

Review of diver noise exposure

6.2.5 Hearing protection

Hearing protection should only be considered when all other noise control measures have been unable to reduce noise to an acceptable exposure. If when all other control measures have been applied the noise dose still exceeds 85 dB(A) re. 20 μ Pa then the CoNaWR05 mandates the use of hearing protection. If the noise level is between 80 and 85 dB(A) re. 20 μ Pa employers are required by the CoNaWR05 to inform any persons exposed to these levels and make hearing protection available on request.

Although ' earmuff ' type hearing protectors are routinely used throughout industry, they are only suitable for use on surface on a diving site, or in compression chambers if they have been drilled (a small nominally 2 - 3 mm diameter hole in the centre of the earmuff shell). Drilling the earmuff allows gas to freely move between the inside and outside of the earmuff preventing any pressure differential and the associated risk of barotrauma.

Conventional earmuff hearing protectors cannot be used within current diving helmets as they simply will not fit within the space available. During the helmet noise trial conducted by Evans *et al.* [5], earplug hearing protection was successfully used and worn within diving helmets; the system also allowed viable audio communication. The 'Emtec' hearing protectors used provided attenuation ranging from 13.9 dB at 63 Hz to 41.1 dB at 4 kHz (Figures 6.2 and 6.3).



Figure 6.2: Emtec earplug hearing protectors fitted to a cutaway anatomical model and human ear