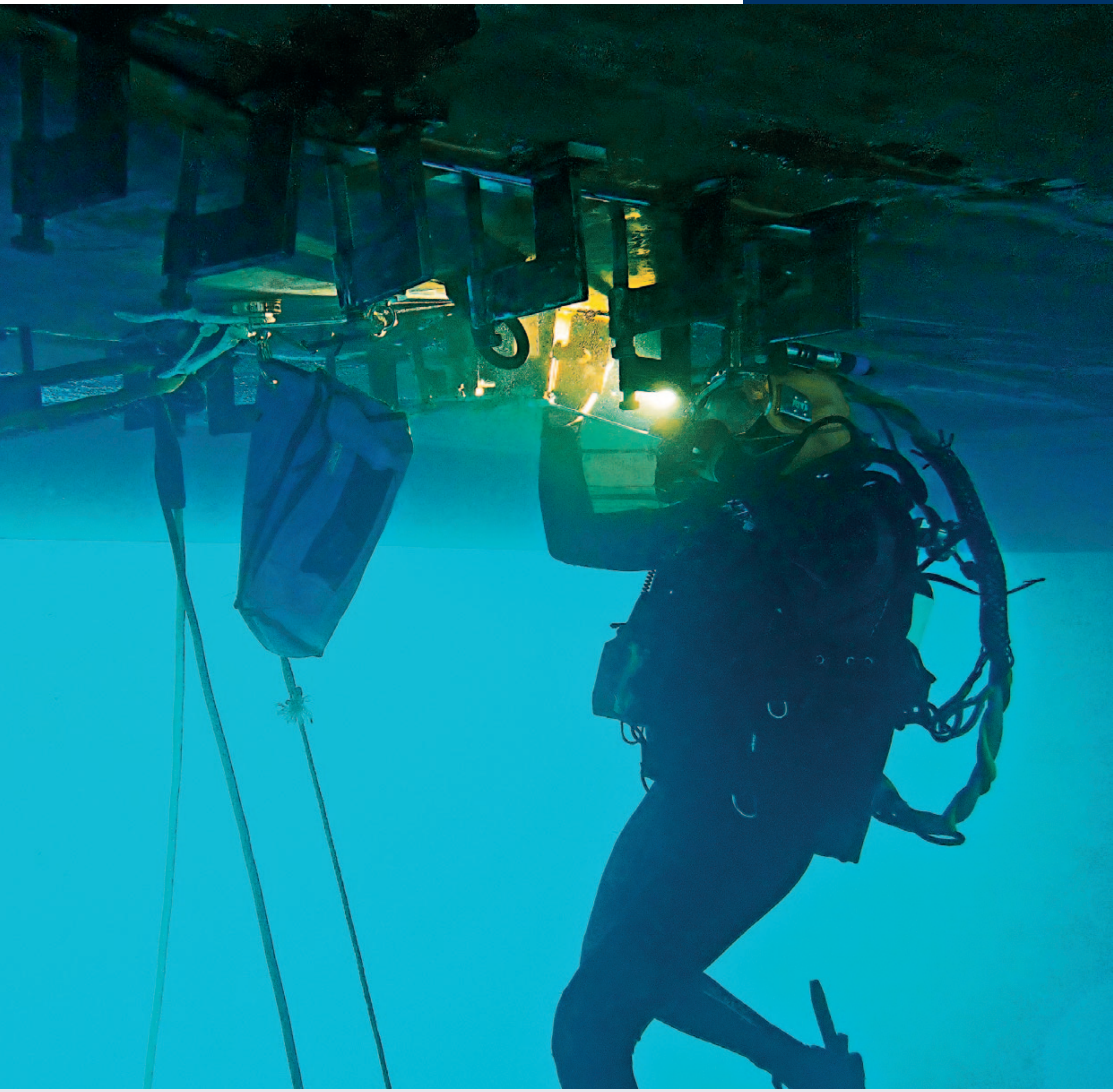
HYDREX®
UNDERWATER TECHNOLOGY

NEWS
LETTER | 348



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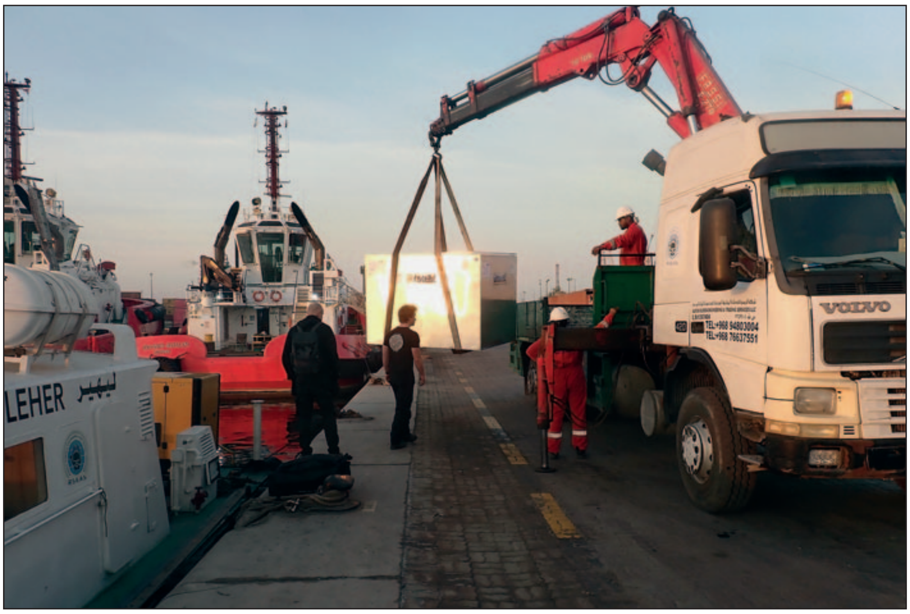
Temporary doubler plate installation saves owner costly emergency drydock

When a roro ship at anchorage in Sohar, Oman, was found to have severe damage to its bottom hull plating after a grounding, the owner faced a familiar problem: arrange an unplanned, high-cost drydock visit, or find a way to keep the ship operational until the next scheduled drydocking. He contacted us to find a solution and, true to our reputation, we did. Our proposal included fast, safe, and fully class-approved temporary repair work carried out entirely underwater. The owner gladly accepted.



Hydrex equipment being loaded onto workboat in Sohar.

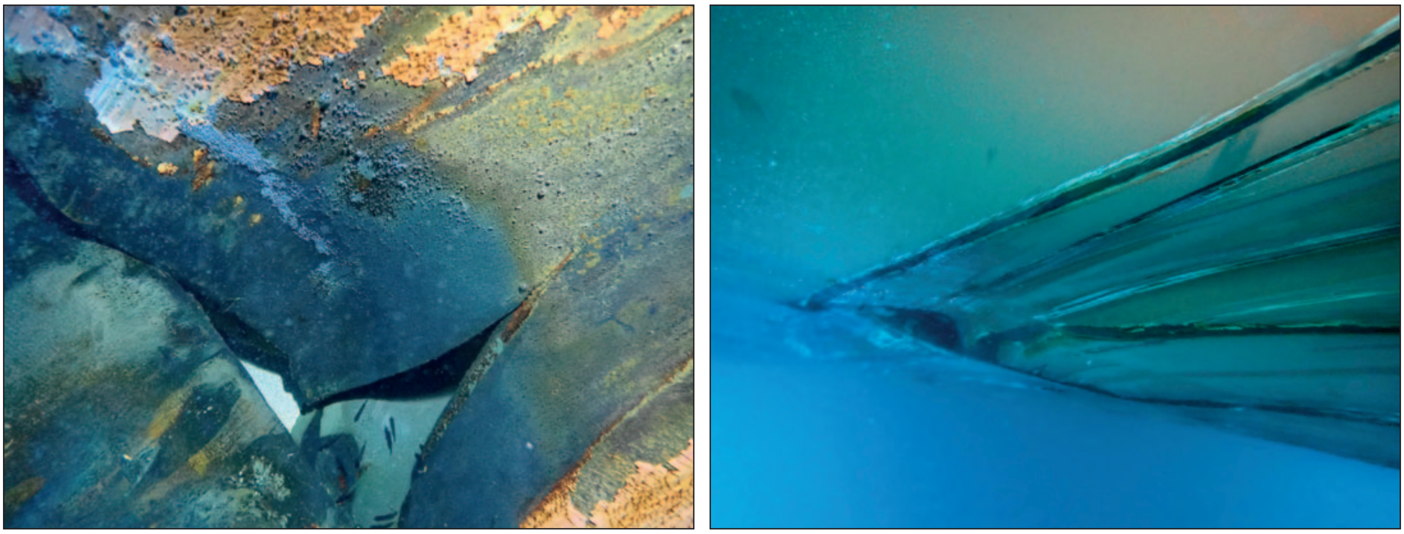
In mid-November, one of our diving teams mobilized to the vessel's location in Sohar. Working from a dedicated workboat carrying all our necessary equipment, our technicians performed an underwater inspection that confirmed tearing in the hull plating at frame 124 on the starboard side. The damage required immediate attention to prevent further cracking and to ensure the vessel could continue operating safely.

A controlled, class-approved temporary solution

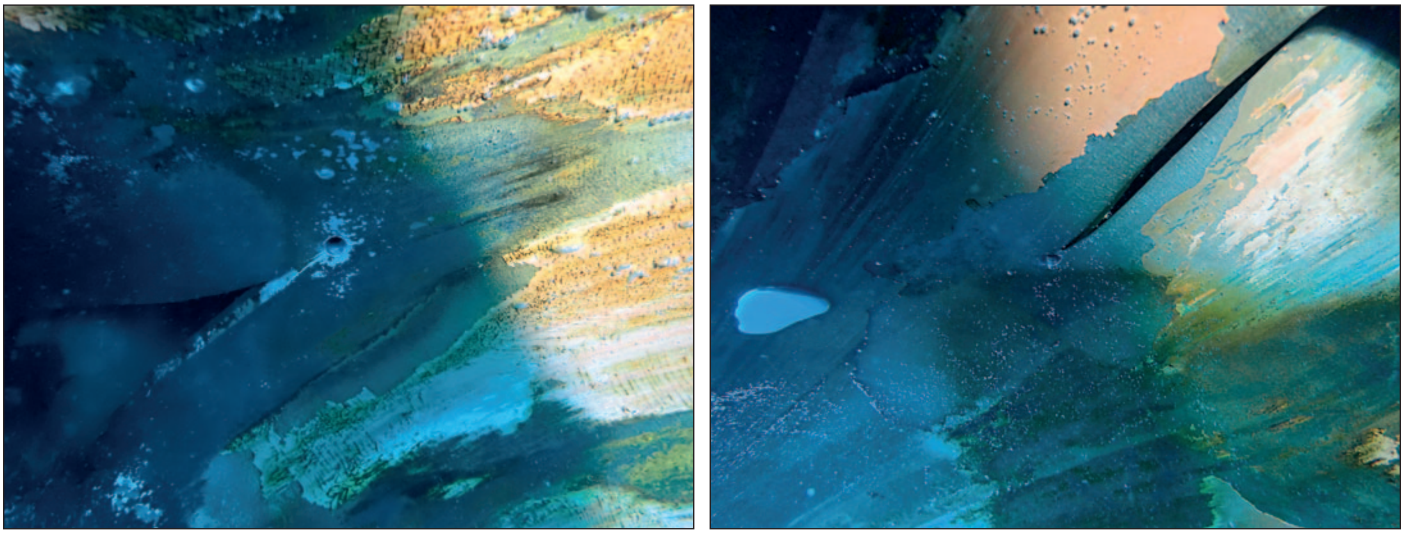
To stabilize the affected area, our team first drilled crack-arrest holes at the extremities of the tear. This prevented further spreading of the damage. This was an essential step before any protective structure could be installed.

After thoroughly cleaning the hull surface, the divers positioned a tailor-made steel doubler plate measuring 2000 × 1225 mm and 8 mm thick

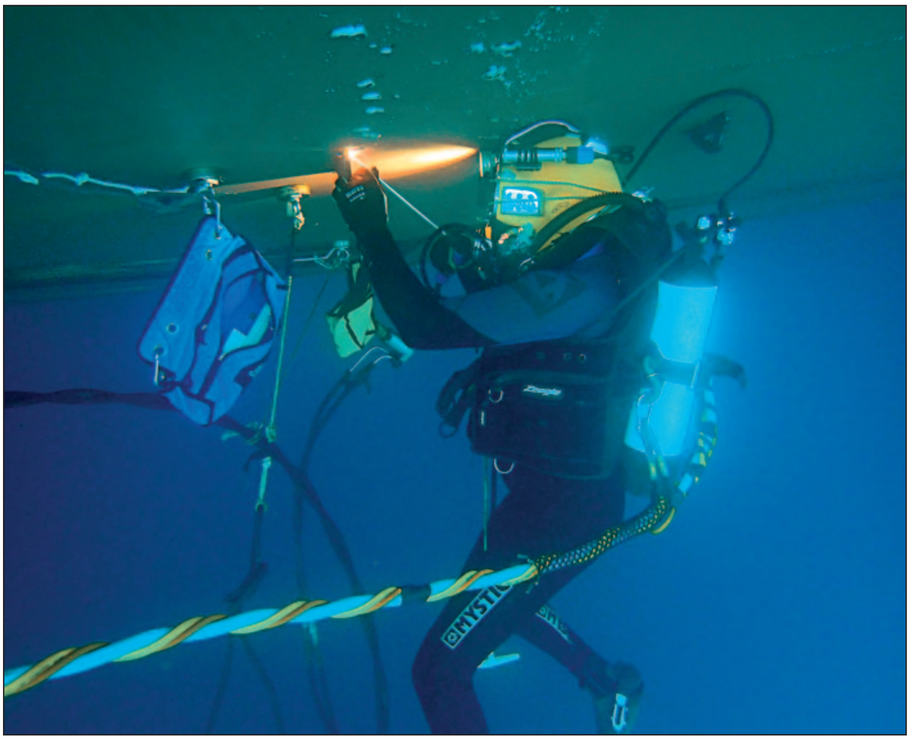
Sailing towards the ship at anchorage in Oman.



Severe grounding damage on the bottom hull plating of the roro ship.



Crack arrests were drilled at the extremities of the tearing.



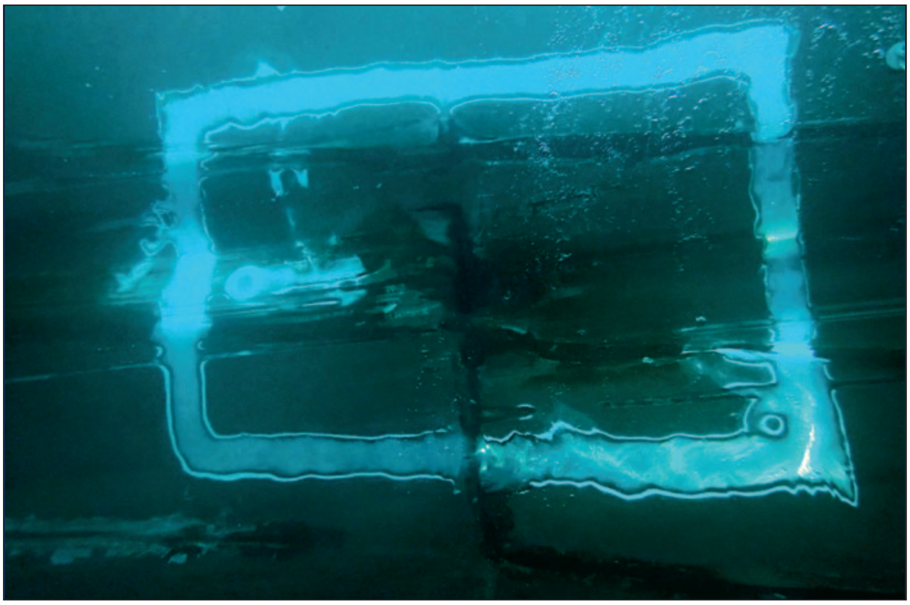
Hydrex diver installing pad-eyes on the bottom plating.

over the damaged area. The plate was secured using screw dogs before being fully welded to the hull. This provided a solid and watertight connection. A protective epoxy coating was then applied to safeguard the repair.

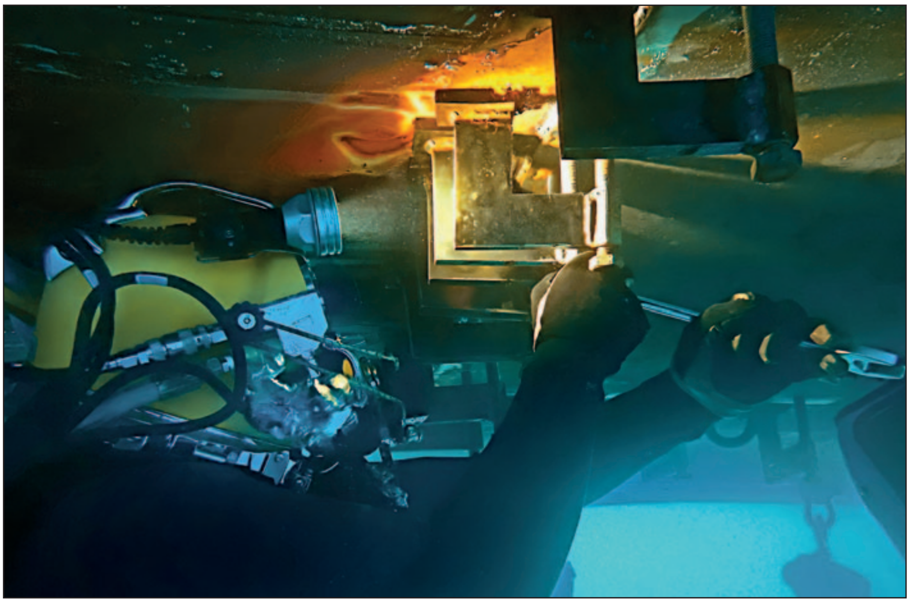
All work was completed smoothly within a two-day operation window, allowing the vessel to remain at anchorage and resume its schedule without interruption.

Avoiding disruption and gaining control

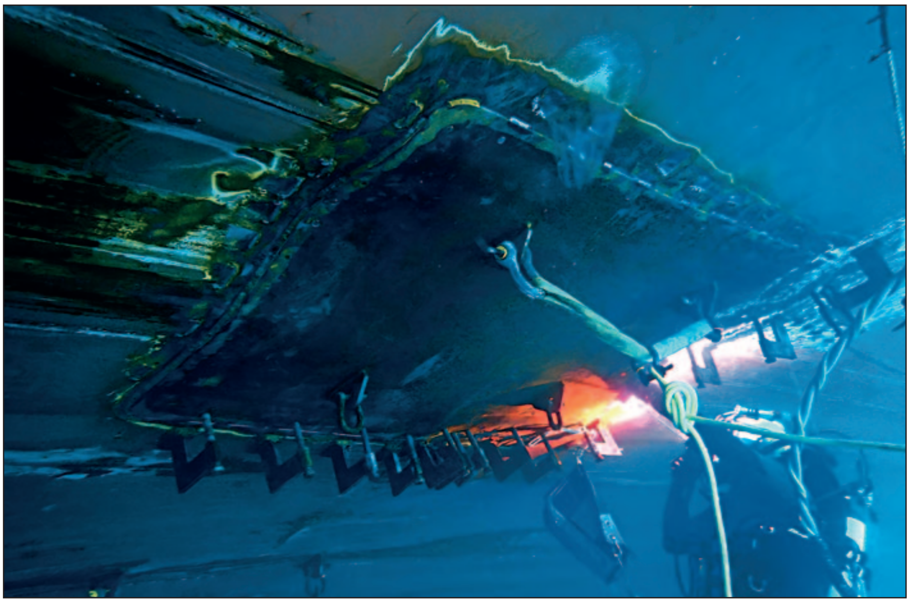
As a result of this operation the owner avoided an unplanned drydocking, along with the associated



The surface where the doubler was to be installed was first cleaned.

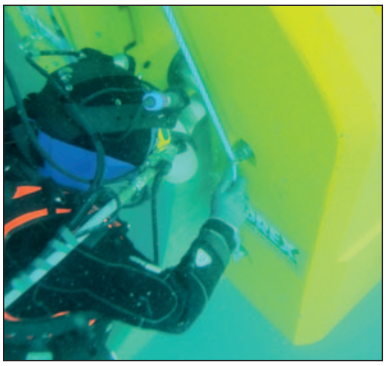


Screw dogs were used to secure the doubler plate during welding.



Hydrex diver performing underwater welding in Oman.

Fast underwater propeller blade straightening



In its quest to provide cost effective services to customers, Hydrex developed procedures to address different kinds of damage to propellers. This research led to the design of the Hydrex cold straightening machines first used in 2002.

By taking advantage of this technique damaged blades can be straightened underwater, allowing the ship to return to commercial operations without the need to drydock. Blades can be brought back close to their original form, restoring the propeller's optimum efficiency.

The cold straightening machines have been in use for quite some time now but the Hydrex research department has been looking into ways to expand the technique even further to improve our services. A new version of the straightening machine was recently put into practice. It is compatible with the existing models and is used to restore more severely bent propeller blades to their original condition.

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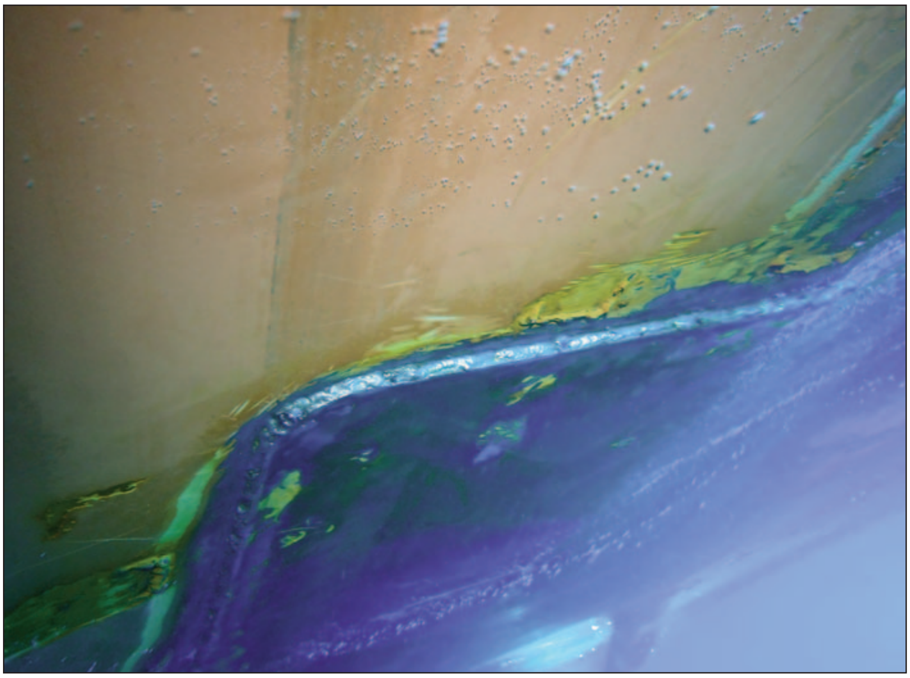

Doubler plate after welding. The ship can now sail safely until the next scheduled docking.

costs, logistical challenges, and operational delays.

Instead, the vessel was able to continue trading safely and efficiently. The temporary doubler plate will remain secure until a permanent repair can be carried out during the vessel's next planned drydock at a time and location chosen by the owner. This allows him to keep full control over budget, scheduling, and yard selection.

This flexibility is exactly what many operators seek when unexpected underwater damage occurs. Our rapid response and ability to perform complex repairs entirely underwater means that emergency yard visits are not the only option.

Prepared for any situation

Whether it involves permanent repairs to a ship's hull or running gear, or temporary strengthening measures, our teams are equipped to intervene worldwide on short notice. As in this case, our goal is always the same: keep ships in service and allow owners to plan drydock visits on their own terms. ■

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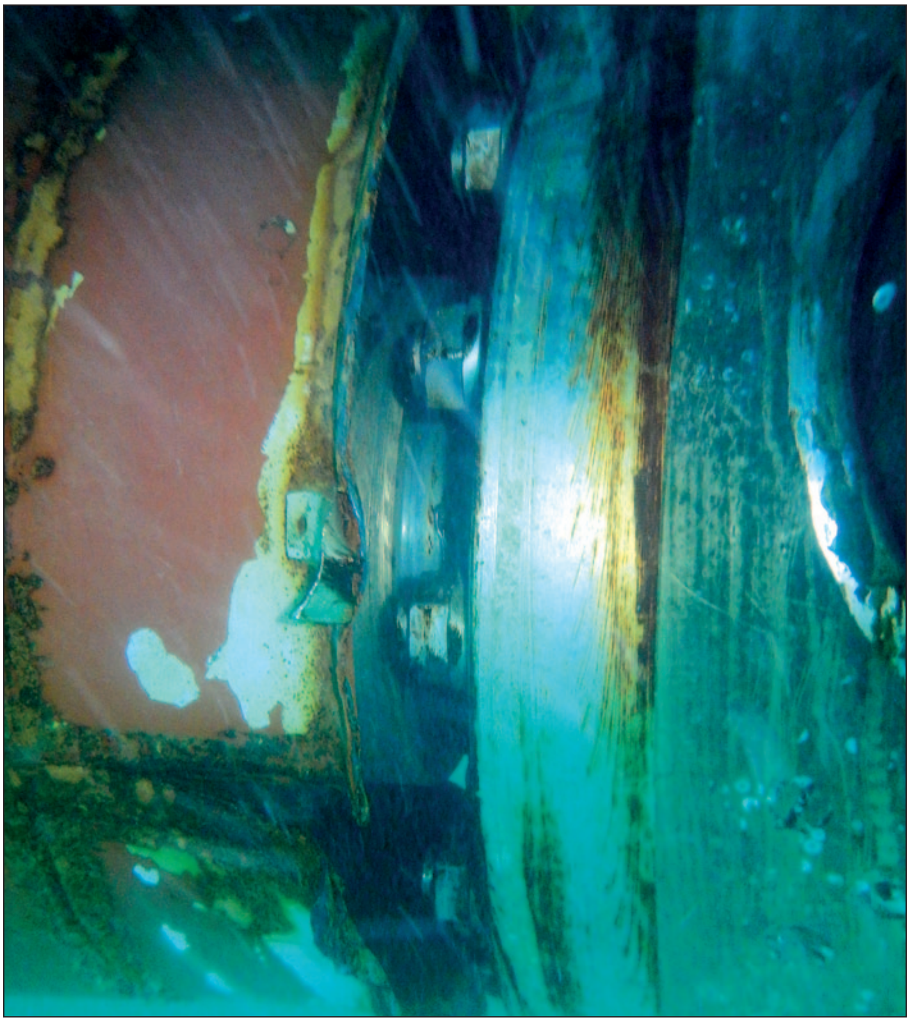
KEEPING SHIPS IN BUSINESS

A ship that needs repairs deserves the best, anywhere, anytime. We promise quality and deliver it.

Complete renewal of stern tube assembly allows passage through Panama Canal

When a steel wire got stuck in the stern tube seal assembly of a vessel, it experienced a severe oil leak. The ship needed to pass through the Panama Canal to reach its next destination, but the leak had to be repaired before it was allowed to do so. We flew in a diving team immediately to carry out a fast underwater repair that would help the vessel continue its schedule.



Severely deformed rope guard prior to removal.

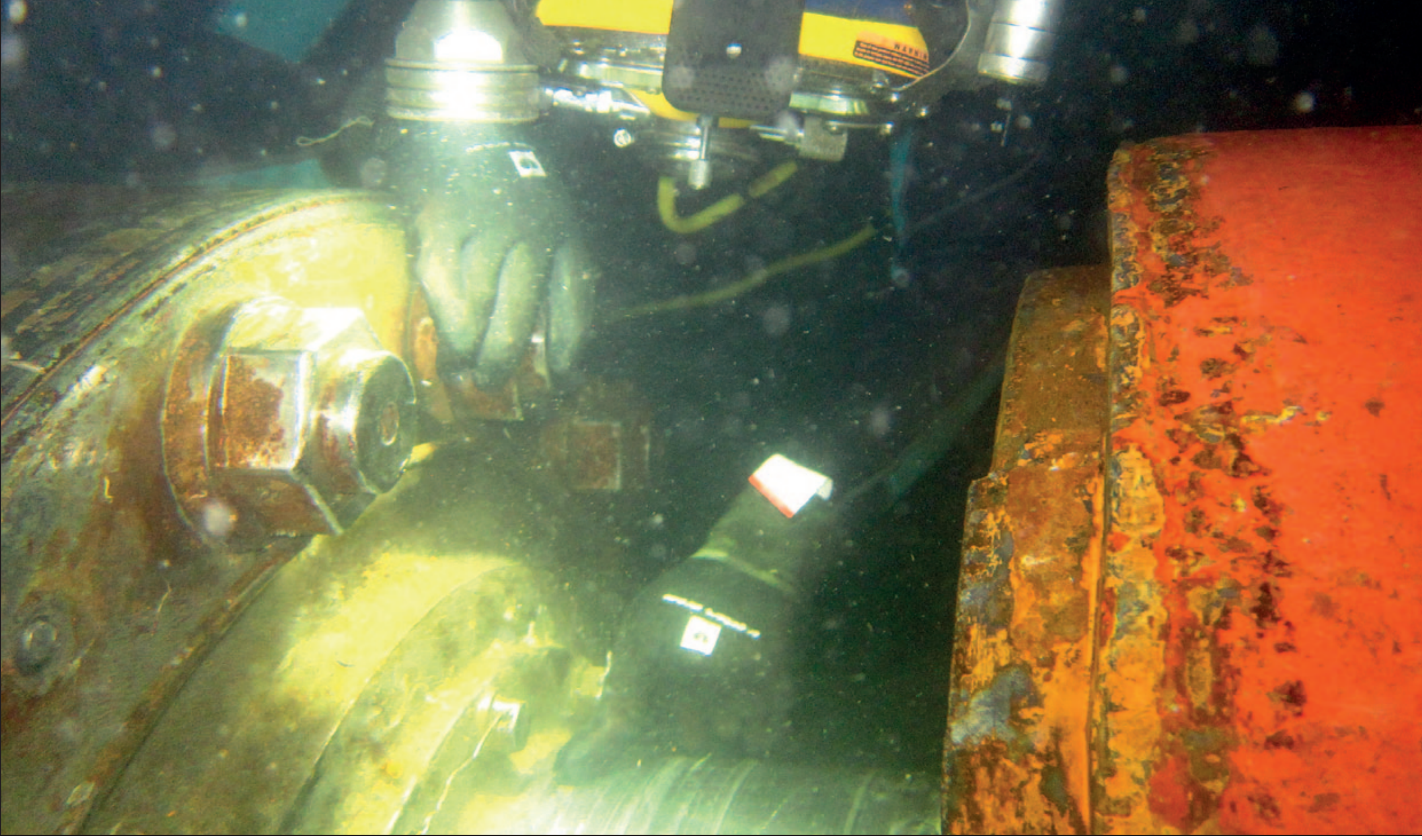
Our team arrived in Balboa, Panama, where the vessel lay at anchorage and sailed to the ship on a workboat loaded with all the equipment needed for the operation.

A thorough underwater inspection revealed that while the wire had been removed by a local diving company, the damage to the stern tube seal assembly was extensive. The rope guard was severely dented and the seal housing had been destroyed. Both needed to be completely replaced. Because the stern tube seal assembly consisted of a split type housing, our team could carry out the entire replacement underwater.

Oil leaking from the damaged seal housing.

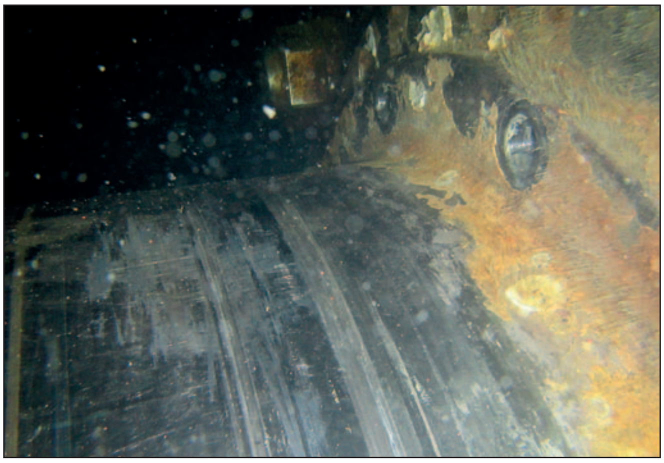
First they removed the affected parts. Because the seal assembly had already filled up with water due to the damage, the divers did this in the wet. Next they installed the flexible mobdock and created a dry working environment around the stern tube seal assembly. The team could then start installing the new housing.

The liner was replaced first, as this



Hydrex diver inspecting damaged liner and running marks of the seals.

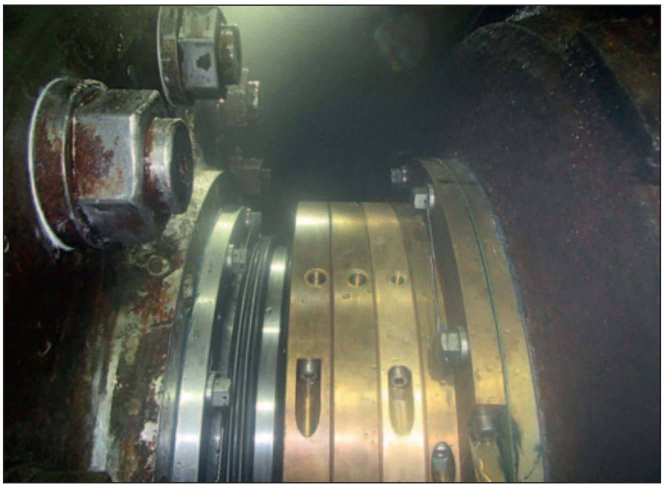
Damaged rope guard on workboat.



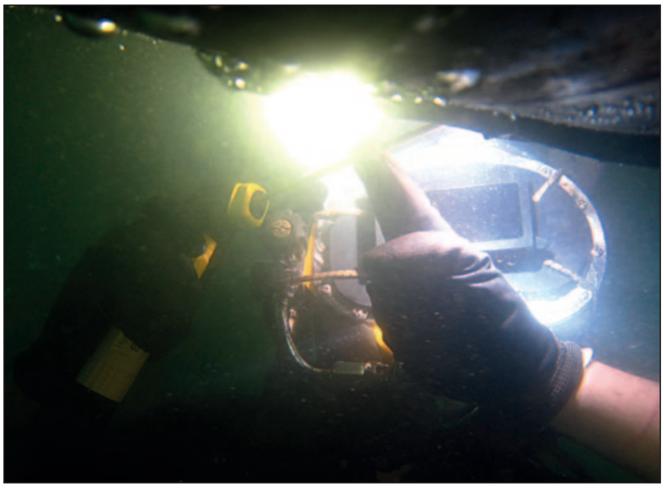
The liner needed to be replaced.

Newly installed liner.

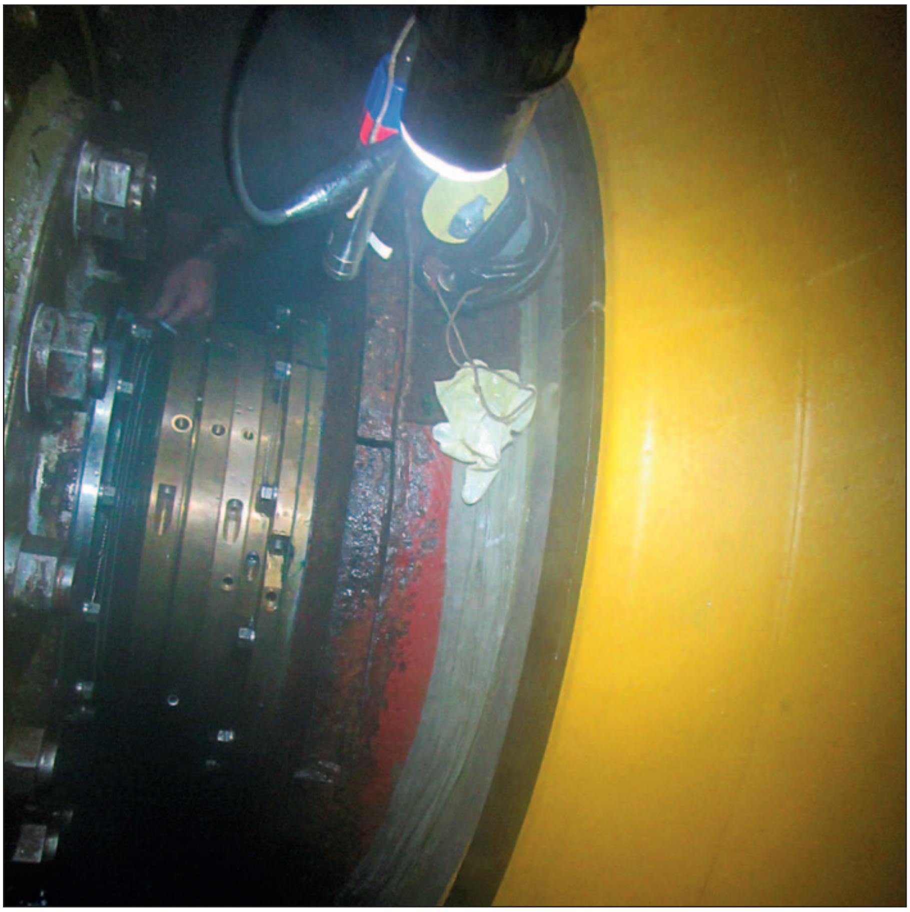
Hydrex diver/technician working on new stern tube seal housing inside our flexible mobdock.



New seals and housing after installation.



Hydrex diver performing welding on the new rope guard.



Finalizing the replacement in the dry working environment created by the flexible mobdock.

had also suffered damage from the steel wire. The diver/technicians then bonded the four new stern tube seals and installed the new housing.

All remaining parts of the stern tube seal assembly were then reinstalled and secured, including a new rope guard. A leakage test was carried out with positive results, after which the divers removed the flexible mobdock.

Conclusion

The operation was performed by our team in the same time frame as a regular stern tube seal replacement, despite the larger scope of work. Working together with our local support base, they worked in shifts to keep the down time to the absolute minimum for the vessel.

After the repair the owner could sail his vessel through the Panama Canal free of oil leaks towards the next stop on the schedule. ■

Hydrex has the technology that enables repairs to be done afloat and underwater on all types of seals. Using a Hydrex flexible mobdock, we create a dry underwater working environment around a stern tube seal assembly. This allows work to be performed in dry conditions. It offers shipowners a fast and hassle-free alternative to drydock, which was the only option prior to this technology.

Every Hydrex office has a fast response center equipped with all the latest facilities, equipment and tools. These centers were designed specifically to increase speed of service. The lightweight flexible mobdocks packed in flight containers allow for a very fast mobilization and a timely arrival of Hydrex teams on any location around the world with everything they need to successfully complete the job.