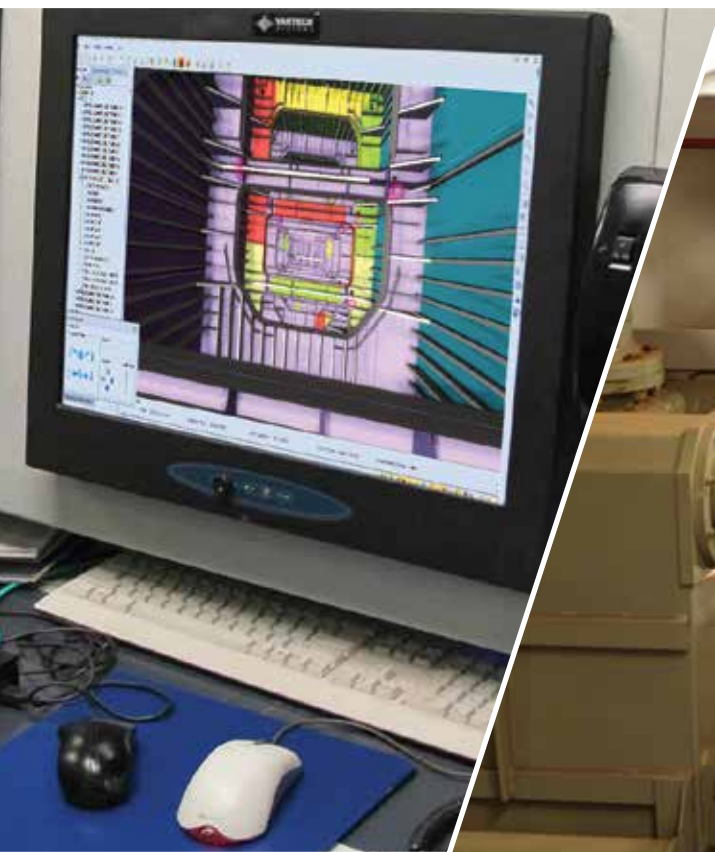




# Asset Integrity Management

Technical Solutions for  
Operational Challenges





# Providing Programs to Bolster Assets



As pioneering technologies gain a foothold in the offshore and marine industries, ABS will continue to integrate traditional class services with innovative concepts and products to better match clients' needs and expectations.

Proper asset integrity management relies on the ability of an asset to perform its required function efficiently, while protecting health, safety and the environment throughout the course of its entire life cycle.

Clients require forward-thinking class concepts that can foster improvement, not only on the traditional focus of safety, but in helping maintain assets while improving operability and performance.

ABS develops and establishes programs to help owners and operators keep their assets "working" for as long as possible, safely, and with minimal disruption to operations. The breadth and scope of these goals are achieved by taking advantage of both the equipment and structural health data that is now increasingly prevalent on board modern marine and offshore assets.



# Maintenance for Asset Life Cycles



Reliability focused programs and practices are well established in many industries, including automotive, aviation, petrochemical, power and utility. Maritime owners and operators are beginning to incorporate risk and reliability driven programs to optimize integrity management strategies and maintain their vessels in class.

The ultimate result is a clearer understanding of an asset's condition and health as well as a means to keep maintenance and inspection plans evergreen. To achieve this goal, ABS applies a coordinated program of existing and refined tools, drawing upon a full range of capabilities.

Typical support services offered by the ABS Asset Integrity Management (AIM) team include developing customized survey plans for unique and novel assets, supporting class approval of advanced plans for comprehensive machinery and structural upkeep, developing a comprehensive inspection program for the maintenance of class, and assisting owners with gaining class approval for new or novel inspection, sensing and monitoring technologies.

ABS' AIM team strives to help owners and operators embrace a more collaborative process that takes full advantage of advanced programs for maintaining class.



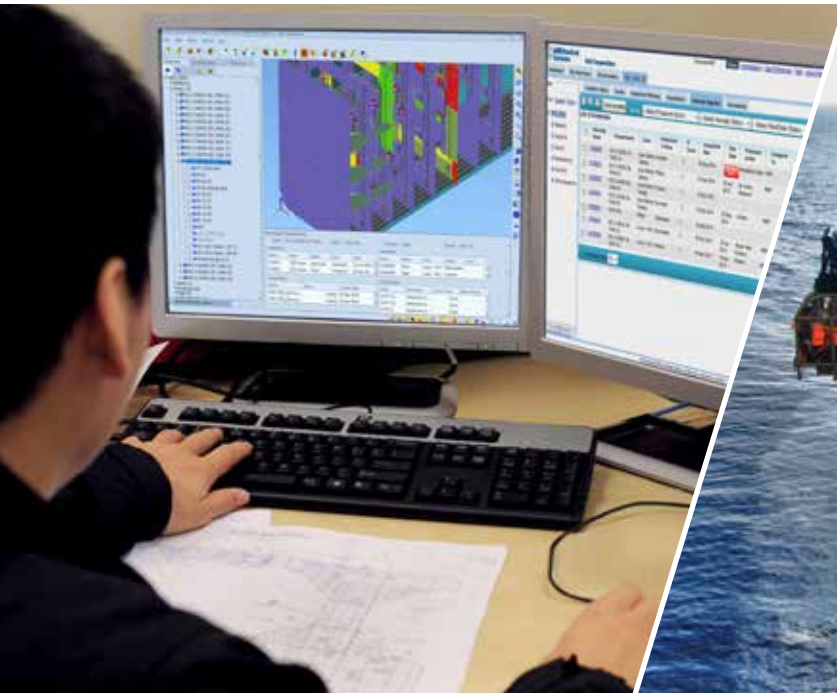
# Software to Enhance Hull Integrity

ABS develops software and tools to assist owners and operators with achieving a “best in class” management system for hull maintenance. The AIM team supports implementation of the hull integrity products that are part of the NS5 Enterprise software suite from Nautical Systems.

Recently, Nautical Systems expanded its Hull Inspection module with a new, three-dimensional add-on to the program’s core capability. The combined suite’s web-based and desktop functions enable vessel and central support teams to share information on fleet and vessel condition status.

The web-based module captures and records structural condition data, as well as managing inspection cycles that use scheduling and reporting capabilities. It provides 2-D graphical and interactive views of vessel compartments and critical areas, both on the vessel and in the shore offices. The tool integrates core facets of the inspection process, from scheduling through anomaly repair and repair verification, and from detection to resolution.

The software collects and preserves data and replicates the information to a centralized database for fleetwide trending.

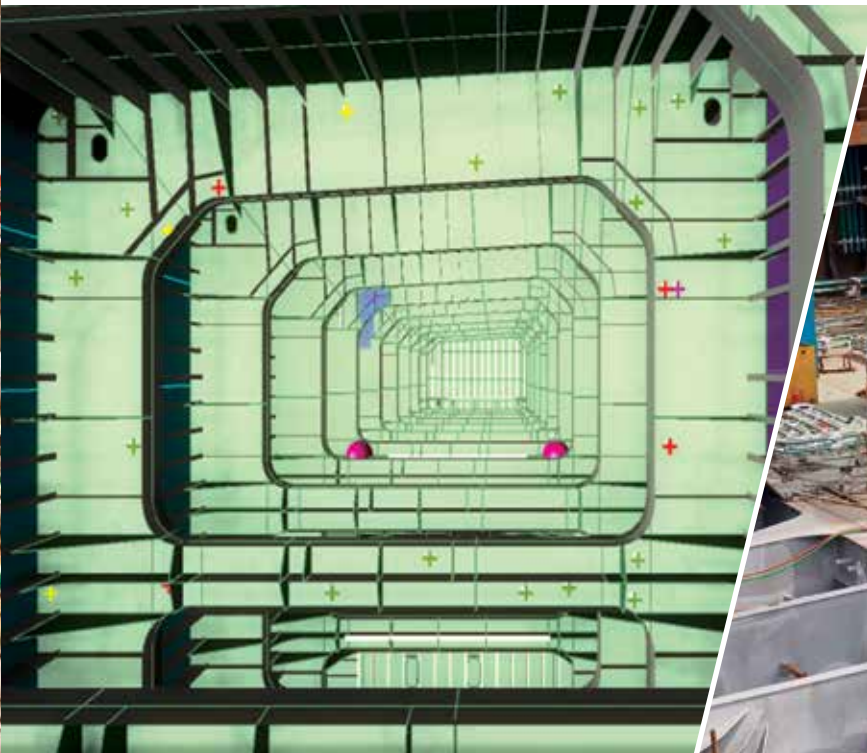


# 3-D Vision for Structural Tracking

The enhanced version for hull integrity management provides clients with new functionality to track the condition of their assets in a virtual 3-D environment. The 3-D version enhances the web tool's functionality providing the ability to assess the condition of the asset through life.

The 3-D tool turns a computer-aided design (CAD) model into a database capable of storing typical vessel condition information. The tool provides the capability to track ultrasonic thickness measurements and to mark up damage such as fractures or buckling and then plan and estimate the cost of repair in a virtual world.

The ABS AIM team provides a full range of support services related to structural integrity. These include customization of the above tools by incorporating key class information from the strength and fatigue assessment, inspection plan development support and assistance with best practice implementation, and setting up a class interface for sharing structural integrity management results with ABS survey staff to achieve a more streamlined survey program.





# New Practices for Machinery Integrity

Asset integrity management provides a platform for owners and operators to successfully operate and manage their assets. ABS supports the implementation of asset integrity software, including a computerized maintenance management system for monitoring and performance. This can provide significant value to the strategic management of asset health, in addition to meeting classification requirements.

The intent of a preventive maintenance program is for owners and operators to protect their vessels with updated machinery maintenance practices, which can increase a vessel's reliability and operational availability. Planned maintenance and condition monitoring may also be used to assist in meeting compliance with ABS' annual surveys of machinery.



## Linked Software to Increase Asset Functionality

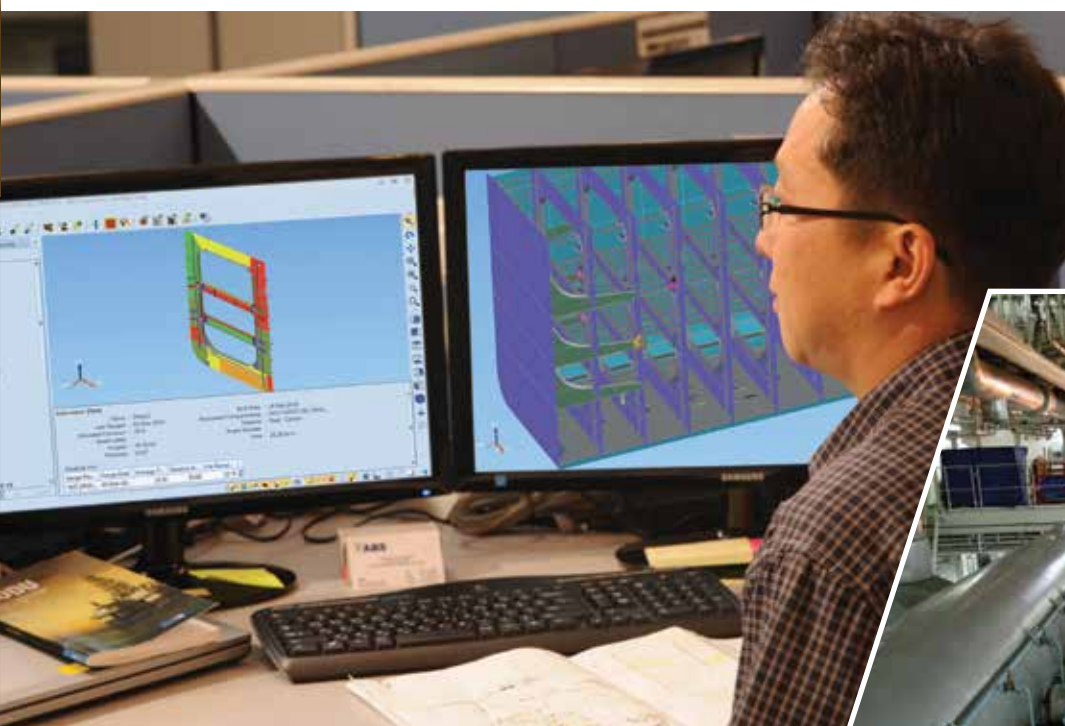
Designed to make asset management easier and more efficient, the NS5 Enterprise integrated suite of software modules covers the principal aspects of vessel operations, from regulatory requirements and crewing, to payroll, purchasing and planned maintenance. Nautical Systems offers distinct advantages for ABS classification with its interface to ABS Eagle Survey Manager, including linkage with the ABS configured planned maintenance and condition monitoring functionality and reporting.

# Streamlined Tools for Support

The ABS AIM team builds on the capabilities of the NS5 Enterprise software platform by providing technical guidance for product use and best practices. Clients are able to leverage their asset integrity management programs by transitioning equipment maintenance and reliability data into class survey requirements.

Clients are also able to take full advantage of the project management and reliability centered maintenance programs offered by ABS. These demonstrate the operator's commitment to manage reliable, efficient and effective machinery and systems; achieve operational excellence and profitability asset return on investment (ROI) through reduced mechanical downtime; and streamline survey process while mitigating the risk of service interruption.

The ABS AIM team assists in both the preparation requirements and submittal documentation, including tailoring client efforts to meet class programs, as well as matching and identifying the best-fit programs based on client maintenance strategy.







ABS Asset Performance Management services build on the benefits of classification, assisting owners and operators with evaluating and optimizing their assets for maximum performance from initial design to decommissioning.



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