



# Maritime Innovations

Special report dealing with the latest marine developments

**R**ecent circumstances globally have put pressure on the marine industry to redouble its efforts to develop new approaches to new and existing problems, and improve design and development of existing equipments and systems.

The need to address the issues of spiralling costs - brought about by the global economic downturn - whilst the requirement to protect the environment is ever present. In addition the security issues presented by the proliferation of piracy have all driven the thinkers and designers in the industry to come up with new ideas.

As is to be expected the Dutch marine industry is at the forefront of these innovations. Moreover many of these recent developments have received only limited publicity and so Holland Shipbuilding have taken the decision to dedicate an article to some of these advances. In this issue we will be dealing with a completely new approach to anti piracy measures, developments in administration software, developments that aid the search for and recovery of sub sea oil, wind energy and green engineering.

## The P-trap Anti-piracy measures

Piracy has become a serious threat to the shipping industry in recent years. The effects are far reaching in terms of ransoms, increased insurance premiums, additional salary payments (danger money) and equipping vessels to deter such

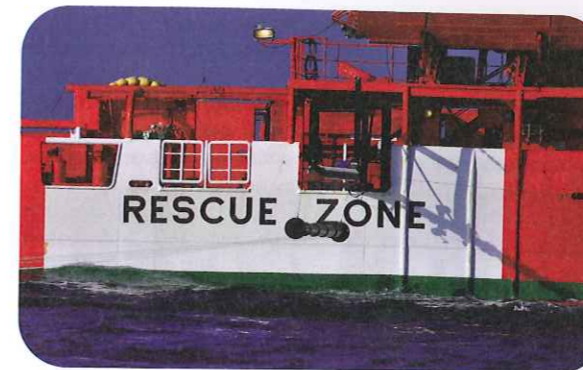
activities. Then of course there is a moral question with respect to arming vessels to defend themselves. Moreover the increasingly ambitious distances the pirates are prepared to undertake to strike at vessels, is subjecting more shipping to the possibility of attack. The recent development of adopting a mother vessel philosophy is particularly alarming.

### Passive deterrents

A passive deterrent is therefore the potential solution to many if not all of these aspects. Such a passive solution is the P-Trap recently developed by Lodewijk Westerbeek van Eerten. The system consists of two booms which are attached to the flanks of large ships, one either side.

The booms, which are installed toward the bow of the vessel thus giving optimum coverage, trail an array of twelve fine ropes down the sides of the vessel and out behind it in its wake.

The ropes are a relatively thin gauge and as such are to all intents and purposes invisible to the raiders. Their aim is to foul the propellers of the pirates boarding vessel before they have the chance to come alongside. This is done by immobilising them by means of stalling the engine or overloading and breaking the shear pin connecting the propeller drive. The ropes are designed to part once they have been struck leaving the stricken boarding vessel immobile in the wake of its intended victim.



### Simple installation and cost savings

The system, which is relatively light weight and easy to install, can be fitted to any vessel and is expected to cost in the region of 50,000 to 75,000 euro as compared to 120,000 euro for armed guards.

### Recent Trials

The P-trap has recently been trialed by the Royal Navy of the Netherlands, the Coastguard and the Royal Netherlands Sea Rescue Institution and the results are understood to have been successful. The booms can be easily retracted by being hinged either vertically or horizontally for docking and manoeuvring situations.

### Ship Management Software

One of the often underestimated aspects of running a vessel is keeping the 'office' side current and up to date. Two Dutch companies that are dealing with differing aspects of this are Datema Delfzijl BV and Mastex Software, both of which are committed to developing and improving their products to exploit the latest advances in automatic data communication.

### Electronic Chart Management

Datema Delfzijl BV has recently introduced an automatic updating service for electronic nautical maps to support ECDIS equipped vessels. The principle of the service is that it deals automatically with the often overlooked issue of licensing electronic charts. The service is subscription based and upon taking out a subscription the vessel receives a worldwide folio of the latest chart permits valid for up to two months. Using this folio the vessel can install all the available charts into the vessels ECDIS system at their latest issue. At the same time the vessel is entered into (registered with) the systems tracking service that uses both the Iridium and Inmarsat satellite networks to track the vessels progress throughout the world. The vessel is then tracked with a minimum contact interval of 1.5 hours. Vessels are able to enrol on the service with existing licenses. When a vessel enters a cell outside its existing license the cell will be registered automatically by means of an advanced business-to-business link. The cells thus registered are invoiced periodically together with a monthly subscription. A new world folio of chart permits is issued on a regular basis and sent to the vessel for as long as the vessel continues to subscribe to the service. The system is capable of running on every type of ECDIS currently on the market. The obvious benefits of the system are the fact that the charts are always current and the flexibility of the system is ideally suited to last minute changes of route which can be easily accommodated. Only the cells that are used are charged so that, should a route be planned through a given cell, but due to a late change of route, the vessel avoids that cell it will not be charged. The cells validity can be optimised for 3, 6 or 12 months subject to usage and all bands of electronic charts are covered for that cell in the subscription. Furthermore the system is supported with a dedicated web platform that allows the ship owner to monitor all the activities of his fleet and an individual vessel. A given vessels permit



'consumption' can be analysed in detail, whilst reports on the current license status, and a detailed history of the ships position speed and course can also be created.

### Electronic Ship Management

Mastex Software has been focusing their activities on other aspects of ship management, in the form of their MXsuite software. In April 2010 they released their latest incarnation, which it is understood has many new features. In the marine industry, the software can be used on all kinds of sea-going vessels, including tug boats, inland vessels and yachts. However, whilst the software is primarily aimed at the shipping industry it is understood that it can also be used in the industrial sector. Planned maintenance, Inventory, Purchasing, Certificate Management, Docking, Crewing, Form & Document Control, and finally Budget Control are all administration aspects that can be controlled using this type of software.

### The latest version of the software includes:

The user can use the software to create a docking schedule tailored to conform to the vessels class requirements. For each docking period a list with docking tasks (a 'work list') can be created. Also financial information and agreements can be included as required.

In addition to the existing functionality of the inventory and purchase module in the previous version, an option is created to enter a yearly budget per financial group. An overview can be generated where the actual status of the budget is shown. The existing synchronization module has been improved with the benefit of complete email integration. Automatic synchronization and updating is now also possible using the email software of the communication providers, for example GlobeWireless and SkyFile.

In the shore side office it is possible to generate an overview of all certificates pertaining to any given vessel in the fleet and their expiring dates in a given period. Ensuring a rolling program can keep them current and up to date.

### Oil Industry developments

Due to the increased need for mineral resources, offshore companies more and more need to explore what is until now untouched areas, often in deeper waters and even under ice caps. Moreover currently accessible fields are being increasingly densely populated in the effort to recover the very last quantity available in that area. Conventional mooring systems utilizing anchors and anchor handling vessels are not practical in relatively shallow now congested fields due to the danger of dragging across pipelines and cables. Whilst conversely in deeper waters, the weight and difficulty of handling anchoring equipments also renders the traditional four-point moor less cost effective and somewhat impractical.

### Dynamic positioning

Vessels with true Dynamic Positioning (DP) capability are therefore becoming more attractive for these projects. Not only this, but the degree of accuracy now required and safe-