated in advance. If this is not an option, Ecospeed is applied after the new pipe is installed.

Independent inspectors

In 2022 we published a series of articles about the independent paint inspectors who play such an important role in making sure that our coatings are correctly applied and provide maximum protection for the longest time.

"The reason Subsea Industries always advises shipowners to have a qualified inspector representing us as coating manufacturer present on every project is to ensure that all the specifications and quality requirements are followed precisely," explains Andi Hermans, Production Manager at Subsea Industries and himself a qualified paint inspector.

In order to get the full picture, we interviewed several of the top independent paint inspectors who regularly attend applications of Ecospeed, Ecoshield and Subsea Industries' other coatings. These are all independent – not Subsea Industries' employees – and their experience covers a wide range of coatings and applications.

We consider the paint inspectors to be an essential element in our delivery and we frequently receive

Beau Ackx, Coating Inspector for SCICON worldwide checks the DFT of the first coat of Ecoshield.

Checking the final DFT of Ecospeed on one of the MV Finbo Cargo*'s propeller shafts.*

Raul Yu verifying the final DFT on an Ecoshield-coated rudder in drydock in China.

glowing feedback from our customers. They are an essential part of the team.

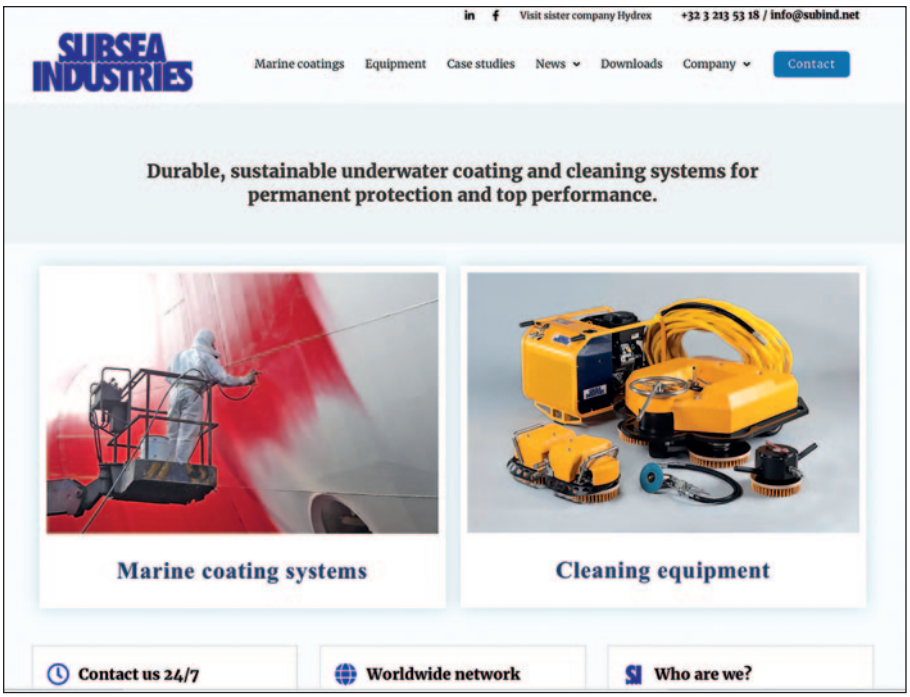
Like all of the case studies mentioned above, these articles on independent inspectors can be found in full on our website. This brings us to the last topic of this yearly review.

New website

June 2022 saw the launch of our renewed website. On this website you can find information on our range of coating systems and cleaning equipment, as well as the latest news and case studies. Technical documents, earlier case studies, our catalogue of magazines, a list of certificates, an overview of the most important applications, White Papers… all of this can be found on the new site.

The previous website was, in fact, getting a bit long in the tooth even though we refreshed it quite recently, and the platform it was built on was limited in scope so we felt our wings were clipped to some degree. The new one has much more information, many more photos and videos, new case studies and applications, and is all the way up to date. It also has room for expansion and development, so we plan to have it keep on growing. The responsiveness of the previous website was also somewhat limited, so it was hard to read parts of it on mobile. The new website should be much more phone friendly.

The familiar URL www.subind.net will guide visitors to our homepage. From there they can easily navigate around the site to find what they are looking for. Be sure to visit our new website regularly as we update it frequently. ■



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

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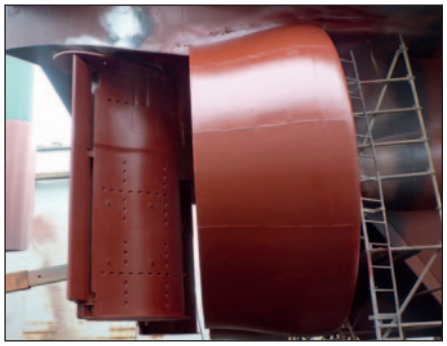
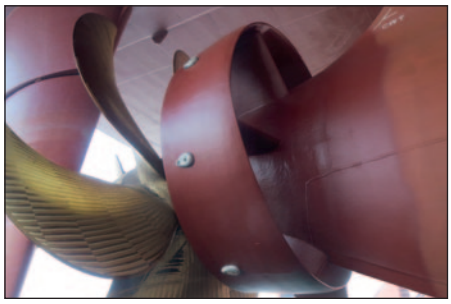
PROTECTION AND PERFORMANCE





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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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