



Case study

Corrosion protection for Type 23 frigates

THE CHALLENGE

Regularly repairing hull damage due to galvanic corrosion is a time consuming and costly process. Modern naval platforms, such as the Royal Navy's Type 23 Frigate employ an Impressed Current Cathodic Protection (ICCP) system to suppress the cause of this damage. The extent of protection provided is dependent on a variety of factors, including human, environmental and system.

Frazer-Nash Consultancy was selected to perform an independent review of the ICCP system design and how it was being operated in day-to-day service across the ship class. The aim of this review was to identify any deficiencies, which could then be addressed to improve the protection of the hull.

OUR SOLUTION

Basing our approach around a root cause analysis, we focussed on collating first hand evidence including reviewing historic system performance data, holding detailed talks with the OEMs and operational staff and attending a dry dock inspection of the ship's hull.

Then, using our bespoke corrosion modelling code *FNREMUS* we assessed the effects of the various factors on the system performance. From our assessment, we were able to demonstrate to our client that the ICCP system was capable of providing the required protection during operations in a variety of extreme marine environments.

BENEFITS

Our structured approach allowed us to draw fact based conclusions on what were previously only observational hypotheses. We identified several areas where practical changes could be made to improve the way the ICCP system performed, and our expert advice will provided long term benefits to the MoD which include:

- ▶ Reduced operating costs
- ▶ Reduced maintenance time
- ▶ Improved corrosion protection
- ▶ Improved availability
- ▶ Improved system design
- ▶ Improved user training and understanding

Client

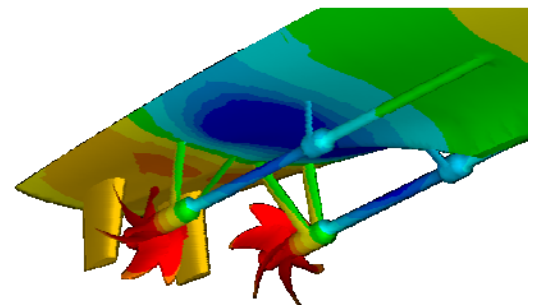
Ministry of Defence

Business need

Assess corrosion protection system to identify where financial and operational gains can be made

Why Frazer-Nash?

We have an established record of applying detailed system review and cutting-edge technical analysis to large scale, real world problems.



ICCP system: detailed modelling results

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