

Letter to the Editor

Dolphin Morbillivirus in the Mediterranean Sea

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Between the end of 2006 and the beginning of 2007, a morbilliviral infection epidemic was reported in pilot whales (*Globicephala melas*) around Gibraltar (Fernández et al., 2008) and, in the following months, in pilot whales and striped dolphins (*Stenella coeruleoalba*) along the Spanish coast (Raga et al., 2008). Apart from its milder proportions, this recent mortality outbreak shares many similarities with the striped dolphin mass die-off that occurred throughout 1990-1992 in the Mediterranean Sea, which was caused by a newly discovered morbillivirus named dolphin morbillivirus (DMV) (Domingo et al., 1990; Kennedy, 1998; Di Guardo et al., 2005). In more detail, the DMV strain(s) causing the recent mortality episodes in pilot whales and striped dolphins show(s) a very close genetic relatedness to the DMV isolate responsible for the dramatic die-off that occurred over 15 years before in the same area (Fernández et al., 2008; Raga et al., 2008).

These two epidemics provide a basis for speculating on the crucial issue of a continued DMV circulation and persistence in the Mediterranean Sea between the two epidemics or, alternatively, on the possibility of a recent “re-entrance” of the virus into the area, presumably through the Strait of Gibraltar.

A marked reduction of the population’s immunity to DMV was reported some years ago in Mediterranean striped dolphins, possibly linked to the fact that the infection, 10 years after the dramatic 1990-1992 outbreak, had not become endemic (Van Bresse et al., 2001). It could be argued that such an immunity decrease also might have resulted from a population’s increased exposure throughout time to environmental contaminants such as polychlorinated biphenyls (PCBs) and/or polybrominated diphenyl ethers (PBDEs, so called “flame retardants”). These pollutants are characterized by a prominent immunotoxicity and may also act synergistically with DMV to heighten the prominent immunosuppression caused by this virus, similarly to all other members of the Morbillivirus genus (Van Bresse et al., 2001;

Di Guardo et al., 2005; Fernández et al., 2008; Raga et al., 2008).

The critical issue related to a continued circulation and persistence or, alternatively, to a re-entrance/re-emergence of the virus in the Mediterranean Sea basin remains an open question warranting further study. In the last 20 years, there have been at least ten different morbilliviral epidemics in free-living sea mammal populations around the world (Di Guardo et al., 2005; Di Guardo, 2008). Bottlenose dolphins (*Tursiops truncatus*) were affected along the Atlantic coast in the U.S. in 1987-1988; Lake Baikal seals (*Phoca sibirica*) in 1987-1988; North Sea harbour seals (*Phoca vitulina*) in 1988 and 2002, respectively; Mediterranean monk seals (*Monachus monachus*) on the Mauritanian coast in 1997; and Caspian seals (*Phoca caspica*) in 2000. These outbreaks dramatically impacted the health status and, in some instances, also the conservation of species that already are at serious risk of extinction such as the Mediterranean monk seal.

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