# Predictive Vessel Performance with Machine Learning

## Reduce excess fuel consumption, catch performance decay early and often, and improve improve fleet performance overall

Every vessel is unique. And the age, wear, trading pattern, and maintenance of individual vessels can vastly alter performance over time. As a result, the performance of sister ships can differ by 17% (or more) in a given year—based on a recent Nautilus study.

But to understand the unique capability of each vessel and their causes, you need more than manual, noon data (an error-prone, one-way window into the past). Nautilus Platform combines artificial intelligence with sensor data, environmental data, as well as physical factors unique to each ship—to predict how that vessel will perform in any weather or draft condition—for more accurate, real-time S&C curves, historical performance trends, and vessel marketing.

**Performance models—normalized for weather and draft conditions—and trained for real-time speed and consumption curves, historical performance trends, and better vessel marketing.**

### Speed & Consumption Performance History



Nautilus uses the historical sensor data of each ship to learn its unique performance behaviors (in any weather and draft condition) that are then applied to current or upcoming voyages for more accurate speed and consumption curves. These models are continuously trained over time and become more accurate with every leg and voyage.

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## Quickly determine the cause and the remedy for performance decay over time.

- Quickly detect and act on changes in efficiency/performance
- View normalized performance over time
- Understand and isolate the root cause (hull vs. propeller) of performance decay
- Accurately predict and schedule maintenance events
- Compare individual vessel performance with sister ships, class average, or full fleet

Nautilus Platform provides machine learning models that become more accurate— with every leg and voyage. Clients can access these models for a ship's individual performance (or that performance against the full fleet). If there is a change in vessel behavior that diverges from a given model, users can easily take action to communicate, correct or adjust.

## Hull Performance History
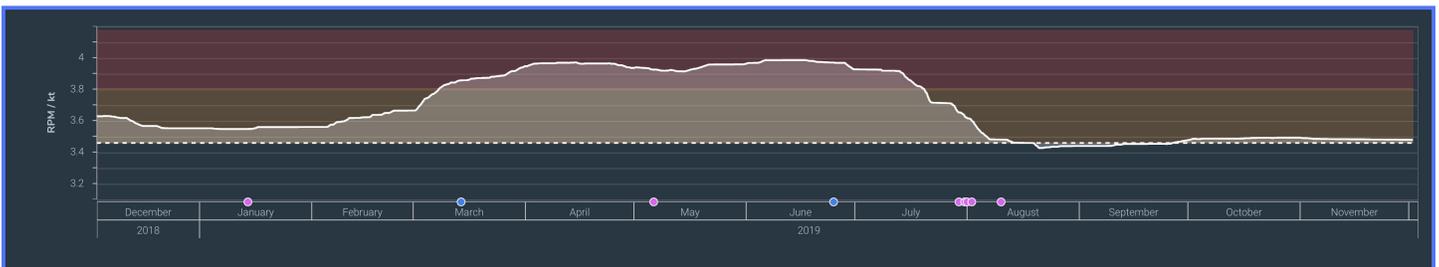


## Propeller Performance History