The safety of ships at sea has been an increasingly high profile subject in recent years, and despite some improvements in certain maritime sectors, the majority consensus is that much can still be done to improve the overall situation and that high technology simulator-based training can play an important role for the future. Johan de Jong, manager of MARIN's Nautical Centre MSCN, took up the theme of safety in a discussion with Alan Dickey for MARIN Report.

## MSCN's manoeuvres for

SCN's simulator expertise is increasingly in demand for safety training for a variety of maritime applications; one of the most recent examples reflects the shipping industry's on going love affair with increased manoeuvrability, as Johan de Jong explains.

## Manoeuvrability

"We've seen a number of examples where in the slipstream of the developments in new manoeuvring devices people tend to pay more attention to the skills of those who have to operate these sophisticated ships. It is recognised that better manoeuvrability does not necessarily mean easier manoeuvrability. And cruise ships are an excellent example of this with an increasing number now equipped with POD manoeuvring systems.

He continued: "PODs and azimuthing thrusters can make for far better than average manoeuvrability than ordinary ships, and it is a reality that personnel operating these systems have to learn how to use this capability."

He says that while some shipowners are conscious of this and often utilise simulators for training their officers, others are less respectful of the capabilities of new systems:

"It is surprising, but in some cases it may not be

normal practice for a crew to be specifically trained in such technology. When a newbuilding or the first of a series is launched, trials are an important factor. Yet it is not necessarily true that crews of the second or the third in a series will have hands on experience in this technology.

We've also found this to be true in the offshore sector and in the tug sector: given the high priority the regulatory authorities are now giving to safety at sea and to training in survival and related skills, it would seem important for owners to re-think training in terms of operating new systems and simulators are the ideal way for the industry to embrace these needs."

## **Dramatic developments**

De Jong notes that "there have been quite dramatic developments in tug manoeuvrability and capability due to the use of azimuthing thrusters or voithschneiders in combination with specific hull design." He says these new capabilities have more important and lasting implications, not just for the practice of escorting ocean going ships into ports, but also in respect of the actual design and physical dimensions of the ports themselves. And he argues that simulators are an important tool to ensure that the ports of tomorrow are very safe places for ships to visit.

"You can imagine that building a port requires, especially for larger vessels, extensive breakwaters to protect them from waves and currents: in building a new port at the feasibility or the fundamental port design stage. It has now become clear that if you make fast tugs for ship assistance outside the port entrance, then you can potentially shorten breakwater length. Where does an organisation like MSCN come in? Well, we can often prove during a port design project, but also during projects which focus on the capabilities of escorting LNG



# improved ship safety

Johan de Jong: "Much can still be done to improve the safety of ships."

or oil tankers, how the parameters of the project can change, and often quite dramatically, when tugs are added to the equation."

## Pure simulator tug training

He added: "We can often show ways of saving money, with significant implications from a port design point of view and from a port and shipping safety perspective. We've already gathered a lot of experience in this respect in Milford Haven, in the Firth of Forth and in Alaska in the wake of the Exxon Valdez incident. Pure simulator tug training is also growing in popularity and MSCN in Wageningen is a popular destination for the international tug community: "Given the number of people being familiar with this kind of training the number of trainees going into simulator tug training is now as high as it could be," comments De Jong.

"It is not the biggest part of our simulator business by any means, but it is growing. There are in this area a few specific challenges, such as how a tug operates in high waves. Outside a breakwater there is always a potential wave height problem for these comparatively small vessels. My feeling is that there's a need for research here in co-operation with MARIN to prove that these tugs can operate in such conditions - and we can use the simulator to prove this from the human perspective."

### **Custom-made simulators**

The other kind of training, which is more complex in nature, addresses shipping companies that have rather complex vessels. De Jong warms to the theme: "The key word here is specific: this is where we can really serve the market. We have designed and built our own simulator and therefore we have a far greater flexibility than comparative systems. It is a unique combination of extensive use and continuing development. The simulation software is developed through in-house model testing and full-scale measurements. Our simulators can be tailored to the very specialised needs of our customers.

"One good example of this is the mooring and berthing activities of shuttle tankers to Floating Production and Storage Offtake systems (FPSOs). It is here where highly specific training has, I feel sure, directly led to a dramatic reduction of the risk of accidents in respect of shuttle tanker approaches to systems for the offshore industry."