NorthStar™ is an integrated management and advisory solution created by Fugro to monitor multiple data systems and improve the performance, efficiency and safety of floating production assets.

**INTRODUCTION**

Floating productions systems rely on accurate and timely information derived from diverse sensors and subsystems that collect and relay data about environmental, positional and structural conditions.

NorthStar™ integrates all of these data and presents them in a single, intuitive interface. Attuned to specific facilities and conditions, and benefiting from Fugro’s extensive in-house expertise and resources, NorthStar™ offers a unique and reliable asset-wide overview that contributes to the improved management of facilities, efficiency optimisation and contingency planning.

**APPLICATIONS**

- Floating Production Systems
- Exploration rigs, drillships and jack-ups
- Onshore and offshore terminals
- Heavy lift and pipelay vessels

**BENEFITS**

- Real-time access to integrated subsystem data
- Advanced warnings of potential operational and HSE risks
- Solutions for enhanced production
- Supports efficient and timely intervention and maintenance

Clear information displays improve decision-making during operations.
The primary aim of any team responsible for a Floating Production System (FPS) is to ensure that the vessel or structure is able to stay afloat and on station.

Fugro NorthStar™ combines information from systems that provide critical information about the location, heading, motion, stability and uprightness of assets, and on the position and condition of mooring lines, anchors, risers, cranes and other infrastructure.

Real-time integration of this data allows for comprehensive monitoring of the whole asset and through intelligent data sharing, provides opportunities for improving integrity management and detecting and predicting vulnerabilities, such as the deterioration of a mooring line, at an earlier stage.

NorthStar™ provides early detection and warning when design limits are exceeded or if a component has failed. In effect, it helps to avoid the potentially costly consequences of a critical system failure.

NorthStar™ collects and interprets data about meteorological and oceanographic influences on the integrity and operating conditions of an FPS.

Measurement, monitoring and forecasting services provide comprehensive insight into current, historical and anticipated environmental conditions at both key project stages and across the entire operational life of assets, as appropriate.

When fully informed of environmental conditions, operations can be planned and weather-critical activities sanctioned with confidence. To this end, NorthStar™ is able to capture and combine information on:

- Wind speed
- Temperature and humidity
- Air pressure
- Cloud height
- Visibility and present weather
- Wave and air gap
- Precipitation
- Currents
- Weather forecasting

Safe and efficient production depends on the effective and timely maintenance of surface and subsurface infrastructure.

NorthStar™ monitors and provides data on structural integrity, drawing comparisons between actual conditions and design criteria, and providing the knowledge required to deliver safe and effective maintenance and intervention programmes.

As structures reach the mid-to-end part of their operational life, maintenance becomes a decisive factor in managing obsolescence and ensuring that equipment and infrastructure continues to operate reliably.

NorthStar™ plays an important part in helping to manage resources, prioritise activities and ensure efficient, cost-effective maintenance over the long-term.

In addition, by positioning sensors out of load-path, Fugro is able to facilitate non-disruptive maintenance whenever it is feasible.
PRODUCTION OPTIMISATION

Production optimisation and efficiency are key to meeting operational and commercial objectives, but without access to the right information at the right time, this presents a real challenge for FPS operators.

NorthStar™ helps overcome this by integrating systems and subsystems, allowing components and software to be shared, and processes to be automated and controlled with greater efficiency.

Eliminating the need for multiple configurations of hardware and software not only helps reduce costs and streamline operations, but provides the opportunity to coordinate and manage the entire asset.

NorthStar™ enables operators to make quick, informed decisions and resolve potential issues before they become problematic, reducing unplanned downtime.

ASSET-SPECIFIC SOLUTIONS

NorthStar™ integrates with your existing databases and systems and with Fugro’s own proprietal recording and reporting hardware and software to provide a comprehensive range of data presentation options that meet your particular requirements.

The system is completely modular, allowing users to select and combine the monitoring and recording options that suit their specific assets and operations. The system can also be modified and augmented with relative ease as circumstances change.

By providing all data with a common time-stamp, NorthStar™ creates a fully auditable history of data recording.
Fugro has provided an FPSO located off West Africa with a NorthStar™ system that integrates and manages the data flow and presentation from a number of Fugro supplied system components, including:

An Environmental Monitoring System that collects data on metocean conditions such as wind, waves, current profile, temperature, soliton events etc.

A Helideck Monitoring System that monitors and ensures safe operational conditions for helicopter landing operations.

A DGNSS based excursion monitoring system to monitor the asset’s station-keeping,

An Anchor Line Angle Monitoring System that monitors the health status and movements of the anchor lines,

Fugro’s PilotStar berthing aid system to assist the offloading tanker operations.

Fugro’s weather forecasting services are also being fed into the NorthStar system to aid the overall decision making process.

Where required, data is being shared between the system components and, at the same time, all available data is properly stored for data analysis purposes.