

Keep an eye on your hull

The art of monitoring hull performance to save the all important cost of fuel is explained by Propulsion Dynamic's Daniel Kane.

By monitoring hull performance in a proactive manner, owners and operators can save up to 10% on their fuel costs, Kane claimed.

He said that hull performance monitoring, both for long term and short term vessel operations, filled a gap in the methods of fuel conservation.

PD has developed CASPER, a hull monitoring system which analyses performance data while vessels were underway, isolating

the build up of ship resistance due to slime, fouling and corrosion.

CASPER is a web-based tool, which uses proprietary computerised mathematical models analysing ship resistance and propeller performance.

By analysing monthly reports, track changes in ship resistance and propulsion efficiency can be summarised in terms of speed and fuel penalties over a period of time. Kane claimed that by isolating hull and propeller resistance, the fuel consumption

implication become clear.

"The reports provide at-a-glance, tangible metrics so that fuel conservation, operations and maintenance departments understand with great clarity the effects of their decision on fuel conservation," Kane said.

He also explained that the CASPER technology had been in use for over 10 years analysing the performance of over 150 vessels.

Kane gave an example of an Aframax on which he said that the effect of slime would increase fuel consumption by 9%. Although this figure seemed high, he claimed that if an operator were to programme his ship to sail at the design speed and then closely monitor fuel consumption, he would notice the difference straight away.

He said that the key is to use a true speed analysis to compare the actual condition while on

voyage with that of the trials data. When on trials the ship's hull and propeller would be clean and smooth.

"By investing money in the drydock to re-establish a pristine hull surface, significant fuel savings can be made," Kane explained.

The graph, PD's 'time history of the added resistance', showed a tanker approaching its first drydocking schedule with 50% added resistance. This equates to a 1.6 kn loss of speed compared to the speed gained on trials, or 25 tonnes per day of extra fuel when steaming at the design speed of 16 kn. Each added a resistance figure to a specific speed and fuel penalty in relation to the trial trip.

Kane claimed that the effects of propeller and hull cleaning, the coating selection and drydocking are clearly shown by the changes in resistance.

Monitoring vessel efficiency

One company working closely with PD among others is Chevron.

Fleet technical manager Christopher Brown explained that the oil major operates 25 vessels, including crude oil and product tankers.

Many of the vessels operate in and around the US Gulf and the west coast of the US on lightering operations and short coastal runs.

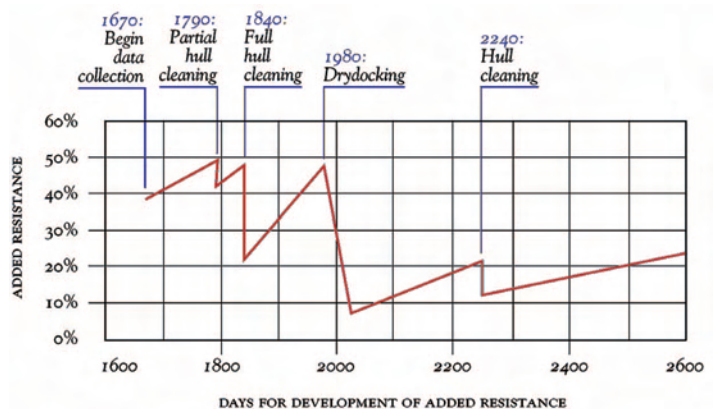
"We are interested in monitoring our vessels performance, not just so we can identify opportunities to save on bunker cost, but to ensure our ships emissions are minimised. We use PD and are pleased with the results," he said.

He also said that Chevron has worked with PD on several

'specialty' projects as well as general ones in efforts to better meet its customers needs.

At present Brown is working alongside North West Shelf Shipping Services, which operates nine LNGCs from the Australia's North West Shelf to Japan and has projects in South Korea and now China.

"Looking after vessel efficiency helps us optimise vessel scheduling, identify opportunities to optimise cargo delivered and reduce the impact on the environment," Brown added. One area currently being looked at with PD is the evaluation of silicon-based coating performance as clean hulls make for greater efficiency. ■



PD's time history of added resistance.

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