

Performance monitoring



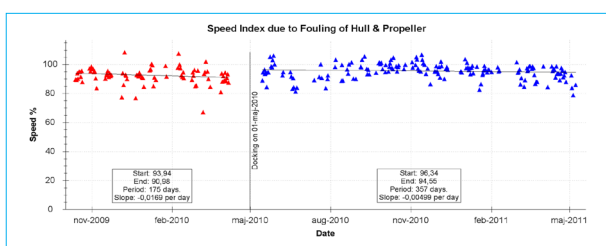
Fouling of the ship’s hull leads to added ship resistance and thus increase fuel consumption. The performance monitoring application, SeaTrend, provides the shipowner, technical manager or the ship operator with a tool to monitor the performance of his ship.

The performance assessment covers both the technical performance of the ship and the performance related to efficient voyage planning and execution.

SeaTrend® provides measures for continuous performance evaluation of:

- Hull and propeller fouling
- Charter party
- Voyage

The system provides functionality to capture and perform analysis on operational data in order to reduce fuel consumption and improve the overall fuel efficiency.



Main features

In general, the system consists of an onboard data reporting tool and a shore based web enabled database with reporting facilities.

Onboard windows tool application for reporting of the voyage related data, i.e. speed, fuel consumption, weather, etc.

Transfer of data to shore based database by e-mail.

Easy access to the web based report facility with all stored performance data (password protected).

Easy access to stored data and analysis reports via a web based solution.

Advanced hydrodynamical analysis for estimation of hull- and propeller fouling .

The reports are viewed as PDF documents in a web-browser and may be printed or sent directly by email.

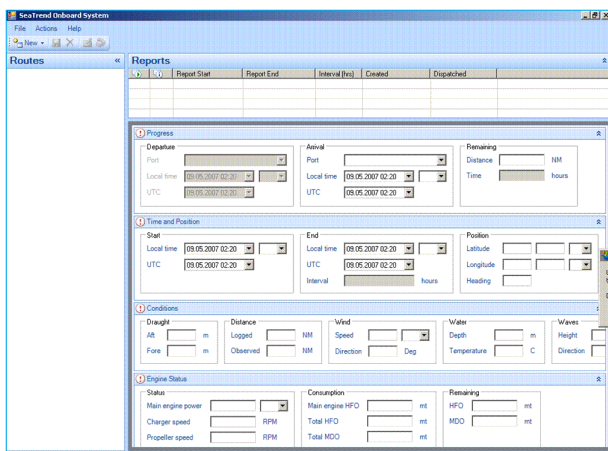
Fouling trend report contains a trend analysis of the fouling of hull and propeller. From this graph it is possible to determine the speed loss or fuel increase over time due to fouling.

Charter party analysis containing detailed and summary information for a single voyage and comparison of the reported data against the charter party.

Voyage summary report on a voyage-by-voyage basis, including parameters (distance made good, average speed, speed loss due to weather, fuel consumption, Co2 emission)

Onboard data reporting

As part of the system, the vessels will install a Windows application, 'SeaTrend Onboard', by which the vessel perform regular reporting, normally on a daily basis.



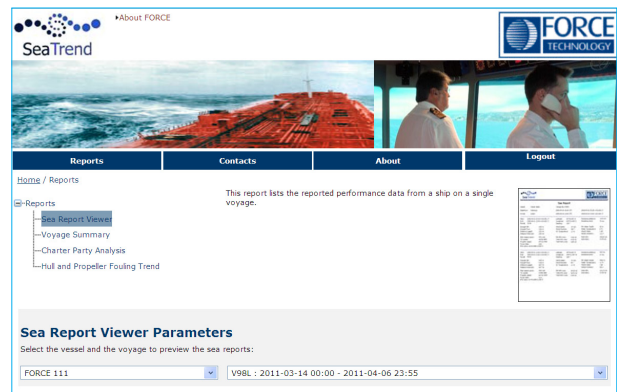
The system integrates with MS Outlook enabling easy transfer of data to the shore based database.

The vessel will report data for:

- Time and position
- Destination, remaining miles and ETA
- Vessel draught
- Distance sailed
- Wind speed and direction
- Wave height and direction
- Water depth and temperature
- Main engine power and RPM or fuel consumption
- Remaining fuel on board

Shore based analysis reports

Unlike most products for vessel performance analysis, this system is based on an advanced hydrodynamical model able to estimate the vessel performance (speed and fuel consumption) at any possible combination of the ship's loading condition and weather condition.



Screenshot from www.seatrend.dk

In order to verify the weather conditions as reported by the vessel, the system provides additional weather information obtained from a weather service company. This provides the operator with additional information on the vessel's performance which is useful when evaluating the charter party performance.

System availability

The system is provided as a service to the shipping company at an annual fee per vessel.

The system features are constantly improved, for instance by adding new analysis reports. The new features are made available to the customers on a regular basis at no cost, as they are considered as an integral part of the service.

Setting up the SeaTrend system includes the following four steps:

- The customer forwards ship details to FORCE
- FORCE create ship models and configure systems
- FORCE send CD's with ship's reporting system to customer and grants customer access to the web based shore application (www.Seatrend.dk)
- The ship's crew installs reporting system and commence reporting

Behind SeaTrend

SeaTrend has been developed by FORCE Technology offering hydrodynamical consultancy, services and products based on 50 years of experience.

The SeaTrend system is part of a product family with focus on fuel efficiency and safety. The other products are SeaPlanner for onboard voyage planning, SeaSense for onboard heavy weather guidance and SeaTrim for determination of optimum trim.

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Subject to change without notice