

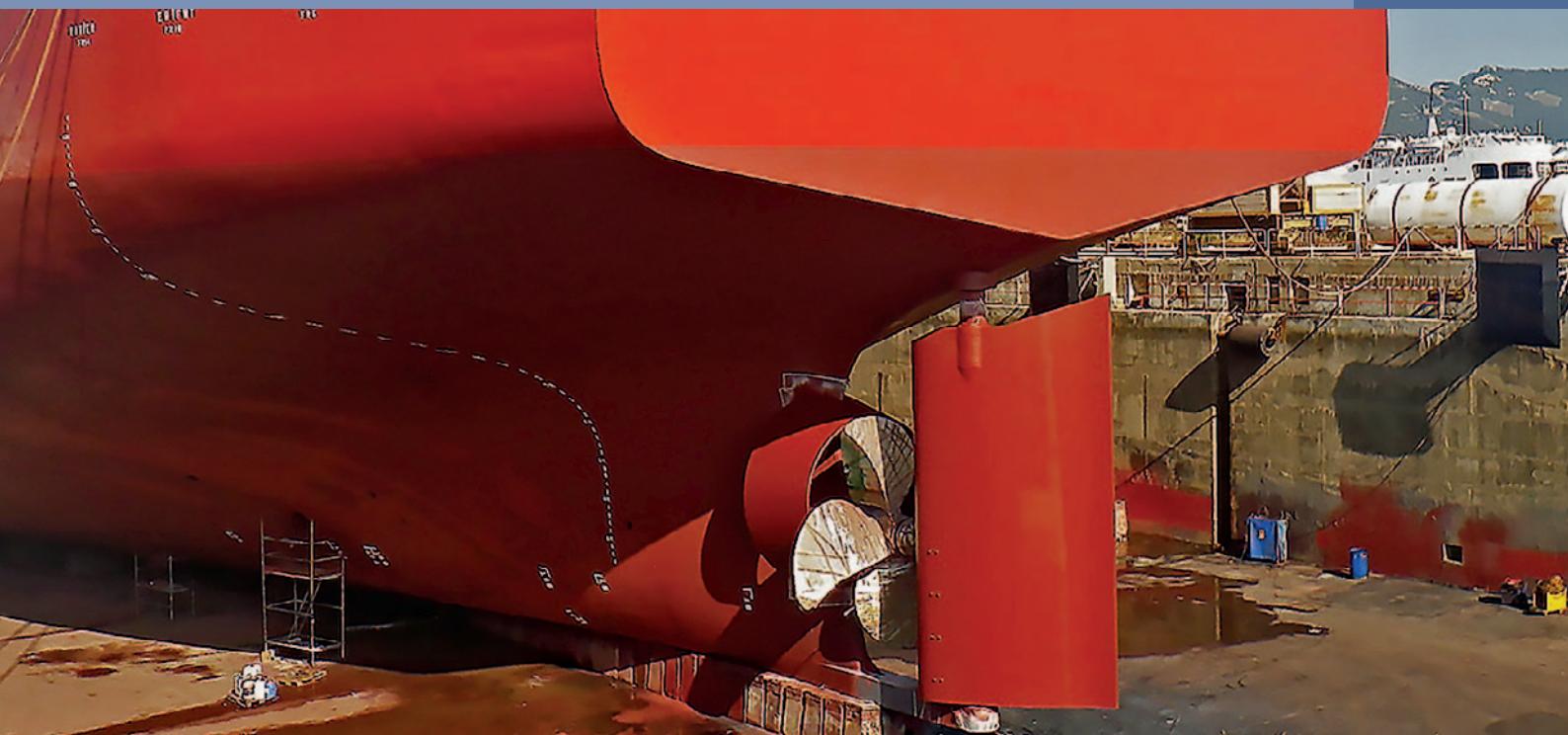
SUBSEA

PROTECTION AND PERFORMANCE



Magazine

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Corrosion damage repair made ^{very} 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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Editorial

Welcome to the new issue of our Subsea Magazine. In it we once again cover different aspects of the range of products Subsea Industries has to offer.

In the first article in this magazine you can read a case study on Ecoshield applications on vessels owned by Pleiades Shipping Agents S.A. In 2013 a first rudder was coated. Many more have followed since, with the nozzles of most of these ships also receiving Ecoshield protection.

We spoke with Mr. Miltos Synefias, Technical Director at Pleiades and Mr. Dimitris Gyftopoulos, Naval Architect and Marine Engineer in the company's Technical Department for more than 20 years, about their experience with our coating.

Pleiades was experiencing erosion problems with its ships' rudders and propeller wake equalizing ducts. As a result of their decision to protect these with Ecoshield this is now a thing of the past.

They are part of a constantly grow-



ing number of shipowners that have Ecoshield applied on the rudders and other running gear of their fleet. The coating ensures lasting protection against corrosion and erosion damage.

Newbuild ships benefit the most from Ecoshield. Applying the coating during building means a vessel's running gear will be protected from the moment the ship leaves the shipyard until the end of its service life. A shipowner will not have to worry about repainting during any of the scheduled dockings.

An existing ship can also be protected with Ecoshield. If for instance a rudder has already suffered corrosion damage, the coating can prevent any further damage from occurring. In such case Ecoshield 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.

Do you want the certainty that your ship's running gear is protected for its entire lifetime? Call us today.

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A handwritten signature in black ink, appearing to read "BVR".

Subsea Industries NV
Boud Van Rompay
Founder



Application of first Ecoshield layer on nozzle of Pleiades owned crude oil tanker.

Pleiades Shipping – Saving time and money with advanced technology for protecting rudders and running gear

Highest safety, quality and environmental standards

Pleiades Shipping Agents, headquartered in Athens, Greece, have 50 years of continuous experience of purchasing, successfully managing and operating merchant vessels of various types and sizes worldwide.

Pleiades began in the mid-1960s operating multi-purpose dry cargo vessels. By the late 1970s, the company had developed into one of the largest operators of multi-purpose general cargo vessels in the world, with a fleet of 34 ships of some 1.5m deadweight tons carrying capacity.

During the 1980s Pleiades saw its opportunity to enter the tanker market with Panamax, Suezmax and VLCCs regularly chartered by BP,



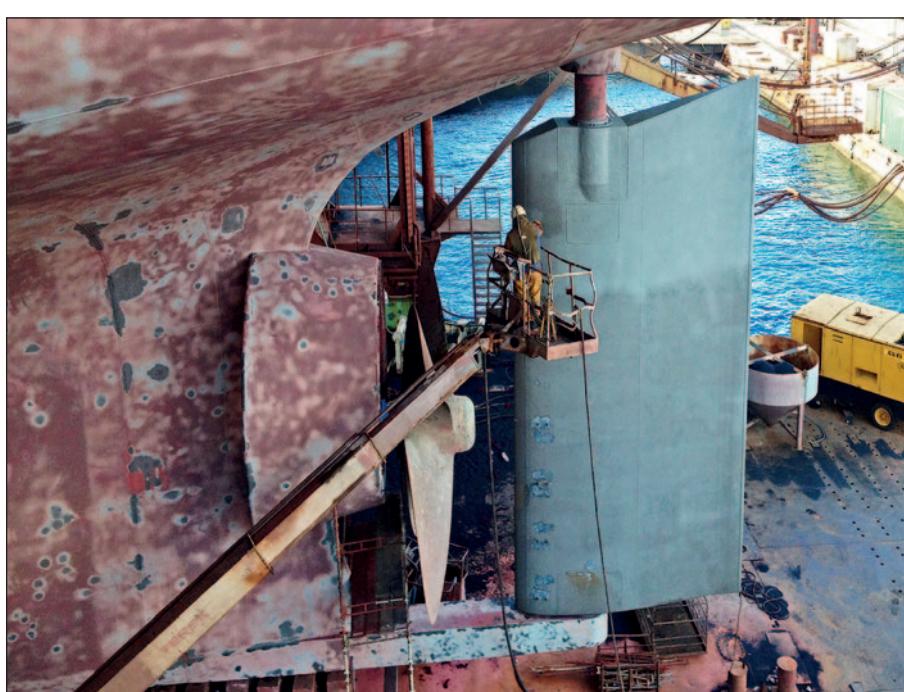
The MT Aliakmon, 61,286 tonne Panamax tanker, built in 2006.

Chevron, Exxon, Shell, Texaco and other oil majors.

Between 2002 and 2006 the company built ten Panamax size ships, seven of which are sister vessels,

highly appreciated by the market for their exceptional performance and carrying capability. Five new-built tankers were added to the fleet between 2011 and 2018.

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



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

The mission of Pleiades Shipping Agents S.A. is to provide their customers with safe, environmentally sound and efficient chartering services: management of day-to-day operations, crew recruitment and training, insurance placement, supply of stores and spares, technical management, fuel bunkering and financial and accounting services.

Pleiades is highly regarded across the industry for its hands-on management style, prudent operating



MT Aliakmon's rudder after the first coat of Ecoshield.



MT Aliakmon's rudder in drydock in 2020, still in excellent condition 7 years after the initial application with no repaint.



Cavitation damage on the rudder of the MT Asopos, a sister vessel to the Aliakmon, in 2015 prior to Ecoshield application.

policies, rigorous tanker fleet maintenance, safety standards and its long-term commitment to capably serving the global oil transportation sector.

Maintaining the fleet

The fleet is maintained and operated to the highest industry standards by a highly competent technical team headed by Mr. Miltos Synefias,

Technical Director. Mr. Dimitris Gyftopoulos, Naval Architect and Marine Engineer in the Technical Department at Pleiades for more than 20 years, confirms that the Pleiades attitude has always been forward-looking and open to new technologies and advances that result in an improvement in the ships performance and cost-effective operations. An example of this is their successful adoption of new technology to protect the ships' running gear.

Cavitation problems with rudder blade

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

"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. "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.

In 2013, Pleiades were approached by N. Bogdanos Marine Bureau, who represent both Subsea Industries and its sister company Hydrex, in Greece. Bogdanos is a technical office with more than 60 years' experience of offering ship repair and underwater services and representing marine, offshore equipment, eco-coatings and ship repair yard services.

Bogdanos recommended Ecoshield to Pleiades to put an end to the con-



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

tinuing rudder and propeller duct problems they were encountering. Pleiades agreed to apply this solution.

The first application of Ecoshield was on the *Evrotas* in drydock in Poland in 2013. Mr. Miltos Synefias recalls 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.”

“Then we started applying it to the other ships, one by one,” continues Mr. Gyftopoulos. “Later on, when we saw the vessels in drydock the next time 2-3 years later, we had the positive result of having a rudder blade and a propeller duct ring in practically intact condition.”

“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



The rudder of MT Evrotas almost 3 years after Ecoshield was applied.

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. The propeller duct is a hollow ring with hydrofoil-shaped section forward and fin-like or plate aft all the way around. There was a section which had some minor damage,



MT Evrotas, the first of the Pleiades 2006 sister Panamax tankers to have the rudder protected with Ecoshield in January 2013.



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

most probably mechanical, and this was washed down and repainted. Apart from this, the entire ring was excellent. We did not have to do anything. It's fantastic."

"She is already 17 years old and I don't know how long the owner will keep her but I think for the remaining years of her life she's going to be a beautiful lady."

Saving time in drydock

The use of Ecoshield on all the sister vessels amounts to a considerable savings in terms of reduced dry-docking and off-hire time.

"I would say you save half a day to a day in drydock," Mr. Gyftopoulos calculates. "If you have a rudder blade that is really bad and you have to apply welding or a popular filler from another company and you have to wait for it to dry and then grind it down, then do steel work on the duct. You could lose a day. So having a rudder and propeller duct in good condition, from a typical drydock of let's say 10 days, you save a day – roughly speaking 10-15% time saved from the total drydock. So,



MT Xanthos, another of the Pleiades 2006 sister Panamax tankers.



The rudder and nozzle of MT Xanthos, just prior to Ecoshield application in 2014.



Seven full years after Ecoshield was applied, the rudder of the Xanthos is still in excellent condition requiring no repaint or repair.



The nozzle of the Xanthos prior to Ecoshield application.

you could save a day of off-hire time. The market right now is \$15-20.000 per day so you can save \$15-20.000 off the drydock just for one off-hire day.”

“I think Ecoshield is cost-effective from drydock to drydock. In one drydock period, you recover your money. Since it will last for several drydockings it is definitely a cost-effective measure.”

Problem solved

Like many other major shipping companies, Pleiades have found a permanent solution to the serious damage that cavitation can do to rudders, propeller ducts and other exposed hull sections. Cavitation has been a problem for these parts of a ship since the beginning of propeller driven steel ships. But now, with Ecoshield, the problems really are a thing of the past. ■



The rudder and nozzle of MT Xanthos in January 2014 just after Ecoshield application.

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Dutch mariners Marinus and Gerarda Scherpenisse, their trawler *Kennedy*, and Ecospeed

Born with the sea in their blood

Marinus and Gerarda Scherpenisse both come from a long line of Dutch barge-men/women going back several generations. They were born and bred on the water with the true Dutch seafaring spirit in their veins.

“When I grew up, I was a bit more adventurous than the rest of my family so I went to sea for a while...” Marinus recalls. “...I never came back!” He has spent his life on ships.

In 1979, Marinus and his wife, Gerarda, bought their first ship, the *Tikerak*, a 500 tonne vessel designed for the rivers and inland waterways as well as for the sea.

Between then and 2006, Marinus and Gerarda owned four more ships and continued trading as far south as



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

the Mediterranean and as far north as Finland. The last of these, the second *Gerarda* was a Finnish Ice Class 1A, 4.500 tonne cargo ship which they sold in 2006.

It was during their trading in the icy Baltic that Marinus first heard of Ecospeed. He read a number of articles which praised Ecospeed as the best possible protection for ice

going hulls and would have had the second *Gerarda* coated with Ecospeed but did not want to invest the necessary funds to have the whole hull sand blasted when he didn’t expect to have the ship very long. But his interest in Ecospeed had been piqued.

All in all, Marinus calculates that with 6.000 hours per year, and 4.000 of those steaming at 10 knots, over 30 years this adds up to about 1.5 million sea miles in their various ships. They covered a lot of water. But they never had time to stop. So they made up for the constant rush of the cargo ships by sailing around the Mediterranean for seven years after Marinus retired from his advisory position in 2011.

***Kennedy* trawler and Ecospeed**



The trawler Kennedy in 2020 showing off her beautiful waterline.

In 2018, Marinus and Gerarda built themselves a 12.8 m trawler-style yacht, the *Kennedy* to make their



Marinus and Gerard Scherpenisse aboard the *Kennedy* when she was in Antwerp for hull cleaning in February 2022.

home. The hull was designed by Gaastmeer Design BV in the Dutch town of that name. "They make good calculations regarding stability," says Marinus. "I have a full stability book on board which feels quite good considering my years as a former captain. You need to know about your ship."

Finally that same winter Marinus was granted his longstanding wish to have Ecospeed on the hull of one of his ships. The *Kennedy*'s hull was grit-blasted and Ecospeed was



Marinus Scherpenisse looks on as Hydrex divers prepare to clean the hull of the *Kennedy* in Antwerp in February 2022.

applied in two coats. 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.

Experience with Ecospeed

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. "The initial application with the grit blasting probably came to about € 3.600 more than with a conventional coating. But if you compare that to the maintenance that you have to do with regular coatings... I think with a boat like this in the Mediterranean you would need to haul it out of the water every year [for coating repair/replacement of antifouling paint], and that costs you at least € 2.000, so within two years you should have your money back. Of course you also have to clean Ecospeed, so I think within three years I'll be even. The protection is of course much better with Ecospeed. 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 owner of the *Kennedy* trawler, Marinus Scherpenisse, talking to the Founder and CEO of Hydrex and Subsea Industries, Boud Van Rompay, in Antwerp in February 2022.

Marinus has 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. Then he can get a full hull cleaning and conditioning done by Hydrex or another qualified, pro-



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.



The Kennedy in 2021 when Marinus and Gerarda sailed her to the Mediterranean.



Bernardo, one of Marinus's crew members from the Philippines who had never before been out of the tropics, with the second Gerarda in the ice in the Gulf of Riga in 2006.

fessional diving/cleaning company once a year. This will not only clean off all the fouling completely and restore the coating to how it was after application but will also condition and improve the surface of the hull, making it smoother with each cleaning done.

The most recent professional cleaning of the *Kennedy*'s hull was completed in Antwerp at the Hydrex headquarters in February 2022. Now, being able to clean the hull

himself will enable Marinus to keep the fouling down to the minimum at all times, which is recommended.

"Before we leave a mooring or anchorage, we can swim around the boat and remove most of the fouling," says Marinus. He has noticed the increase in hull smoothness after the recent cleaning of the *Kennedy* in Antwerp by Hydrex divers and feels that with a few more such cleanings the hull will be incredibly smooth. Meanwhile he will make

sure he sails with a clean hull by using his onboard cleaning equipment in between full cleaning/conditionings.

On the horizon

Marinus and Gerarda are heading back to the Mediterranean. "We want to be there in early spring," says Marinus. "We have also been planning a trip across the Atlantic to the Caribbean and hope that that will work out this year or the next," Marinus says. "Then we'll see how it goes with the Ecospeed!"

It's comforting to know that the hull coating will not only provide the best protection possible of the *Kennedy*'s steel hull, but will also not pollute the Caribbean waters with heavy metals and biocides when they arrive at their destination.

(Due to space constraints, this article has been somewhat abbreviated. You can find the full length article on our website, www.subind.net) ■

SUBSEA

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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