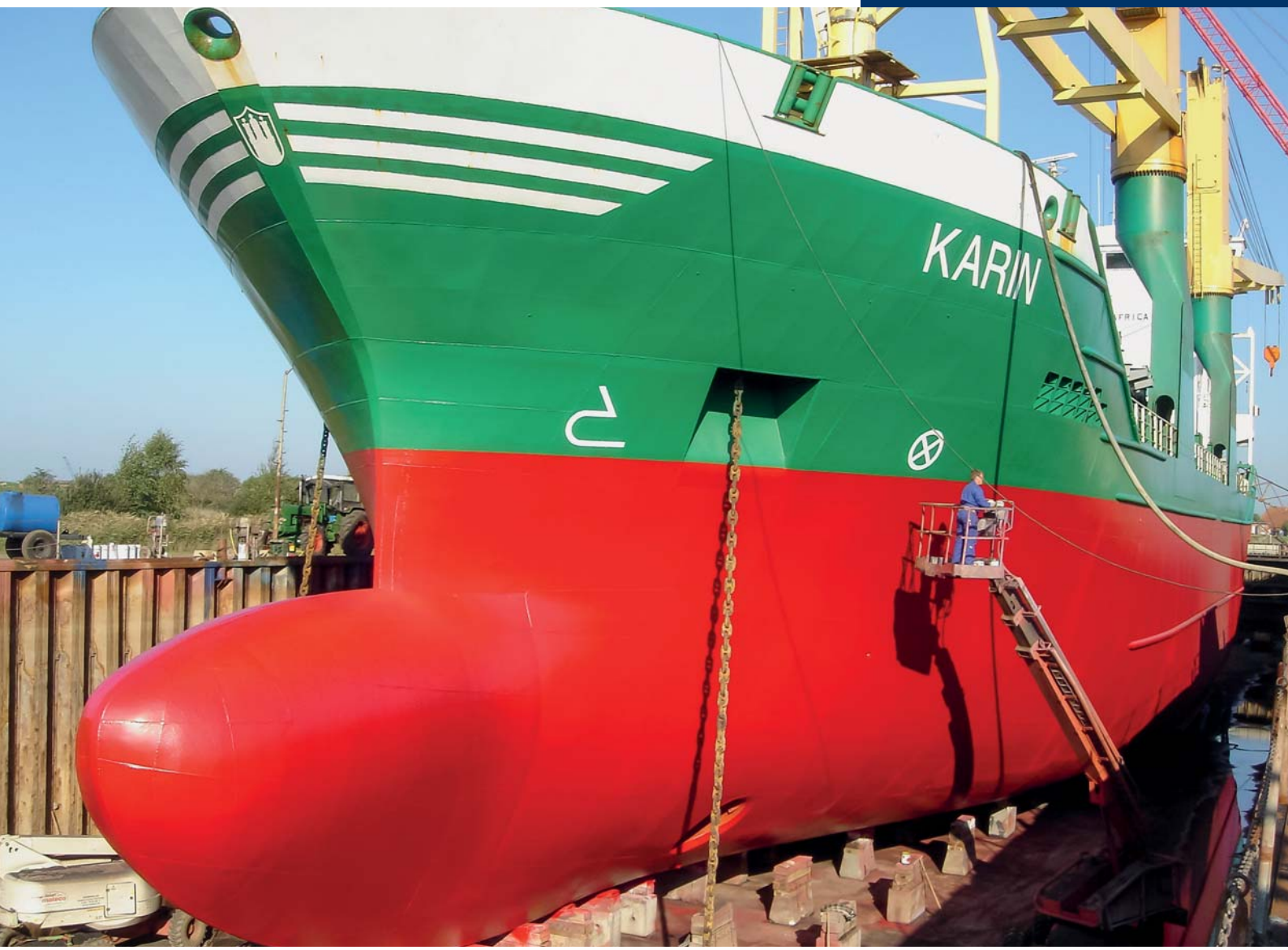
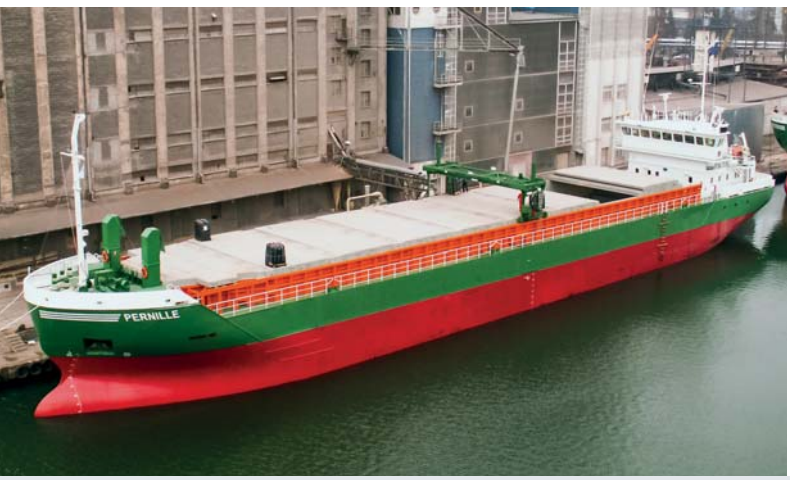
ECOSPEED®

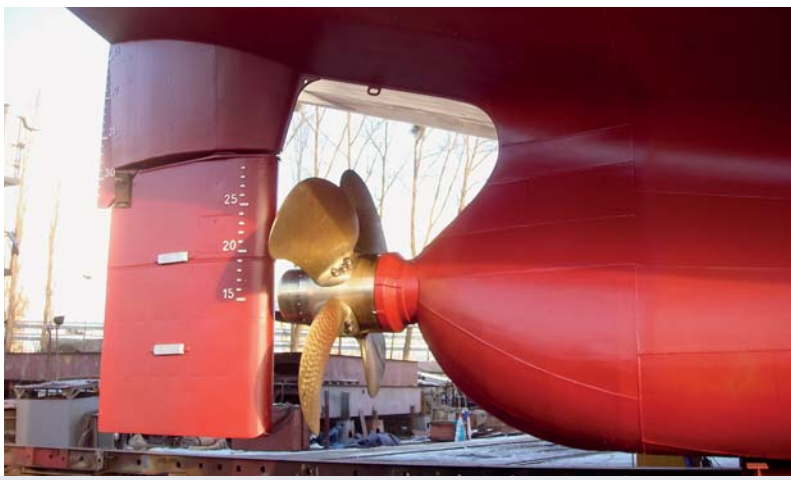
SHIP HULL PERFORMANCE TECHNOLOGY

NEWS

LETTER

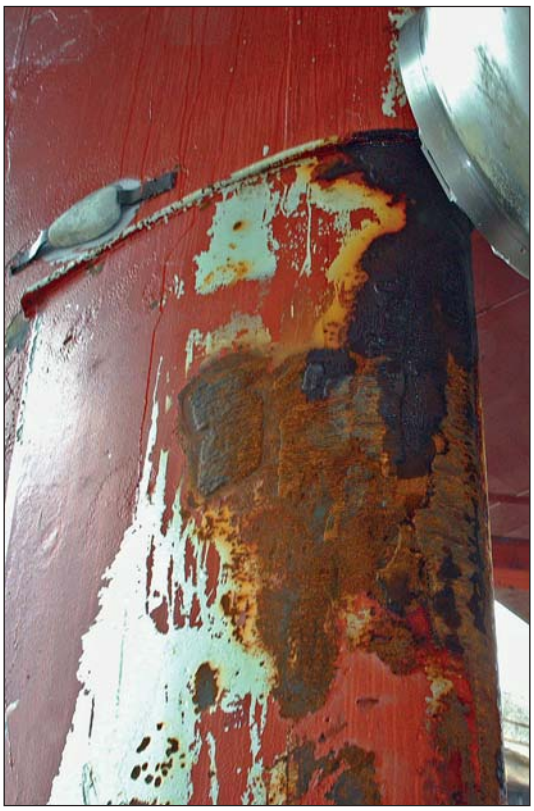






Interscan cargo fleet benefits from Ecospeed

Total Protection



The rudder of MV Elisabeth Russ before Ecospeed was applied in 2004, showing heavy cavitation damage.

The rudder of MV Elisabeth Russ in drydock in 2011. No further cavitation damage has occurred in the intervening 7 years.

Ships have been sailing for up to nine years (and counting) with Ecospeed without having to replace the coating on their rudders or having to opt for important and costly steel repairs.

Ecospeed can be applied on a rudder at a very low cost, especially compared with the large drydock costs. It will give a rudder supreme protection against cavitation and corrosion damage for the rest of the vessel's service life.

Ecospeed is a really fast and easy way of keeping a rudder's performance at maximum efficiency at all times.

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Interscan cargo fleet benefits from Ecospeed

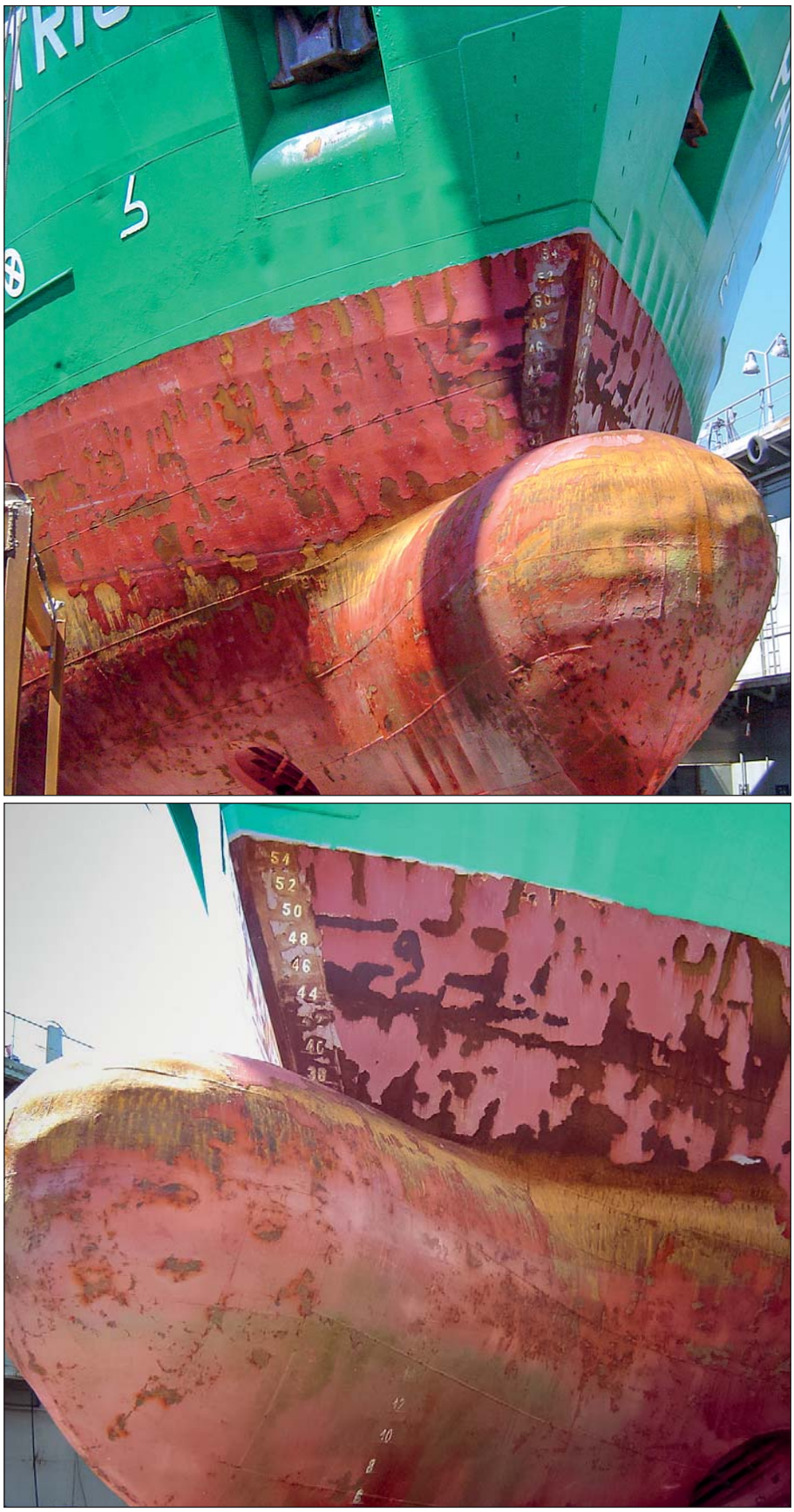
Interscan Schiffahrt is a family owned shipping company based in Hamburg. Founded in 1973, Interscan controls a fleet of 23 container and multipurpose cargo ships ranging in size from 1,723 to 11,800 dwt. The larger container ships (6,288 dwt Karin, 8,201 dwt *Paphos*, *Pandora*, *Pioneer*, and 11,800 dwt *Elena*, *Pauline*, *Colleen*) are chartered worldwide. The smaller vessels, up to 4,500 tonnes, trade in northern Europe, generally in the Baltic, either on time charter or operated directly by Interscan.

Interscan also manages 17 vessels belonging to closely associated companies.

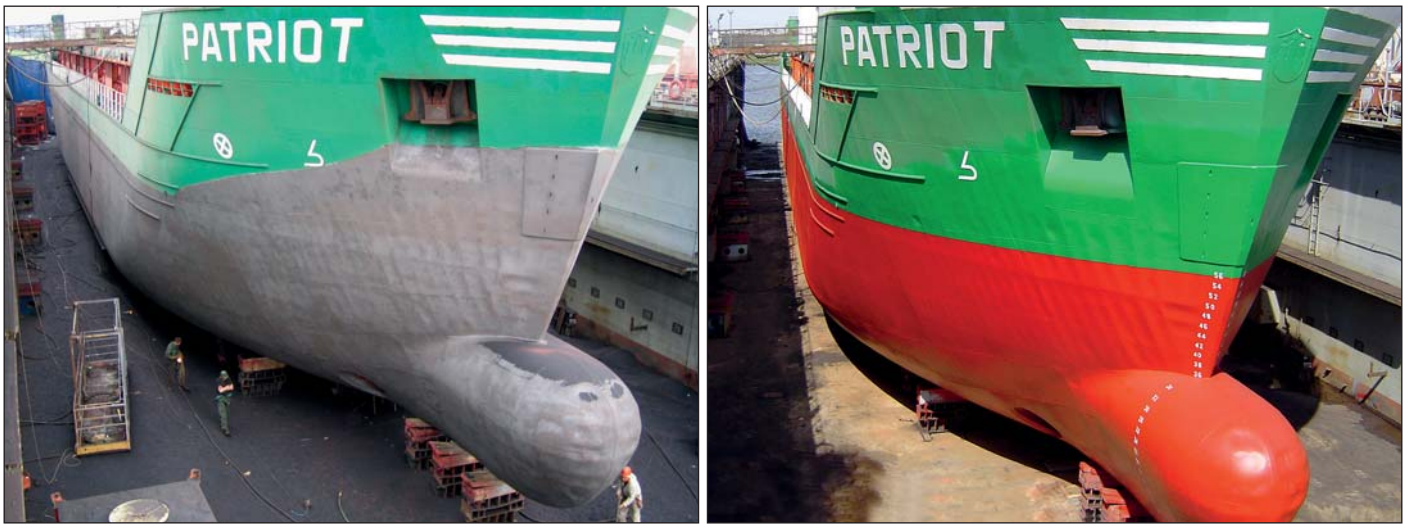
All Interscan owned or operated vessels carry International Safety Management (ISM) and International Ship and Port Facility Security (ISPS) certification.

Until 2005, all those ships trading in ice in the Baltic region went through a cycle of having all their bottom paint scraped off by the ice each winter and having to drydock and repaint every spring. The paint used was a standard epoxy coating.

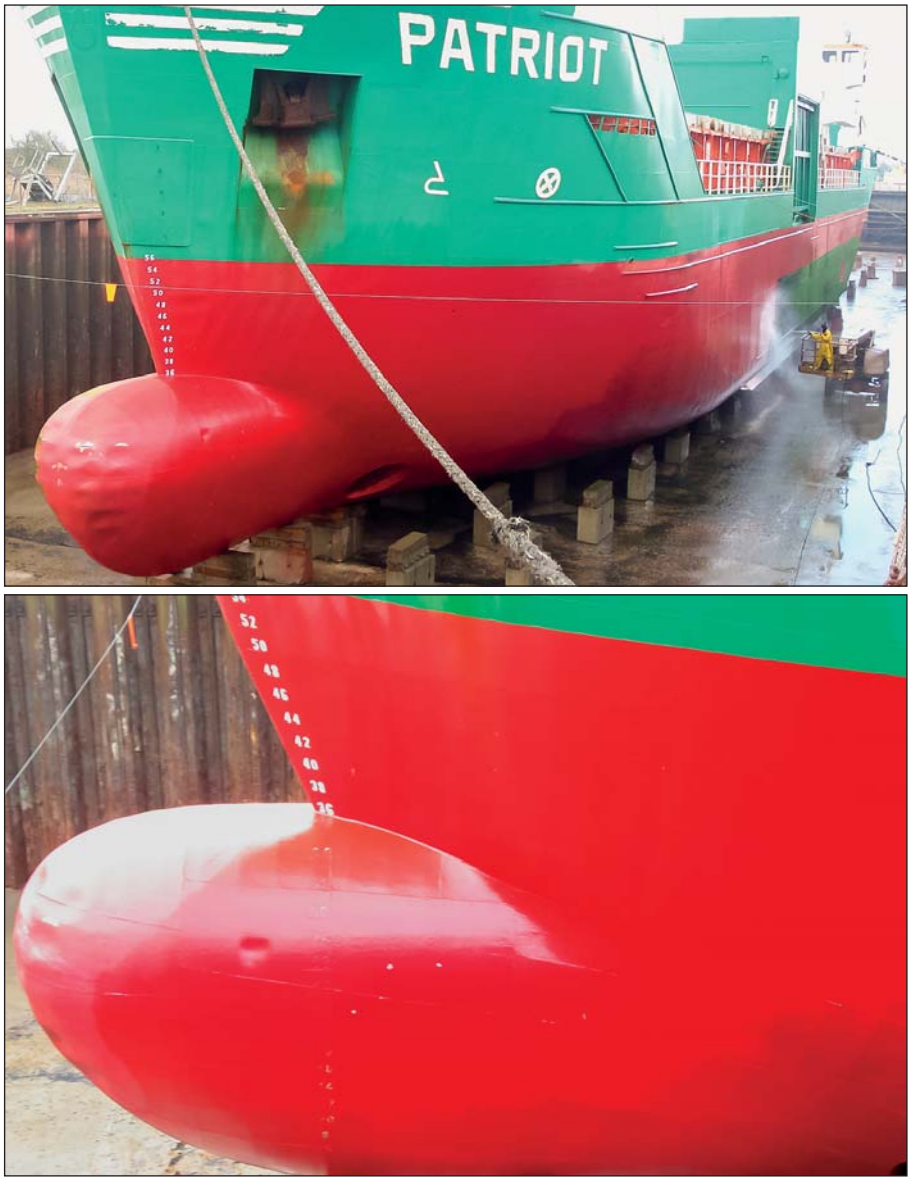
In 2005 the then superintendent engineer came across Hydrex and Ecospeed. He agreed to test the environmental and fuel saving benefits of Ecospeed, a novel environmentally benign, hard coating system. MV *Patriot* was their first ship coated. According to Michael Tensing, in charge of chartering at Interscan, the *Patriot* was in need of



MV Patriot in drydock in 2005, prior to blasting and Ecospeed application.



MV Patriot hull prepared (left) and painted with two coats of Ecospeed (right).



MV Patriot after the first year of trading in ice.

a full reblast at the time due to the built up of multiple layers of epoxy, so the time was right to prepare the hull fully and try Ecospeed.

The *Patriot* is an 82.3 m LOA, 12.5 m beam, 3000 DWT, ice class E2/Finnish 1B general cargo vessel with a 4.95 m draft and a design speed of 11.5 knots.

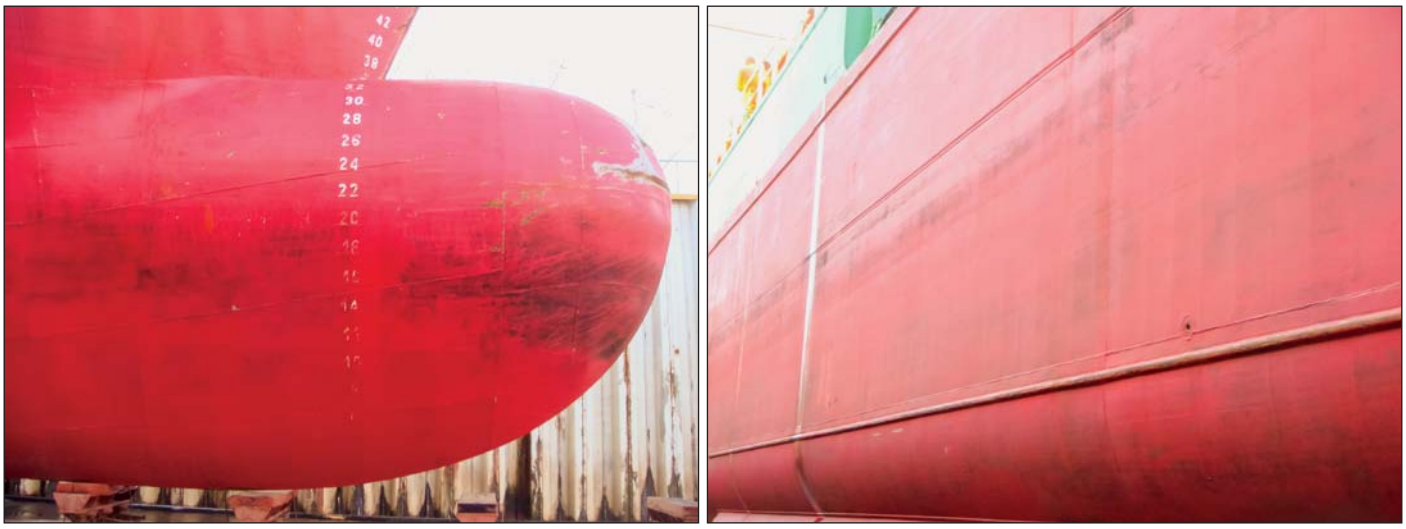
In June 2005 in drydock in Klaipeda, Lithuania, the underwater hull of Interscan's MV *Patriot* was blasted down to white steel and was then given two coats of Ecospeed, each about 500 microns thick.

Two other Interscan vessels were similarly coated.

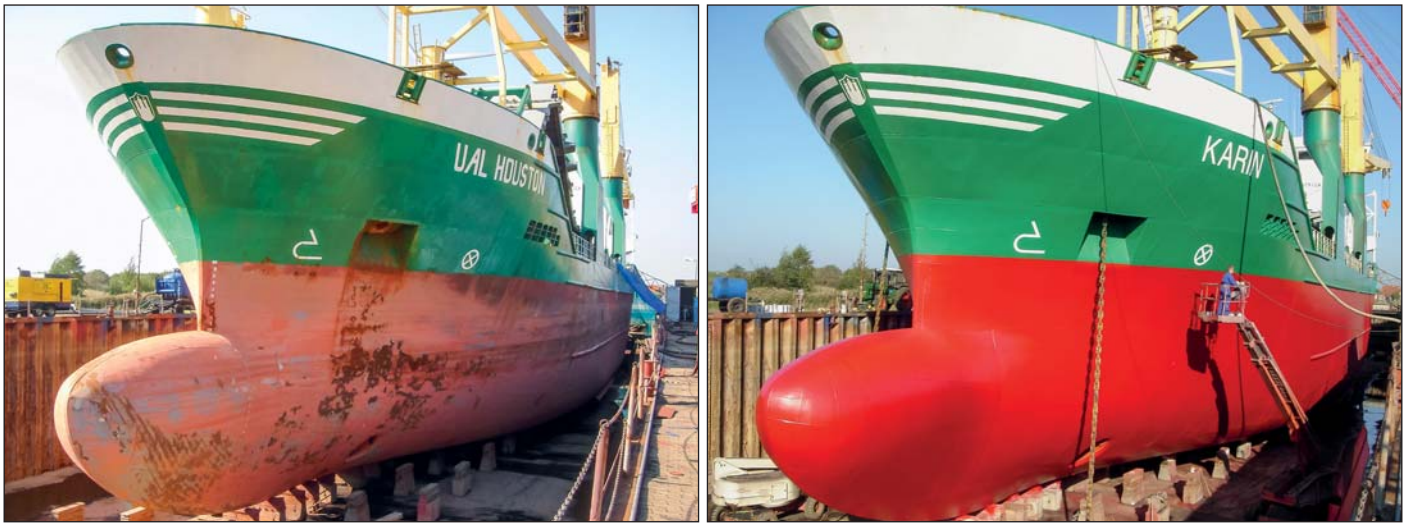
The first was the *Karin*, a 6,288 DWT, 100m LOA ice class E3/ Finnish 1A general cargo vessel. Ecospeed was applied in September 2006 in Husum, Germany.

The second was the *Phantom*, the 3,220 DWT 82m, ice class E3/ Finnish 1A general cargo vessel. Ecospeed was applied in June 2007 in Klaipeda, Lithuania.

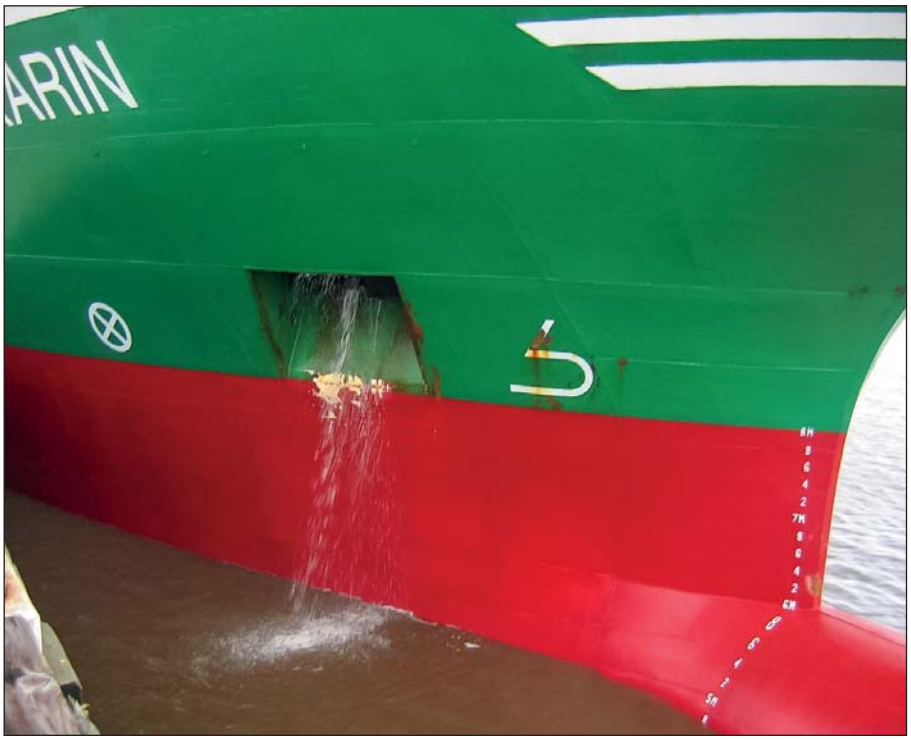
The *Patriot* was docked in November 2006 and after a year of trading in ice, there was virtually no damage whatsoever to the coating, in strong contrast to Interscan's previous experience with underwater hull coatings. It is now seven years since Ecospeed was applied on the first Interscan vessels. Michael Tensing says, "Now we are in 2012, she was here recently and the paint still looks good. That's the best advertisement



MV Patriot after five years of trading in ice.



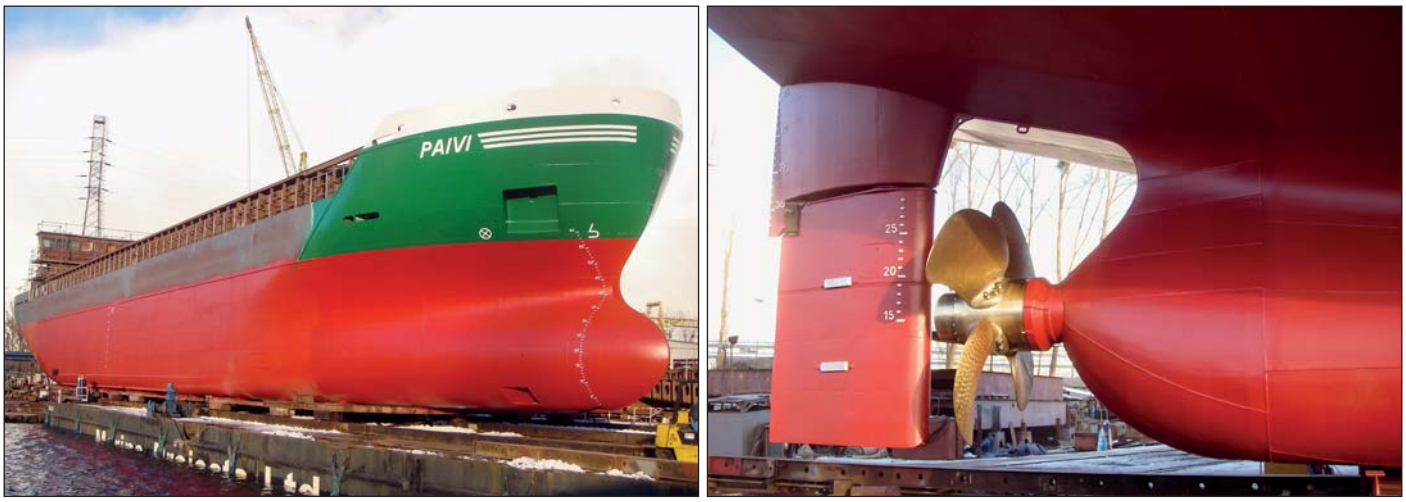
MV Karin before and after Ecospeed coating.



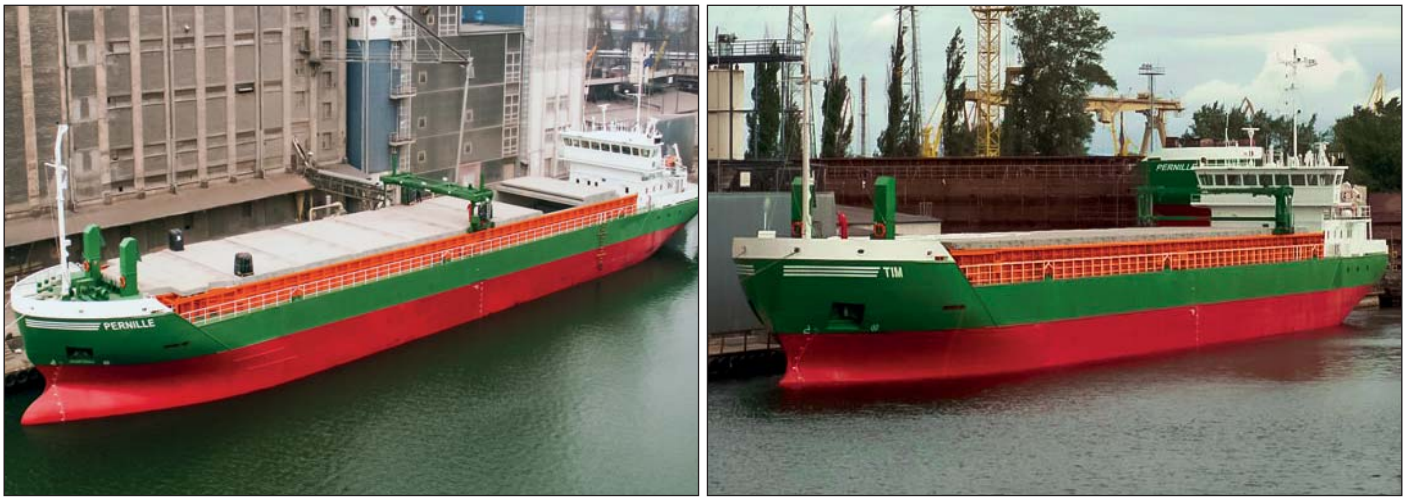
MV Karin several years after initial application.

you can have. You don't have to do much to the paint. It's only a can of paint for touch-ups, just cosmetics at the anchor pocket or if you have mechanical damage or something. The rest to my mind is really very good." As he points out, there really is no other coating that could stand up to seven years of trading in ice and still remain intact and not in any need of repainting or anything beyond very minor touch-ups.

The success with the first three ships led to the further application of Eco-speed to four newbuilds in 2008 and 2009 in Gdansk, Poland: the *Paivi*, February 2008, the *Tim*, June 2008, the *Pernille*, October 2008 and the *Widor*, January 2009. All these ships



MV Paivi with Ecospeed newly applied.



MVs Pernille and Tim after launch.

have 3,450 dwt, all have ice class E 3/Finnish 1A, all are just over 82m LOA general cargo vessels.

Above ships were coated with Ecospeed at newbuild stage which is the ideal time to apply the coating, giving Interscan a total of seven ships using the Ecospeed system on their underwater hull.

So, how has it worked out?

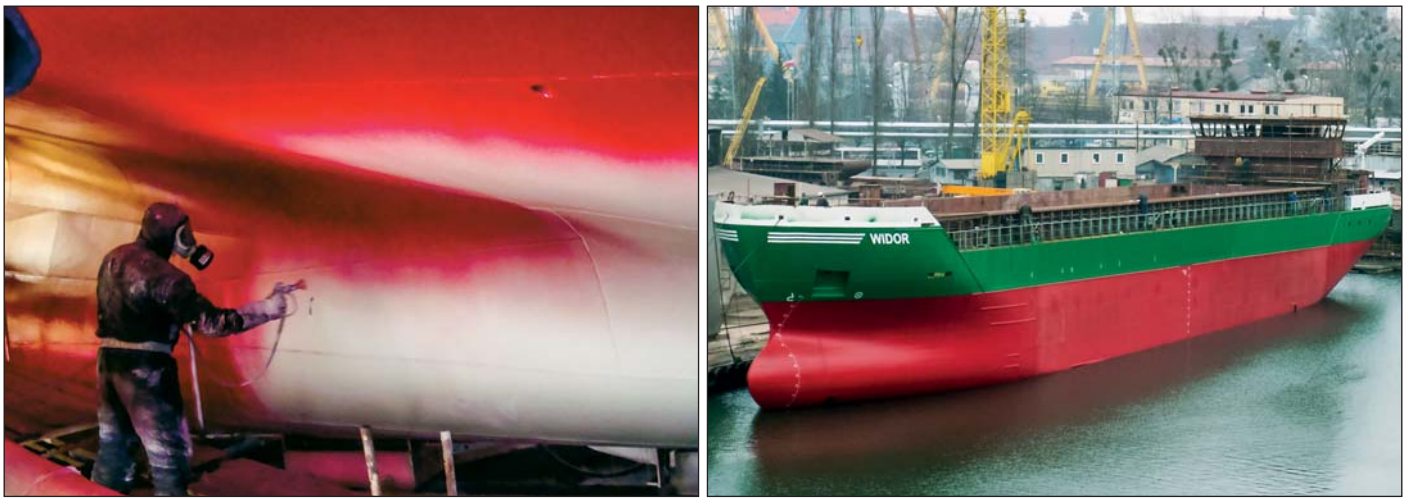
Interscan and Ecospeed, seven years on

Michael Tensing who runs the chartering operations for Interscan and who ultimately took the decision to apply Ecospeed to the Interscan ships, has no regrets about his decision:

"We had a special survey at Frederikshaven on the *Phantom*, 3,220 tonner, last year after the winter. I can tell you that was quite a surprise to the shipyard at Frederikshaven. We were the worst client the shipyard ever had! All that was required was simply cleaning. The paint job consisted only of one bucket for touch-ups. To my mind, for the Baltic it's the best product I have ever seen." That was after four years of trading in ice every winter.

When the first Ecospeed application was done in 2005, Interscan crunched some numbers and worked out that if the Ecospeed coating lasted more than 3.8 years without needing replacement, the company would have made the payback on those first ships and be making money. That time period has been greatly exceeded for the first three.

Michael Tensing estimates that at current rates the payback for full hull preparation and coating with Ecospeed for a newbuild would be five years. Since Ecospeed properly applied is guaranteed for ten years and expected to last the full life of the ship, the economic factors are very positive. And these figures only take into account the cost of preparation, paint and application, compared to the conventional coatings they were using, without regard to potential fuel savings from correct use of Ecospeed. All the Interscan Ecospeed coated vessels will soon have exceeded the payback period. So far all the ships have kept their



MV Widor being painted and after launch.

coating in excellent condition.

"If I look at the market and what we have had to face in the last four years, it was exactly the right time because there's no money for anything these days," continues Michael Tensing. "The earnings are very low and if you do it at the time you have the money and invest it then, and see that the product is long lasting then you have the benefit later on. It was definitely the right decision."

In-water cleaning

The *Patriot* and the *Karin* have both had in-water cleaning since the coating was applied. Ecospeed is a system which combines the hard coating with routine cleaning. In the case of the Baltic, very little fouling is seen to attach and this is cleaned off when the ship sails in ice in winter. The *Karin* is trading in tropical waters, however, and the hull became fouled, as is expected with a non-toxic coating. The hull was eventually cleaned by Hydrex in Trinidad and she immediately went back to her design speed of 15 knots.

Less time in drydock

"To my mind anyway another major benefit [of Ecospeed] is that when you go into drydock you don't have to rely on the weather anymore which sometimes holds you back in dock. If it's raining for two weeks or so then you cannot leave due only to this point of repainting, because you completed all the other work. It makes less than no sense. From that respect alone I would always do it again."

Michael Tensing predicts that as Ecospeed becomes better known and charterers find out that you only have to clean the coating, not repair or replace it regularly in drydock, they will see the advantages and it will become normal for owners to apply Ecospeed to their ships when they are built.

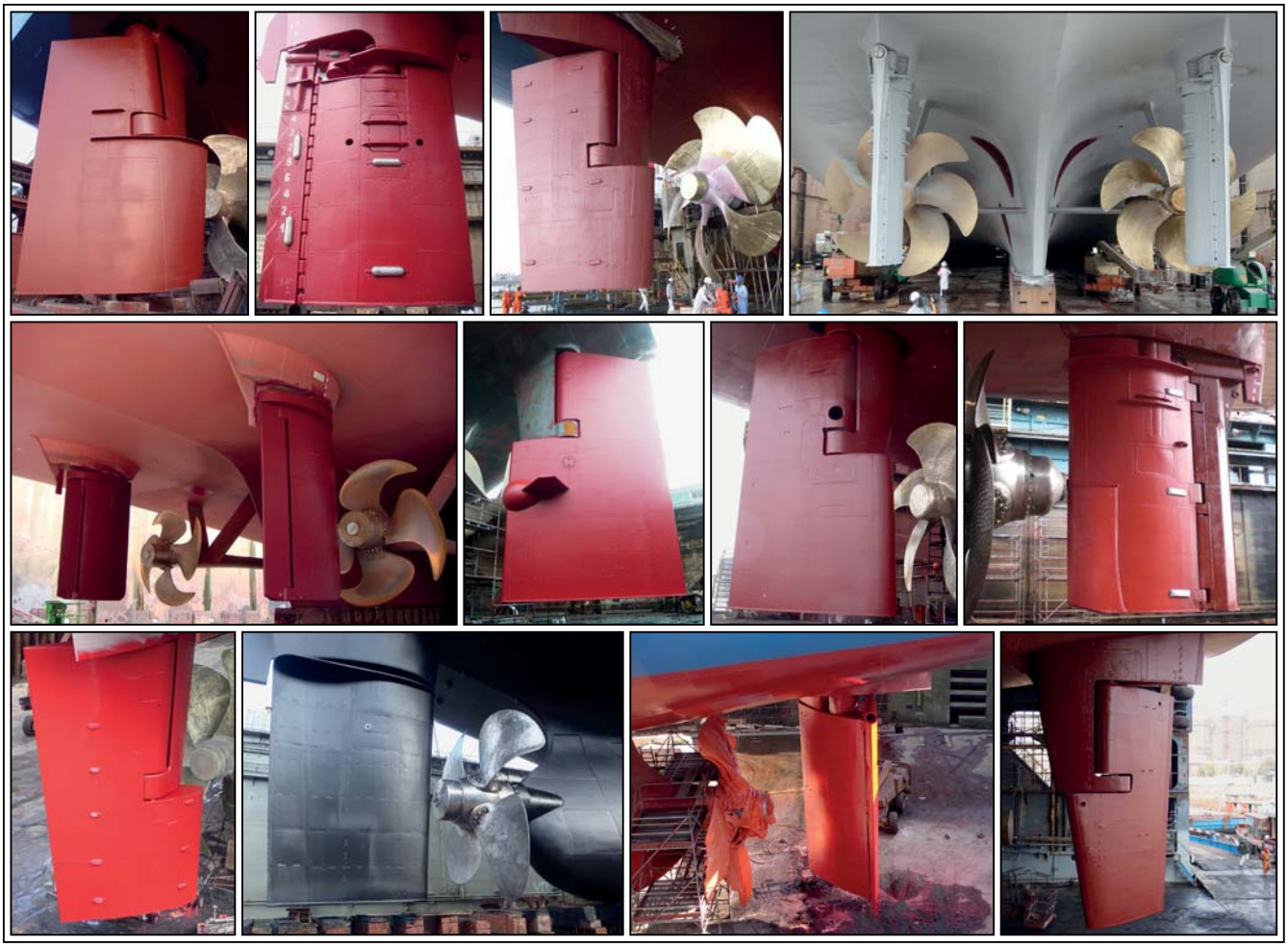
Conclusions

"I would do it all again," says Michael Tensing. "If the time is right and you have the liquidity then to my mind for sure it's the right thing to do for a newbuilding, especially if you operate in cold waters. Even with the warm waters, if it lasts longer than five years and if it's heading for ten years then it's a huge benefit."

"With our ships you can be certain we will keep them for some time to come and will continue to monitor the state of the hull and report this on an ongoing basis."

We look forward in years to come to hearing that the Ecospeed on the hulls of the Interscan ships is continuing to remain intact and in good shape. ■

KEEPING SHIPS IN BUSINESS



Supreme Rudder Protection

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

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