SUBSEA

PROTECTION AND PERFORMANCE

Magazine

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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ECOFIX®
CORROSION REPAIR

Editorial

Every hull coating fouls and as a result cleaning is an unavoidable reality for shipowners. For most coatings this is a problem because they cannot be cleaned without damaging them, often very severely. Ecospeed, however, was designed to be maintained regularly while keeping the coating intact for 20 years or longer.

The best and most viable approach is to clean the ship 100% and to do so regularly and always before sailing if the ship has been stationary and has fouled for a long period.

Ship hulls must be protected with a system that lends itself to fast, effective underwater cleaning without risk of damage to the coating and without posing any kind of hazard to the environment. Ecospeed is this system and this for a number of reasons.

Underwater cleaning improves the hull surface

With repeated underwater hull cleaning Ecospeed's surface further improves. This procedure is made easy by the coating's technical properties. Cleaning can be carried out whenever needed, at any point in its lifespan, without causing damage.

Long lay-up periods have no effect

Ecospeed is suited for ships which have a stationary period. An impermeable and impenetrable barrier is created during application. This gives the coating excellent and durable anti-corrosive properties. It also protects the underwater hull against mechanical damage. No rust or damage to the steel will be present on the underwater hull of the vessel after cleaning and this despite the aggressive nature of certain types of fouling. The hard fouling is unable to penetrate or damage the coating.

Toxic free

Independent tests have been carried out to authenticate Ecospeed's non-toxicity. This research proved that the coating is 100% non-toxic. There is no negative effect on the water quality or the marine environment at any point of its application or use.

The definite biofouling solution

The underwater cleaning of Ecospeed prevents the spread of biofouling entirely. The cleaning interval is optimized to minimize fouling. Regular cleaning prevents macrofouling from building up. At the same time it presents an opportunity to inspect so-called niche areas. Most of the fouling organisms will be destroyed during cleaning.

Fouling on Ecospeed can be removed fast and easy.

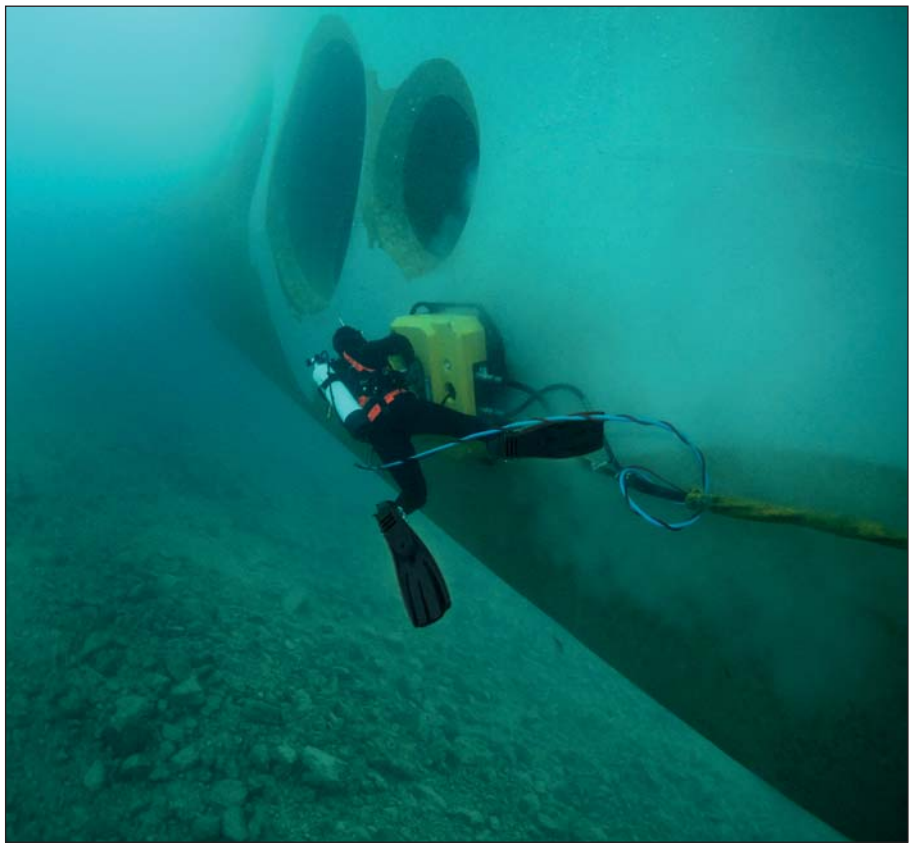
When only microfouling or locally acquired macrofouling is cleaned off the hull and niche areas, the risk of translocation of NIS via hull fouling is minimal.

Underwater cleaning allowed

The results of above-mentioned tests were sent to port authorities and environmental agencies worldwide. As a result, several major ports have overturned the existing general ban on underwater hull cleaning. They specifically made an exception for vessels coated with Ecospeed.

Specially designed equipment

Underwater maintenance of Ecospeed is carried out with specially designed underwater hull cleaning systems. A complete line of equipment was designed in-house. These tools remove all fouling and at the same time optimize the smoothness of the paint surface. They allow divers to clean the flat areas as well as the harder to reach parts of the hull without damaging the coating.



Underwater cleaning of Ecospeed can be carried out whenever needed, at any point in the coating's lifespan.

Fewer and shorter drydockings

There has been a trend of extending the maximum drydock interval if a stringent set of rules is followed. One of the requirements is the execution of a very strict underwater maintenance plan. The biggest barriers are dealing with biofouling and maintaining hull coating integrity. Ecospeed allows ship owners/operators to overcome both these barriers. Our coating can easily last for ten or twelve years without any need for drydocking.

Conclusion

Using Ecospeed allows shipowners and operators to save 20% or more on fuel costs and GHG emissions on an immediate basis, while reducing the need for drydocking and preventing the spread of non-indigenous invasive species. All this can be done without polluting the marine environment.

Ecospeed underwater maintenance is carried out with specially designed equipment.

Subsea Industries NV
Boud Van Rompay
Founder

No more cavitation or corrosion damage with Ecoshield

The decision to apply our award-winning Ecoshield hard coating to rudders and thrusters is paying dividends, with a number of shipowners noticing zero cavitation damage and failure compared to equipment coated with other protective systems.

Some of them were new customers, some returning ones. They had experienced firsthand the devastating effect of cavitation when a traditional coating system is used. For this reason they decided to use Ecoshield to ensure lasting protection against corrosion and erosion damage for the rudders, nozzle rings and tunnel thrusters of their vessels.

Ecoshield has been designed to give a very thorough and lasting protection against cavitation and corrosion. If the cavitation cannot pierce the coating then no other damage can occur.

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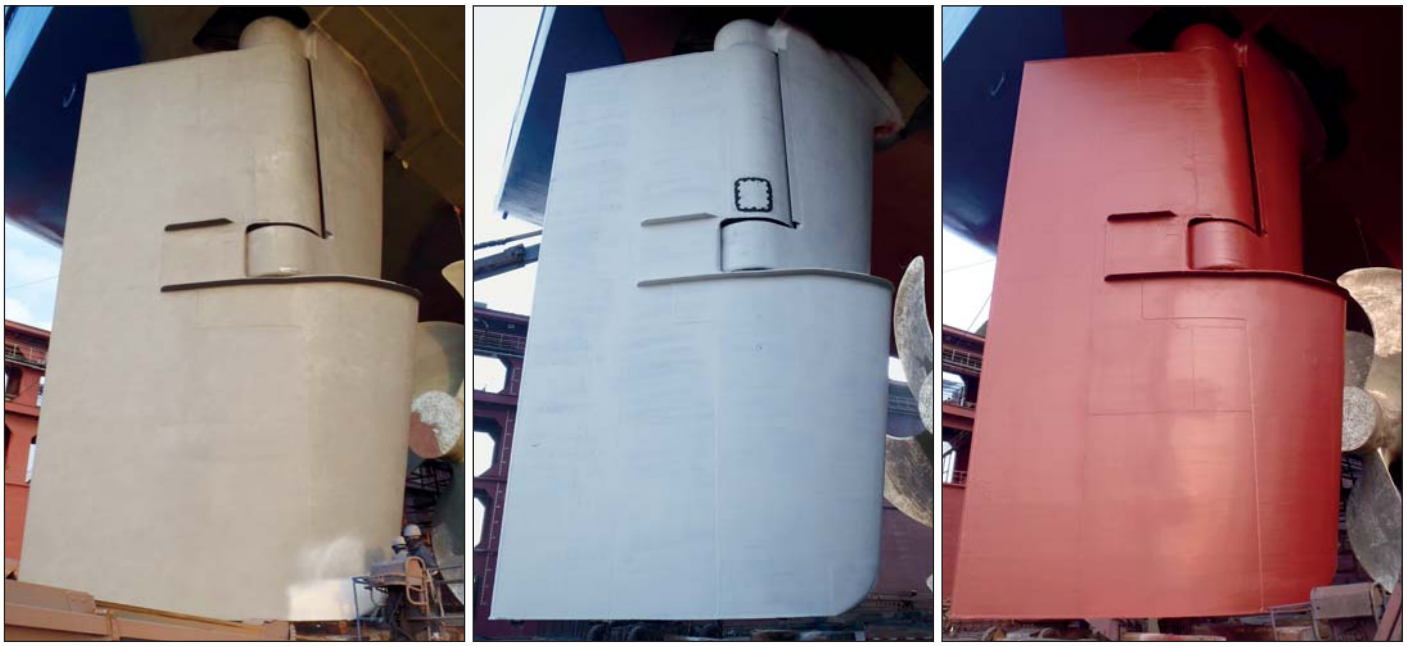
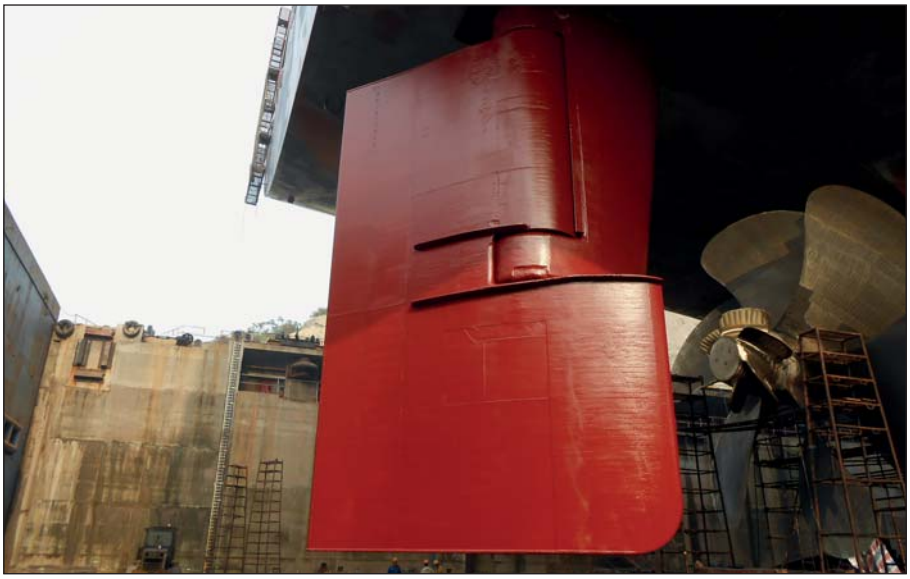
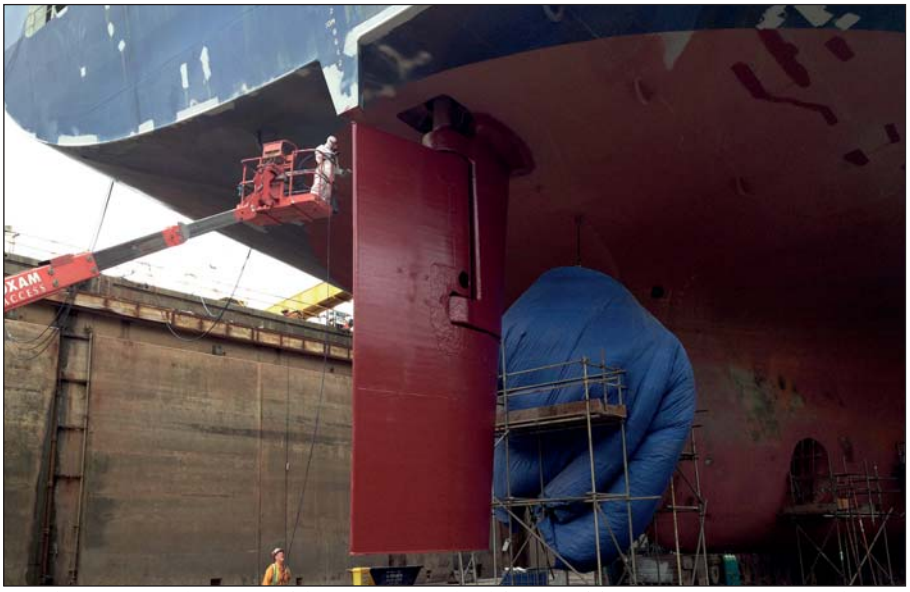


After surface preparation, Ecoshield is applied in two identical layers that will last for the ship's service life.



Ecospeed can protect a rudder from the forces caused by the movement of the propeller blades.



Application of the second layer of Ecoshield on rudder of container vessel.

Tests conducted in a flow channel have confirmed that Ecoshield performs extremely well under severe cavitation. These tests were divided into six stages during which the coating was exposed to an increasing pressure drop, creating a growing cavitation force. Even after the last stage no erosion was present on the patch coated with Ecospeed.

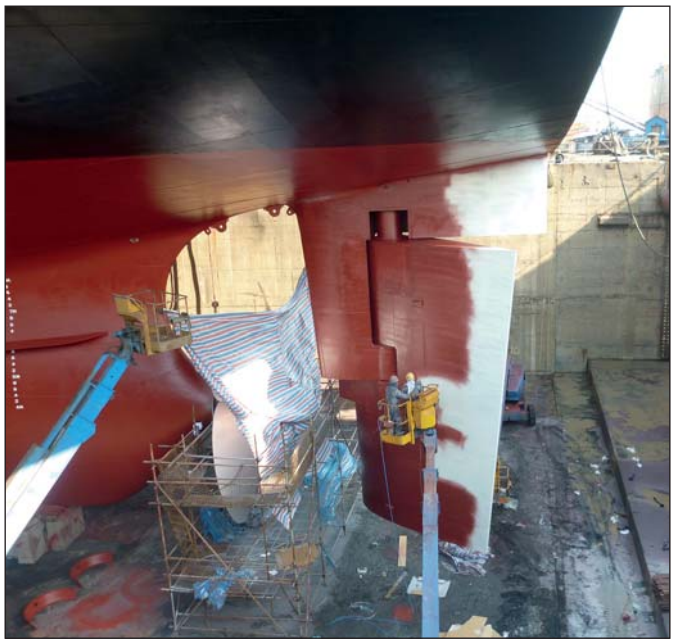
Groundbreaking protection for all running gear

Besides offering rudder protection Ecoshield is also suitable for thrusters, azimuth thrusters, azipods, thruster nozzles, thruster tunnels and other underwater ship gear which needs special protection from corrosion. The extra strength coating protects these areas for the service life of the ship. There is no need for recoating or major repair.

Suited for newbuilds and existing vessels

Protection of the running gear of your vessel is best begun at the newbuild phase. When a vessel comes into drydock, maintenance of its stern area, especially cavitation

Cavitation and corrosion damage can destroy a rudder, so a lasting protection is essential.



Both layers can be applied very fast, with only three hours in between.

Application of the second layer of Ecoshield on nozzle.

No repaint will be required during future drydockings.

An Ecoshield application is very flexible and can be adapted to the yard's schedule.

damage repair, can take a long time. There are strict procedures concerning blasting, painting, welding and propeller and stern tube seal work. Painting is then assigned to the end of the schedule. As a consequence it may be rushed or not done at all or else prolong the stay in drydock.

With an Ecoshield application one can avoid these problems from day one because no repaint of the running gear will be needed during drydocking. Ecoshield will remain intact for the lifetime of the vessel and is guaranteed for ten years. At the most, touch-ups amounting to less than 1% of the surface area will be required. Planning the maintenance of the vessel's stern area therefore becomes much easier.

The newbuild phase is the perfect time to apply Ecoshield. However, the coating can also be used to protect vessels that have been in service for some time and are already facing cavitation and corrosion damage.

Ecoshield's flexibility makes it easy to adapt the application schedule to the rest of the activities at the shipyard or drydock in a way which does

not interfere with them. Overcoating time can be as short as three hours. This means that for smaller surfaces such as rudders or bow thrusters the two required coats can usually be applied in one single day.

Conclusion

Evidence of the success of the product is the number of companies which began by coating a rudder on one ship experimentally and went on to coat other running gear on the same ship and the rudders and running gear of other ships.

Most are converting their entire fleet as a result of seeing the pristine condition of the coated areas after sailing for several years (some well over ten years).

You can give the rudders and running gear of your vessels the same lifelong protection. Contact one of our offices for more information. ■

Application of the second layer.

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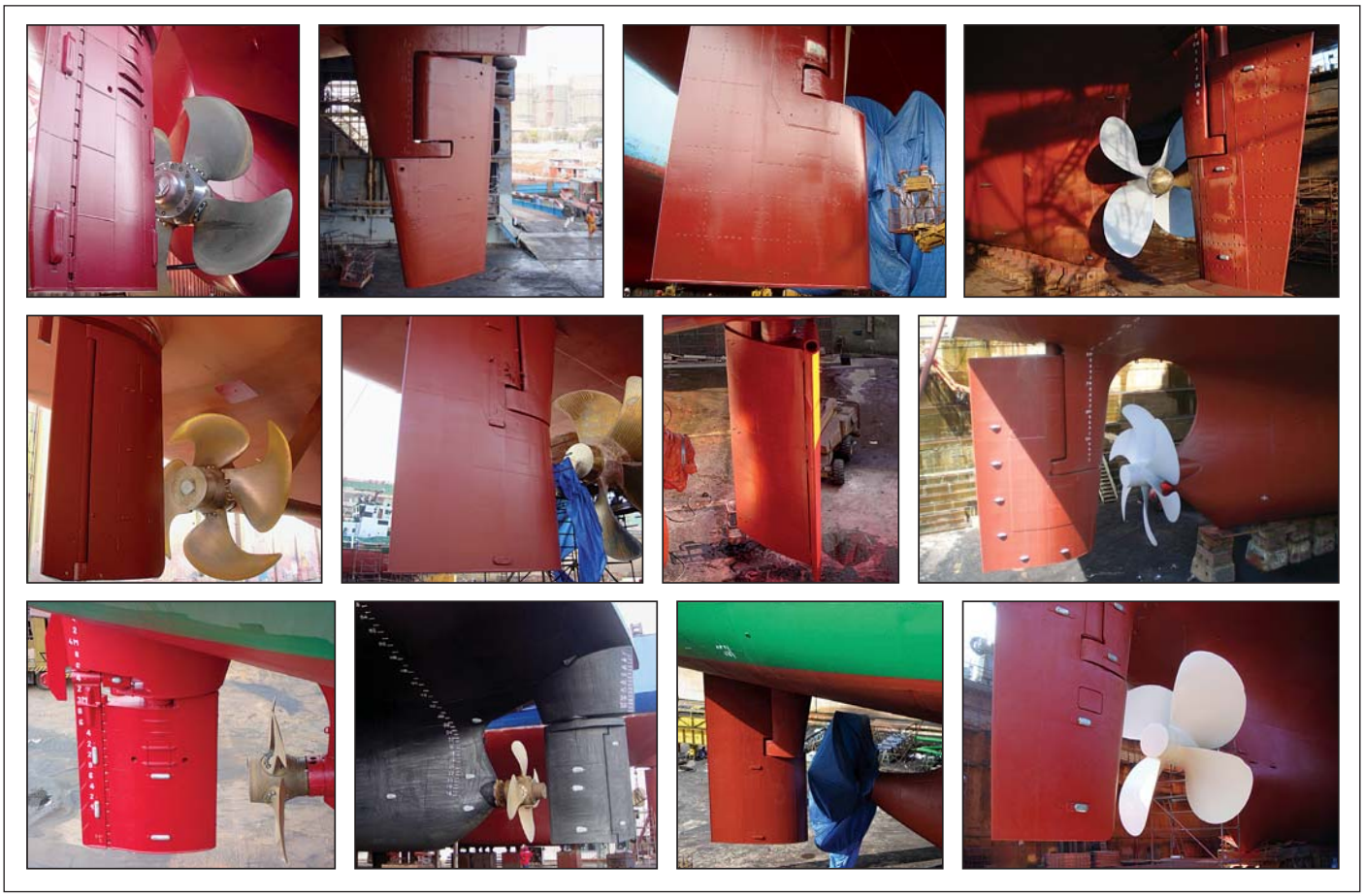

Lasting scrubber protection

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 will prevent corrosion damage and the resulting consequences. Ecospeed will protects the exterior outlets as well as the interiors of scrubbers for the lifetime of the vessel.

Outlets

Overboard pipes

Holding tanks

The actual scrubber

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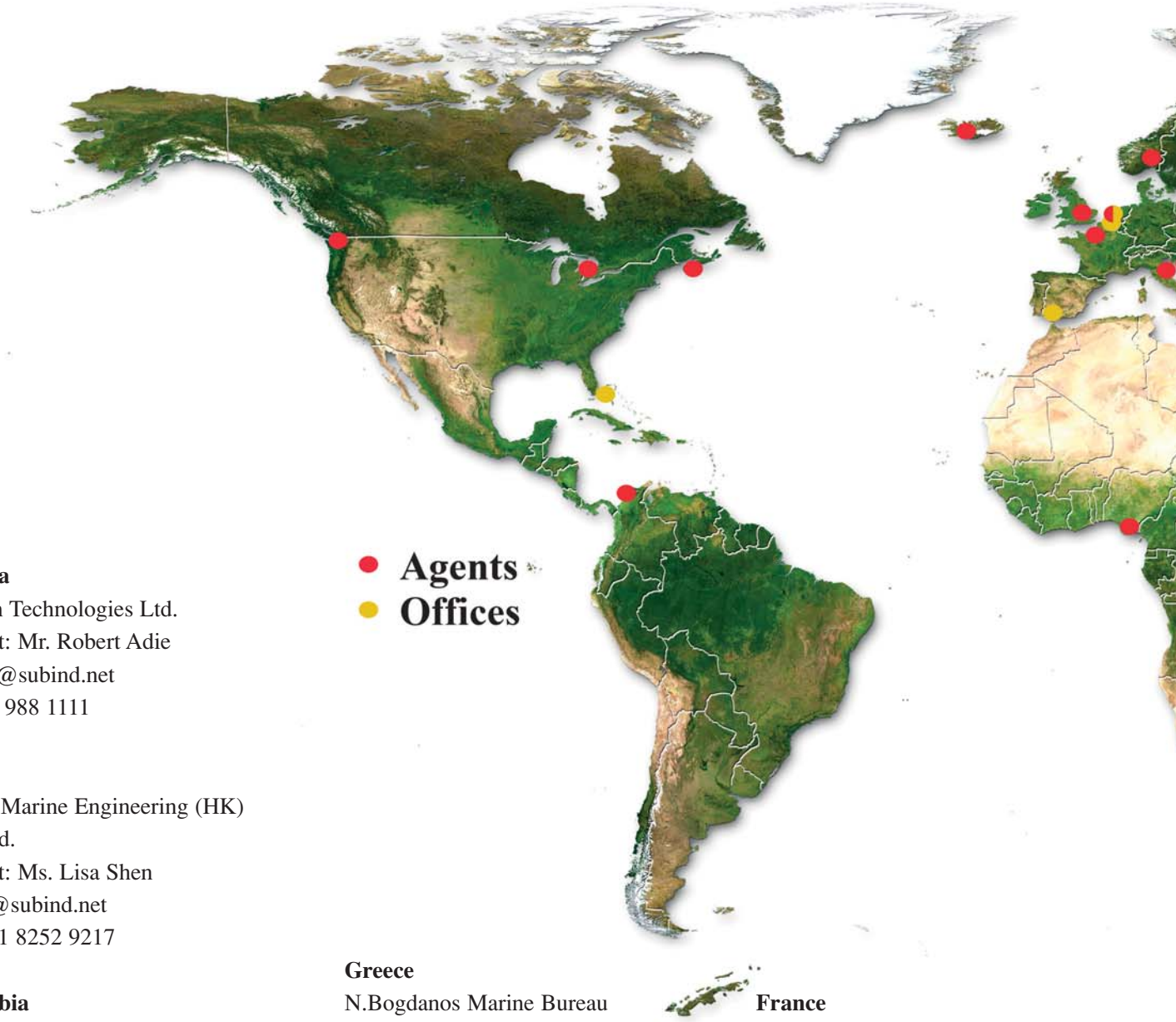
ECOSPEED®
SHIP HULL PERFORMANCE TECHNOLOGY

Worldwide net



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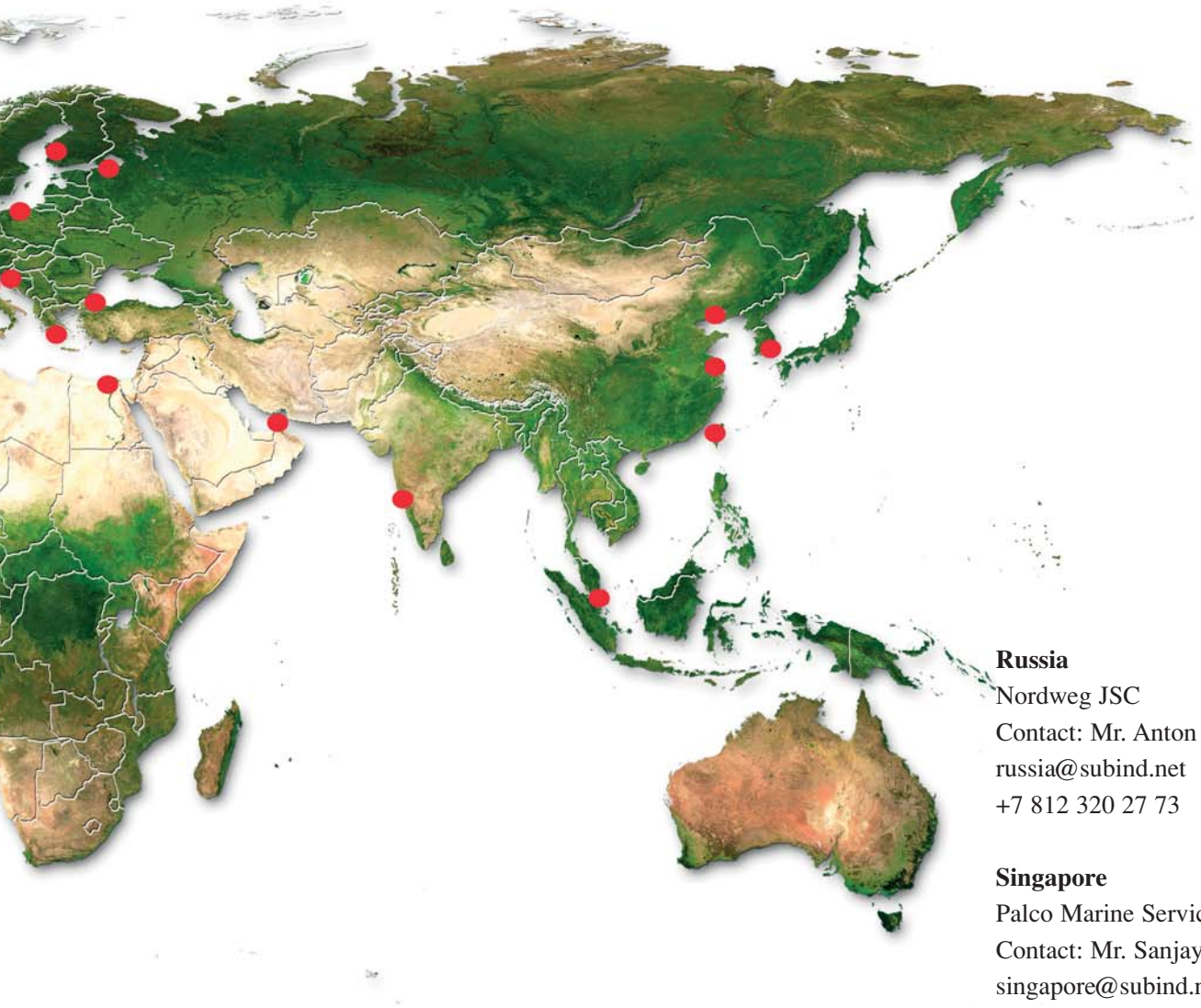

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SUBSEA

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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