

Causes of death of harbor porpoises (*Phocoena phocoena*) stranded on the northern French coastline (1995-2015).

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The multidisciplinary research group MARIN (Marine Animals Research & Intervention Network) investigated the causes of death of marine mammals stranded on the continental coastline of the southern North Sea. Since the end of the 1990s, a significant rise of harbor porpoise (*Phocoena phocoena*) stranding occurred in the southern North Sea and the density of stranding on its continental coastline (Netherlands, Belgium and northern France) is among the highest in Europe. The aim of the study is to present the main lesions and causes of death of 165 porpoises stranded on the northern French coastline and their evolution between 1995 and 2015. Porpoises were selected for necropsy and sampling (histopathology, toxicology, microbiology) following a standard procedure. Frequent observations included net marks on the skin, sub-cutaneous and muscular bruises, emaciation, pulmonary (blood vessels and airways) and gastric parasitism, acute pneumonia, and pulmonary congestion and edema. The two main causes of death were by caught in fishing nets and infectious diseases. By-catch in fishing nets was mainly observed in animals stranded in March and April and appeared to be more frequent (from 20% to 35%). Infectious diseases (40%), mainly acute pneumonia associated with severe parasites infestation, occurred throughout the year. The infection by *Brucella ceti* is reported on 8% of stranded porpoises. Two other causes of death are emerging: severe emaciation with lung edema in absence of other lesions and grey seal attacks with typical lacerations of the skin and the blubber. The two main reasons for the recent porpoises stranding rise on the continental coastline of the southern North Sea are linked (1) with the southward shift of the population within the North Sea and (2) with the characteristics of winds, tides and currents pushing carcasses towards the coast.