

## Now hear this . . . and live

YOU are enjoying yourself on board this cruise ship. It's been a great day; dinner was perfection; the company was convivial. You've had perhaps that one drink too many. Time to sleep it off.

Fire alarm! No time to think. Just get the hell out of here! Out of the cabin. Smoke. Thick, completely enveloping smoke. Can't see a thing. You are completely disoriented. You don't know it, but you have perhaps just two minutes in which to get yourself clear, otherwise you are dead . . . dead of smoke inhalation.

It's a terrifying scenario but one that can develop with stunning and devastating suddenness. The proof was in the Scandinavia Star disaster of 1990, when 158 people died, largely due to smoke inhalation. Some of the dead were found a mere two metres from an exit that would have saved their lives.

Cruise ships now feature strip lighting with arrows to guide passengers to safety. But in thick smoke this system can be virtually useless.

Last week, Lloyd's List took part in an exercise which saw

volunteers tackle a smoke and fire simulation on board the Caledonian MacBrayne ferry Caledonian Isles, berthed at Ardrossan, featuring a new state-of-the-art audio alarm. The simulation was the climax of a series of trials held on board the vessel.

It was a nerve-racking experience. Despite the fact that we knew there was no fire, no danger, being enveloped in blinding theatrical smoke in unfamiliar surroundings gave rise to a state of panic. But we survived. Thanks to the new system, we were out and safe within just 75 seconds, having been able to find and negotiate the right stairways and passages leading to safety.

The simulation was organised by Professor Deborah Withington and her colleagues at the School of Biomedical Sciences' Auditory Neuroscience Department in the University of Leeds. The professor's "Localizer" emits a broad-band pulsed noise producing a rattling sound - if the rattle slows, you are heading into

danger. The faster the rattle the safer you are getting.

When you are in the bowels of a ship, your brain automatically tells you to head upwards. But that way can lie danger. The Localizer also emits a swooping sound. If it swoops up, you head up. If it swoops down, you head down.

It works. The simulation was laid on in a bid to impress the IMO with its efficacy. And the IMO representatives just had to have been impressed with the exercise on board the Caledonian Isles.

Observing the trials was Guro Christiansen, of Strathclyde University's Ships Stability Research Centre, where they are developing a computerised evacuation model aimed particularly at large passenger ships. Her impression of the Directional Sound Evacuation system? "It works," she said. "I was impressed . . . I believe it is going to be very, very helpful on board ships.

Professor Withington has studied sound for many years

and has always been interested in how people use sound for survival. In fact, survival is all about pinpointing sound, but that is a fact that has always been kept under academic wraps. "All I've thought about," says the professor, "is how can we use this knowledge in the real world to actually benefit people. It first started with using directional sound to make emergency vehicle sirens more easily pinpointed and then a very natural extension was to think about evacuation."

The Caledonian Isles demonstration had been a very important conclusion to a set of trials of the new system. It had been critical in demonstrating whether people blinded by smoke could be sent up and down the correct staircases. One of the most difficult scenarios that had been successfully tackled was how to get people to find their way to a totally hidden exit in a smoke-filled atmosphere.

Bob Gibb