

## Safety at Sea

# BATTLING THE HUMAN FACTOR



By Josephine Chennell

Investing in the latest and most advanced equipment is just not enough. If computerized navigation and security systems had been foolproof the HERALD OF FREE ENTERPRISE would never have capsized. The SCANDINAVIAN STAR would not have been wrought by fire. The EXXON VALDEZ would not have been the cause of a major ecological catastrophe, or the ESTONIA would not have taken over eight hundred people to the bottom of the sea. This is something that shipping companies all over the world are beginning to realize. Which is why they are turning their efforts to the most elusive and difficult task of all in the search for safety - trying to combat the human factor.

"WHAT THE HELL IS GOING ON?!" is, according to Roland Jacobsson ex-pilot and lecturer at SAS Flight Academy's Bridge Resource Management courses (BRM), one of the most frequent comments made in the automated cockpit. "With today's push-button bridges", he says, "no-one knows exactly what is going on." Eleven men are listening to him with wide-eyed attention. The majority are members of two brand new bridge teams destined to pilot P&O's Jetliner across the Irish Sea. Though young, all of them have extensive experience of managing conventional vessels, but naturally enough not as much experience of managing high-speed ferries, these being a relatively new feature to grace the shipping world.

Erich Wahrens, responsible for the successful BRM Association at SAS Flight Academy, has noted that the increased use of hi-speed ferries has correspondingly heightened the demand for BRM courses. The similarities between the hi-speed ferry and the aircraft cockpit, combined with the mutual dangers of speed, technical complacency, boredom, stress and fatigue explains the augmented interest of the maritime industry.

BRM mainly deals with the universal problem of trying to improve bridge performance so as to minimize the human factor - a problem of equal importance whether you run an aircraft, a high-speed ferry or a conventional ship. Since the courses began in 1993 a great number of passenger and tanker companies have been sending their crews to partake of what BRM has to offer. Many of them are extremely satisfied, and several think the courses should be made mandatory. And if the powerful US Coast Guard gets its proposition through Congress - that the SAS Flight Academy BRM courses be made mandatory to all single hull tanker officers entering US waters - this type of course may eventually become obligatory for all types of vessels. If so, a positive effect has sprung from the EXXON VALDEZ accident.

### The best sometimes cause the accidents

The secret of avoiding an accident is having the right attitude and a shared mental model. Apart from using the correct procedures, it is a matter of

self awareness and awareness of those around you, finding the right balance between assertiveness and authority.

It is a well known fact that the shipping industry is conservative to the core, and that rank is frequently pulled at sea. Unfortunately the strict hierarchy and conventions of the maritime world is known to breed disastrous attitudes among the people working there, favouring rank above common sense. That alone may have been the cause of many unnecessary accidents. Fresh figures within the airline industry, state that over seventy percent of the incidents are attributed to pilot management errors. Not to technological errors, nor lack of training, skills or procedures. Equal, or possibly an even higher figure is, according to the BRM Association, said to be true of shipping accidents.

"Surprisingly enough, it is sometimes the people with the greatest knowledge and longest experience that cause the accidents", tells Eric Wahrens. To illustrate his statement he uses a well known example from the airline industry; "In the mid-seventies a KLM Boeing 747 collided on the runway of Tenerife with another plane killing a lot of people. KLM wanted to send their most experienced pilot to analyze the accident - and found to their horror - that he had been the one in charge of the aircraft. Listening to the black box, they found that the chief pilot had not paid proper attention to his co-pilot trying to alert him to the danger. And the co-pilot had not been courageous enough to persist, believing that his more experienced colleague knew what he was doing. This serious, but totally unnecessary, accident was caused by inattentiveness and complacency on the part of the chief, and lack of confidence on the part of the co-pilot. It can only be described a serious management error."

Using interactive computer programs, mock-up modules and workshop case-studies (taken from real life) the



BRM courses are all about teaching individuals about what makes them tick, the importance of a shared mental model, and how to strike the right balance between authority and assertiveness. "And that is what separates BRM from similar courses", says Erich Wahrens. "Procedures are important, but without the right personal attitude fatal errors - resulting in lost lives, lost property, and lost reputations - are harder to avoid".

### Safety - a selling point

Another Scandinavian company that is bent on improving human performance is Marine Profile of Halmstad, Sweden.

On their agenda Human Risk Analysis, Team Building, and Management Training for Safer Operation in the Maritime Industry (on-board, as well as ashore), are to be found. But their sharpest product lies in recruitment. Managing Director Hans Sandström says that "although it is possible to teach old dogs to lie, the best way to ensure a "safe" bridge team and crew, is to recruit one from the very start.

Marine Profile, run by Master Mariner Hans Sandström, and two psychologists - Anders Schager M.Sc. and Bengt Schager M.Sc. (the latter is currently involved in The Joint Accident Commission for the ESTONIA), has developed a programme for assessing candidates for employment and promotion called the Masterline Marine Version. The method covers all levels of human performance, analysing psychological traits and capacities of individual employees and applicants, and is especially designed for international multi-cultural use within the maritime industry. As Masterline can be engaged on a subscription basis, specially trained company personnel are able employ the method within their own organization. Masterline is today widely used in Scandinavia, and is subscribed to from Canada, the Philippines, and China to mention but a few.

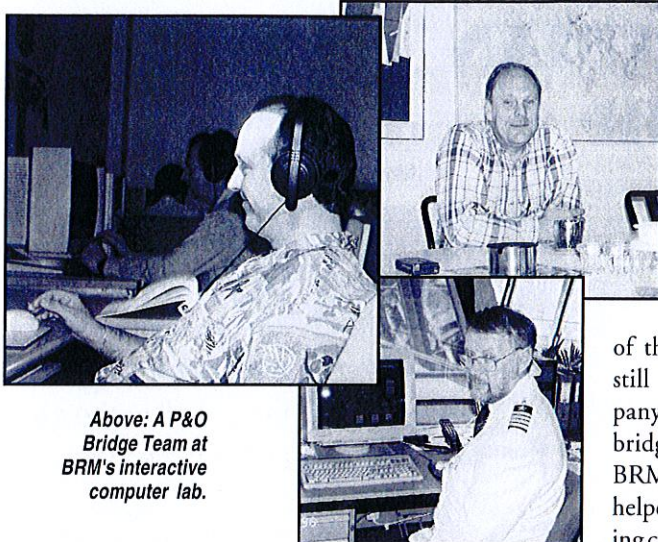
"Safety, in the end, boils down to revenue" says Hans Sandström. "With so many disastrous accidents of late - hitting the headlines - confidence must be restored to the industry. That is why a safety trained and conscientiously recruited crew is becoming a strong selling point. Many people have in fact become afraid to travel by

sea. Passengers need to feel sure that bridge officers and crew have both the mental and the professional strength to take them safely from A to B, if they are not to choose other ways of travel".

### New attitudes a necessity, says Captain

Magnus Slotte, Finnish captain of Silja Line's SILJA SERENADE, is a firm advocate of introducing a more cooperative and interactive set of attitudes into the maritime world. "It is a necessity", he says, but is afraid that it will take generations for the industry to rid itself

*"Improving the performance of bridge management & crew is a must to ensure safety" says M.D. Hans Sandström of Marine Profile.*



*Above: A P&O Bridge Team at BRM's interactive computer lab.*

Photos: J Chennell

*Captain Magnus Slotte on the bridge of SILJA SERENADE*

of the rigid and dangerous attitudes that still prevail. "Even within our own company, Silja Line, that has been training bridge officers and crew along the lines of BRM since the mid-seventies (and actually helped initiate the idea of SAS cockpit training courses), different management cultures flourish all at once. On our largest passenger vessels (SILJA SERENADE and SILJA EUROPA) the Bridge Resource Management attitudes are - after recurrent courses - firmly rooted.

But as we have recently taken over other companies and they are used to a different - more traditional - culture, it will take time before they have fully accepted our ways. Having different management styles within a company may of course be a danger in itself while it lasts, especially if there is a crew flow between ships. But there really is no other way if we are to make the seas safe - every crew member has to keep alert and responsible in order to maintain safety onboard. The factual responsibility for what is going on in a multistorey vessel cannot depend on one sole person. Or on computers and electronics alone. That kind of attitude tells its own tales!"

**I**T MAY TAKE TIME, but things are changing. Shipping companies now know that technology, electronics and computers alone can not protect them from losing their ships, their money and their reputation. People might. And so they are poised to deal with the most important challenge of them all - the human factor. ■

#### Facts BRM Association

Founded: 1993  
 Management: A joint effort between SAS Flight Academy and:  
 Dutch Maritime Pilots' Corporation, Finnish Maritime Administration, National Maritime Administration Sweden, Norwegian Shipowners Association, Silja Line AB, Swedish Shipowners Association, The Swedish Club.  
 Recent customers: DSÖ - Denmark, Royal Netherlands Navy, Marine Consultancy Group - Australia, Canadian Coast Guard, Wallem Maritime Training Centre - India, Stena Line AB, P&O Ferries etc.

#### Facts Marine Profile

Founded: 1994  
 Management/ownership: Hans Sandström, Managing Director  
 Anders Schager M.Sc.  
 Bengt Schager M.Sc.  
 Recent customers: Stena Line AB, SweFerry, TT-Line, Argonaut International, Expedo, Canada, The National Swedish Administration of Shipping and Navigation