

## POSTMORTEM EXAMINATIONS OF BY-CAUGHT COMMON DOLPHINS IN THE UK

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Between January 1991 and December 2002, 324 common dolphins (*Delphinus delphis*) found stranded around the coastline of the UK were examined at postmortem as part of an ongoing government funded project. Of the 262 where a cause of death was established, 172 (97 males, 74 females and one of unknown sex) were diagnosed to have been fatally entangled in fishing gear (by-catch). This represents the single largest cause of mortality of UK stranded common dolphins and is thought to result from interactions with pelagic (mid-water) trawl fisheries. The by-caught dolphins examined comprised 94 adults, four sub-adults and 73 juveniles, a pattern dissimilar to that found with harbour porpoises (*Phocoena phocoena*) where more juveniles than adults are by-caught. This reflects the different fishing methods that affect each species. Typical findings on postmortem included good nutritive condition, evidence of recently ingested prey, muscle tearing, haemorrhage and penetrating wounds within the body wall. High numbers of by-caught dolphins were recorded in 1992, 1994 and 2001-2, although this was thought to be primarily a result of strong onshore winds. An extremely seasonal pattern was noted, with 135 (78.4%) of the by-caught dolphins stranding in the first three months of the year. In addition, by-catch appeared to be highly localised with 154 (89.5%) stranding in Cornwall and Devon, reflecting the south-west's proximity to pelagic fisheries. Accurate estimates of population size and management units in both UK and European waters are difficult to gauge. This, together with the removal of a large number of sexually mature adults through by-catch each year, means that the true scale and long term effects of this annual mortality are uncertain.

## PRELIMINARY EAR ANALYSIS REPORT OF THE 2002 CANARY ISLANDS ZIPHIUS MASS STRANDING

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The analysis of the ears has become a challenging research in the post-mortem study of any stranded cetacean. Its importance and repercussion in cetacean stranding and/or death may exceed any estimation regarding cetacean acoustic impairment. In September 2002, a massive stranding of 14 animals belonging to three different ziphiidae family species took place in the Canary Islands. The spatio-temporal coincidence of this event with NATO maneuvers, also reported in other historical mass strandings, made specially relevant an exhaustive study of the individuals acoustic apparatus in order to confirm or discard the implication of specific sound sources in the cetacean death. Necropsies on ten carcasses were performed between 24 and 72h postmortem following standard procedures. The ear regions of seven animals were carefully examined by extracting either a block with surrounding bone, the isolated ear complex or the periotic bone. Fixation was further performed either by immersion or by injection through the inner ear windows. The ears were analyzed by imaging techniques like CT and MRI and processed for routine H/E staining histopathology after decalcification. The paraotic sinuses did not show other alterations than being swollen with air and foam with partially empty surrounding venous plexuses. Except for three cases presenting slight peribullary and acoustic fat hemorrhages, the periotic complex and middle ear were not affected macroscopically. The middle ear rete mirabile was depleted with a certain degree of congestion. The most remarkable features were inner ear hemorrhages and edema starting in the VIIIth cranial nerve and extending into the spiral ganglion and the cochlear channels. In addition, inner ear structural damages were found. These findings are consistent with the lesions observed in other organs, in particular the brain, confirming as the only non-discarded cause of death, an acoustically induced trauma.