

# safetyfocus

The Confidential Hazardous Incident Reporting Programme – CHIRP – is an independent system for all those involved in the maritime industry to report incidents of concern. CHIRP's Maritime Advisory Board has joined forces with *Safety at Sea* to provide regular insights into topical safety issues

**CHIRP**  
www.chirp.co.uk

## Staring at the sea

by CHIRP Maritime Advisory Board

► **Good vision has long been an essential requirement for a career at sea.** Testing was introduced some 150 years ago.

The eye is only the first stage in effective visual recognition of danger. Much depends on the brain for analysis of what is seen. Cognitive aspects of vision feature regularly in reports of incidents and damage, as do the external conditions of visibility, levels of lighting and glare. By contrast, visual defects are now rarely noted, although they were prominent in the past.

The visual task of navigation has changed markedly, with the ability to correctly read instruments and displays now playing a large part, but distant vision under challenging conditions remains important, especially for seeing small craft and for the detection of floating debris.

Current eyesight testing uses long established measures of acuity and colour perception under conditions of good illumination. Eyesight standards on which certificates are issued have changed little from the time when navigation lights were wick lanterns burning kerosene and bridges had next to no lighting other than the compass binnacle. Evidence from naval vessels and fast craft does indicate that more sophisticated testing could have benefits where very rapid decision taking is needed this has not been investigated for other ships.

### Blurred lines

An unanswered question is whether current criteria for the issue of fitness certificates are too stringent, or whether they fail to test the visual functions needed for the present day navigational lookout duties. Testing is not consistently applied internationally and this affects acceptance of fitness certificates. Also,



some of the test methods used are of uncertain predictive value in terms of capability to work safely. This may lead some who do not meet criteria being allowed to work in vision-critical tasks while others are denied a career at sea or have it terminated prematurely.

What is needed is not just fair and uniform application of existing criteria but also a concerted effort by the maritime sector to fund and support studies to ensure that vision standards really do meet the safety requirements of modern shipping and ensure that all those who can safely do so are able to work at sea.

Vision, the performance of both the eye and the brain, can still become a significant issue in the aftermath of a maritime disaster and detailed investigation both of the incident and the underlying vision science can contribute to improved safety.

The yacht *Ouzo* was crewed by experienced yachtsman but lost with all hands in the English Channel on 20 August 2006. Investigators concluded that a large passenger ferry, *Pride of Bilbao*, had collided with or swamped *Ouzo*. As always, multiple factors were involved, but the ability of the officer of

the watch to see the yacht was a major focus of inquiries. The state of his dark adaptation was considered to be questionable, especially to see the navigation lights on a relatively small yacht. Particular attention was directed to his glasses, which had photochromic lenses that were likely to have been transmitting less than 100% of the light to his retina.

However, the state of his dark adaptation was probably far more significant, given his time on the bridge, the lighting level there and the existence of high levels of lighting on the decks to the rear of the bridge.

### Ergonomics factors

The findings from this incident led the UK Maritime & Coastguard Agency to commission a study to look at visual performance and ergonomic aspects of modern bridge lookout duties.

Its findings indicated that light sources from chartrooms and equipment in the bridge had sufficient intensity to limit dark adaptation, as did the pattern of duties, which could involve time in lit parts of the ship while keeping watch. Handover times were often too short to ensure dark adaptation and the period required to adapt increased with age. Seeing the navigation lights on large vessels was unlikely to be compromised but small craft could easily be invisible, while also being less reliably detected by radar.

Understanding of the complexities of the visual requirements on today's merchant ships remains limited. Will it take more disasters to make the industry recognise that, despite increased instrumentation, visual performance is a key factor in maritime safety and cannot be guaranteed unless its dimensions are investigated and the results used to form the basis for lighting specification, patterns of work and individual criteria for capability? ◀

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### Contact

It is generally accepted that for every accident there are numerous near misses. Using a centralised and respected scheme such as CHIRP ([www.chirp.co.uk](http://www.chirp.co.uk)), observations can be sent to [reports@chirp.co.uk](mailto:reports@chirp.co.uk). These confidential reports are released to a wider audience, with anonymity retained throughout. Through this process, seafarers can initiate change and improve safety standards and design.