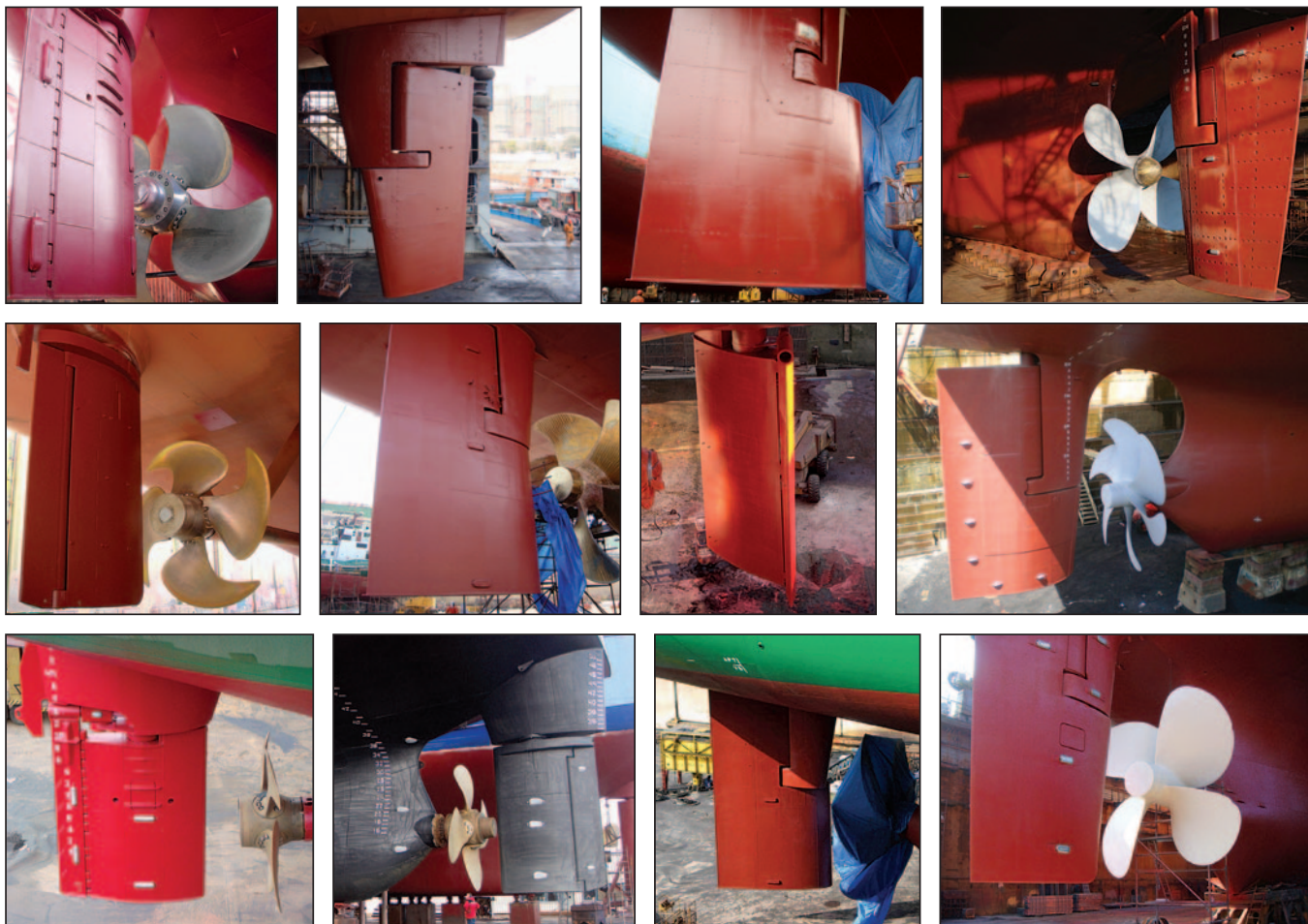




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LASTING PROTECTION



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 dry-dock 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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ECOSHIELD®
ULTIMATE PROTECTION 

Subsea Industries representative in Croatia

Janez Vehovec, CTA-Marine

Janez Vehovec and the company he founded and owns, CTA-Marine, have represented Subsea Industries in Croatia since 2009. Janez is among the longest serving agents we have. He has established excellent relationships with the Croatian shipyards which has led to smooth and productive operations for Subsea Industries in Croatia. It is a valuable cooperation.



Janez Vehovec, Founder of CTA-Marine, Subsea Industries' representative for Croatia.

After graduating from Rijeka University with a degree in International Business, Janez went on to the Military Academy where he trained as a pilot. "This was also important for my future business," he says. He worked for ten years with an international company in former Yugoslavia before setting up his own company, where he represented a number of different brands including three in the metals industry and three others involved in ship interiors. It



The Bella Desgagnés protected with Ecospeed ice-abrasion resistant coating sails in ice off Quebec.

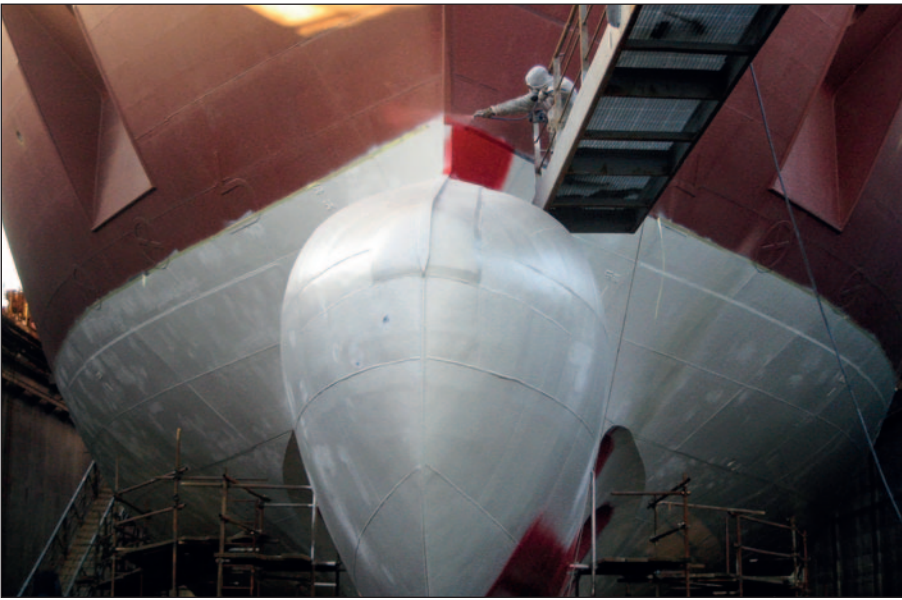
was at SMM in Hamburg that he found out about Subsea Industries when looking for a special paint for ice-classed fishing vessels.

Impressed with Subsea Industries products and the company, in 2009, Janez signed the agency agreement with Subsea and was very soon involved in projects to apply Ecospeed to ships in Croatian shipyards.

M/V *Bella Desgagnés* Ecospeed ice protection

The first such project was coating the hull of the Canadian shipping company Desgagnés' M/V *Bella Desgagnés* with Ecospeed. M/V *Bella Desgagnés* is a passenger and cargo vessel serving Anticosti Island and the Lower North Shore of Quebec. It accommodates 381 passengers and offers 160 beds in 63

cabins. On the cargo side, it can carry 125 containers and is equipped with a crane with a lifting capacity of 40 mt. The ship frequently sails in ice, for which Ecospeed provides the best protection available. The application was carried out in early 2011 at the Kraljevic shipyard on the Adriatic coast of Croatia. The underwater hull was blasted and then coated with two layers of Ecospeed which has ice-abrasion resistance classification PC1-7. Janez facilitated and attended the coating application. The hull with the new coating was conditioned in South Italy before sailing to Quebec to take up station in Quebec. The conditioning improves the hydrodynamics of the coating which is an essential part of obtaining the best fuel performance for the vessel. The *Bella Desgagnés* was in drydock last year and the hull coating was still intact and some



Second coat of Ecospeed (red) being applied to the Bella Desgagnés at the Kraljevic shipyard in Croatia.



Janez learning about the Subsea Industries underwater cleaning equipment at an international Subsea Industries and Hydrex sales conference in Antwerp.



Utkilen Golfstrøm's underwater hull was coated with Ecospeed at newbuild in the 3.Maj shipyard in Rijeka, Croatia.

touch-ups were carried out to restore it to its original state. It held up very well in the ice over the 13 intervening years.

Two newbuild ice-going chemical tankers for Utkilen

The next projects were two new-build chemical tankers for the Norwegian company, Utkilen. The underwater hulls of the M/V *Golfstrøm* and the M/V *Rystrøm* were both coated with Ecospeed at the 3.Maj (Third May) Shipyard in Rijeka, Croatia. The *Golfstrøm* application was in July 2011 and the *Rystrøm*'s in November of the same year. Janez used his excellent relationship with the shipyard to help organize both of these applications and make sure that they went smoothly and rapidly. "We painted all the weld seams with a stripe coat and two coats of Ecospeed were very carefully applied to the entire underwater hull," recalls Janez. "We also coated the ice belt since they are ice-going tankers," he adds. "The underwater hull was very well protected. The Ecospeed was conditioned at 3.Maj after the ships were painted."

Future projects

Janez has some exciting projects in the pipeline right now involving the cruise industry. Nothing can be published at this point but Janez's relationships with the shipyards have been very valuable in moving these projects forward.

During the early projects, Janez invited other shipyards to be present while the coating was being applied, which turned out to be an excellent way to spread the word about Subsea Industries coatings in Croatian shipyards.



Second coat of Ecospeed being applied over a stripe coat to strengthen the protection of the welds on the Golfstrom' underwater hull.

Working with Subsea Industries

"I can say my favorite firm I have worked with is Subsea Industries," says Janez who is very positive about the relationship with the company. "Subsea coatings have many, specialized applications. Ecospeed is a very different product, definitely better than the alternative coatings, particularly for ice going vessels."

"The Ecospeed coating is increasingly used to protect the hulls of military ships," Janez adds. "After coating a vessel with Ecospeed in the shipyard, the hull is protected from rust and minor mechanical damages for the entire life of the ship, and the hull never needs to be painted again. Since it is cleaned underwater and the slime and grass removed – an operation which can

be done efficiently without affecting the ship's schedule – the vessel retains the hydrodynamic character-

istics and speed that it had when it came out new from the shipyard. These benefits are of key importance to military vessels."

In order to provide the best advice and support to customers, Janez remains in close contact with the Subsea Industries technical personnel. "On any new project I always consult with Subsea Industries in Antwerp and there is a fantastic cooperation," he says, "I am usually aware of new project or contracts from the very beginning when they come to the shipyard because I have good connections in the shipyards. When I receive the details, I pass them on so that the ship owner can be contacted directly by Subsea Industries. That way we always approach the potential customer together and tackle the sale from all angles. I find our cooperation very good and there is always a rapid response from Subsea. We're very, very happy with the cooperation and have no complaints."

Stay tuned for upcoming news about Ecospeed from Croatia. ■



The second coat of Ecospeed being applied to the Rystraum at the 3.Maj shipyard.

Ecospeed defined

The purpose of Ecospeed is to offer a long-lasting, non-toxic protection for all ship hulls and to provide a system that keeps a hull very smooth and free of fouling for the service life of the vessel with minimal repair and no replacement. Instead of using chemicals to try to kill and repel marine fouling organisms, Ecospeed uses a hard, impermeable, impenetrable coating along with manual removal of fouling at an early stage.

The technology can be broken down into three parts:

1. Coating

Ecospeed is a glassflake reinforced resin coating that is impermeable, impenetrable, long-lasting, inert and non-toxic. The coating is applied in two coats each of 500 µm dry film thickness (DFT) to a properly prepared hull, either at new build or in drydock for an in-service vessel. It works equally well on steel, aluminum or GRP. A minimum of about 3 hours is required in between coats and there is no maximum overcoat time. This coating has extraordinary adhesion and bonding qualities. It is very tough and resistant to abrasion. It is also flexible and remains firmly bonded to the plates even when these flex considerably.

2. Fast and easy cleaning

Underwater maintenance of Ecospeed is carried out with specially designed underwater hull cleaning tools that simultaneously remove all fouling and optimize the smoothness of the paint surface. It allows divers to clean the flat areas as well as the harder to reach parts of the hull



Ecospeed offers a cost-effective and environmentally-acceptable approach to hull protection and anti-fouling.

without damaging the coating. One of the many unique characteristics is that with repeated underwater hull cleaning the coating's surface improves. Cleaning can be carried out whenever needed, at any point in its lifespan.

Ecospeed can also be cleaned in drydock with high pressure tools. With Ecospeed the coating is always in a brand-new, excellent condition after a high pressure washing and no material is lost. Only the fouling is removed. The coating stays on the ship instead of dispersing in the water and contaminating the shipyard and the surrounding waters.

By optimizing hull surface friction and using the best possible surface hydrodynamic characteristics, fuel savings over the lifetime of the ship are most often found to be in the 20-40 % range. In contrast with AF compounds that rapidly degrade over time, our coating lasts. Therefore the performance of the ship does not degrade either.

3. Minor touch-ups in drydock

The coating is expected to last the full service life of the ship without need for replacement or any major repair. Mechanical damage such as that caused by collision or anchor chain abrasion, or by welding on the hull can easily be touched up during routine drydocking. Because the coating consists of a single, homogenous layer, any repair or touch-up easily blends in without any difficulty. The integrity of the hull coating is maintained despite such repairs. Because no repaint is needed, several days and up to a week can be saved in drydock times during each visit. An article in our next magazine will go into this aspect of Ecospeed in more detail.

The coating alone provides superior hull protection, but it is the full Ecospeed technology that results in the major fuel savings. ■

ECOLOCK® ultra long-lasting protection for offshore hulls



Ecolock is designed to protect offshore vessels for decades without the need for drydocking. Increasingly, offshore units such as FPSOs, FSOs, FLRSUs and others used for offshore oil and gas exploration, drilling, storage and transport need to stay out of drydock for 15, 25 even 40 years.

The challenge has been to protect the underwater hull from corrosion and to provide a cleanable surface so that the biofouling that accumulates can be removed successfully and safely for UWILD and to reduce weight. Ecolock is the answer to that challenge.

Ecolock is an extremely tough and durable coating designed to remain

in excellent condition for 15 - 25 years without drydocking, repair or replacement. Ecolock can be cleaned underwater as often as needed to meet the UWILD and weight requirements of FPSOs, drill ships and other offshore vessels. Ecolock is the result of continual R&D on offshore hull coatings since the 1990s.

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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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