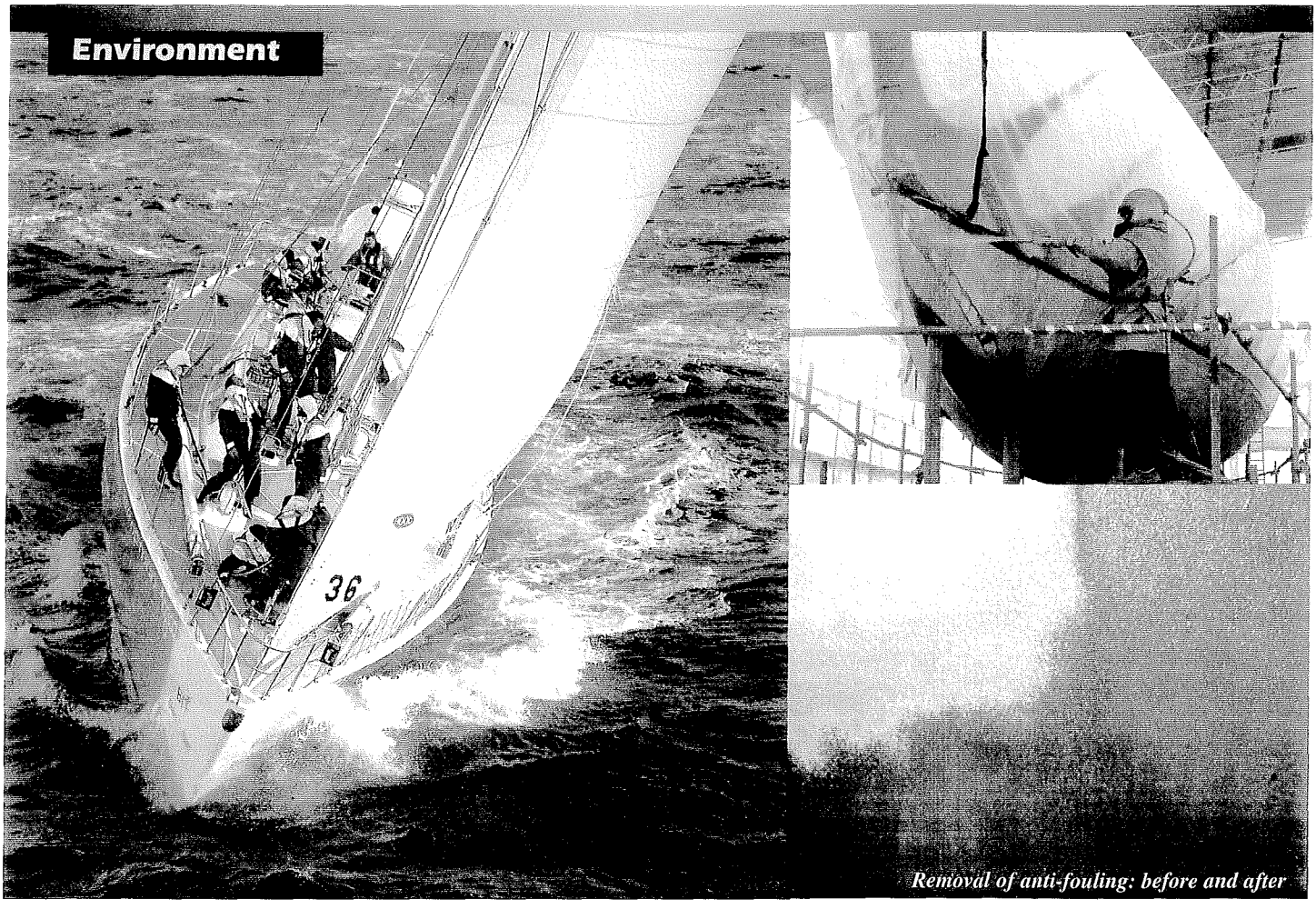

Removal of anti-fouling: before and after

200530

Recyled Glass for Grit Blasting

Challenge 72 ft 'Round the World' Race Yachts

Background information

Designed to withstand extreme weather conditions, the fleet of 12 Challenge 72ft Race Yachts were originally built to take part in the BT Global Challenge 2000-2001, dubbed 'the world's toughest yacht race'. Since then, the yachts have been raced by hundreds of people with a wide range of sailing skills for tens of thousands of miles in some of the toughest and most demanding of ocean conditions.

In preparation for the Global Challenge 2004-2005, the yachts were due to undergo an extensive refit programme including the removal of anti-fouling paint from their hulls. Bio-fouling (the unwanted growth of plants and animals on a ship's surface) is estimated to cost the shipping industry approximately £2 billion a year, largely due to the increased fuel consumption required to overcome hydrodynamic drag.

The main method of preventing bio-fouling is to paint a boat's hull with anti-fouling paint. From time to time, existing anti-fouling coatings need to be removed as they lose their effectiveness and new coatings applied. The main issue for yachts is that a build up of coatings leads to increased drag and a direct loss of performance.

Aim of the Work

The aim of the work was to remove the bio-fouling and previous coatings of anti-fouling paint from 12 yachts without damaging the hull's epoxy smoothing coat. The work was undertaken by K Blasting of Torbay, on behalf of the Challenge Business, using Ecoglass abrasive supplied by Fergusson Wild.

Technical data

Glass abrasive – made from recycled glass – is increasingly being recognised as a safe, environmentally responsible and cost effective alternative to the traditional abrasives used by the grit blast industry. Grit blast abrasives are used to clean and prepare a wide range of materials. This is achieved by firing the granular or powdered abrasive at material using high-pressure air or water. Glass abrasives can remove paint and corrosion from steelwork, clean masonry, renovate equipment, and restore woodwork as effectively and in many cases more successfully, than traditional abrasives such as copper slag, olivine, garnet or stonegrit.

K Blasting used a recycled glass abrasive – Ecoglass Fine (0.2-0.7mm) – at a rate of 10kg per square metre using standard blasting equipment. The underside of each yacht (an area of 110 square metres) was cleaned using a wet blast at 80-100 psi, which removed the antifouling without damaging the hull's epoxy smoothing coat. Around one tonne of glass abrasive was used on each yacht with the work being completed on each boat in a little over a day.

Results and benefits

In the past, "Dirk' grit (a slag produced by German power stations and imported into the UK) had been used for similar projects. This material is black and creates a black 'fallout' which could have affected domestic properties located near to the boat yard.

Ecoglass was chosen because of its light 'clean' colour and its excellent performance in tests, which enabled K Blasting to operate at a slightly lower pressure than usual. The glass abrasive used on the project cost around £1400.

Conclusions

The use of a glass abrasive enabled K Blasting to undertake a project in an environmentally sensitive location and to achieve the excellent surface finish required to meet the terms of their contract. The use of a glass abrasive replaced an imported slag, which would have been much dirtier to use and could have caused a nuisance to residents living nearby.

There is a plentiful supply of glass abrasive available nationally and their use does not require any major capital expenditure on new equipment. The raw material costs were comparable with other abrasives traditionally used by the grit blast industry.

Quote from K Blasting

"The performance of the glass abrasive has been excellent. We chose this blast media because it had the right density, it did not break down as quickly when used with water and it provided a clean surface finish. We have used glass for various applications for a number of years and would not hesitate to use it again in the future."

—Peter Kay, Director, K Blasting

Contact details:

K Blasting
Brocks Holt, Greenway Road,
Galmpton, Nr Brixham. Devon
Tel: 01803 844602

For more information on recycling programs in the United Kingdom, visit the WRAP web site at www.wrap.org.uk. WRAP's mission is to accelerate resource efficiency by creating efficient markets for recycled materials and products, while removing barriers to waste minimisation, re-use and recycling.

wrap
Creating markets for recycled resources