

What caused the UK's largest common dolphin (*Delphinus delphis*) mass stranding event?

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On 9 June 2008, the UK's largest mass stranding event (MSE) of common dolphins (*Delphinus delphis*) occurred in Falmouth Bay, Cornwall. At least 26 dolphins died and a similar or larger number were refloated/herded back to sea. On necropsy, all 26 dead dolphins were in good nutritive status with empty stomachs. There was no evidence of significant infectious disease or acute physical injury. All seven adult dolphins tested were free of harmful algal toxins and had low chemical pollutant levels. The auditory apparatus (ears) were grossly normal in all cases. Pathological evidence of inhalation of seawater (n=11) was used as a novel forensic technique for establishing that the MSE probably occurred on a rising tide after 06:30-07:00hrs and before 08:21hrs. Potential causes either excluded or considered highly unlikely included infectious disease, gas/fat embolism, boat strike, by-catch, predator attack, stranding immediately after feeding unusually close to shore, chemical or algal toxin exposure, abnormal weather/climatic conditions and high-intensity acoustic inputs from seismic airgun arrays and natural sources (e.g. earthquakes). Although a definitive cause of the MSE could not be identified, the international naval exercises occurring in close proximity remain the only known cause of cetacean MSEs that cannot be excluded. The most intense part of the naval exercises in the preceding week (including sonars) may have driven a large group of common dolphins unusually close to shore where they were at increased risk of stranding. A second event, such as noise from naval helicopters, may have caused panic response(s) leading to at least some of the milling and stranding behaviours seen on 9 June. Greater insight into the causes of any future MSEs may require either a direct observation of the onset, or the emergence of an unusual level of coincidence of MSEs or flight/panic reactions with one or more causal factors.