

## Letter to the Editor

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### Exposing Grey Seals as Horses and Scientists as Human

In his problem-solving principle, William of Ockham, an English Franciscan friar who lived in the 13th to the 14th century, stated that among competing hypotheses or explanations, the simpler one should be preferred. *Zebra*, a medical slang for arriving at a very unlikely diagnosis when a more commonplace ailment is more likely (Sotos, 1991), is traced back to Ockham's problem-solving principle, also referred to as *Ockham's Razor* or the *Principle of Parsimony*: "If you hear hoof beats, think horses, not zebras." Of course, this "principle" was conceived from a United Kingdom perspective; whereas in other places, for example, on the plains of Africa, the more simple thought would actually be "zebras" (or some other ungulate) rather than "horses."

When *mutilated* harbour porpoises (*Phocoena phocoena*) started washing up along the shores of the southern North Sea in the 21st century, several hypotheses about the background of this phenomenon were proposed (see Leopold et al., 2015a), ranging from fishermen deliberately cutting up bycaught porpoises to porpoises being hit by ships' propellers or going through the suction pipes of dredgers. Most diagnoses were considered to be *zebra* after the publication of the *horse* hypothesis in 2012: grey seal (*Halichoerus grypus*) predation (Haelters et al., 2012). Initially, this hypothesis received a lot of headwind, going through all of Arthur Schopenhauer's (German philosopher, 1788–1860) stages of truth: it was first ridiculed, subsequently violently opposed by some, and finally accepted by many as being self-evident. Acceptance was facilitated greatly by the publication, in rapid succession, of hard evidence: field observations of seals attacking and partially eating porpoises (Bouveroux et al., 2014; Stringell et al., 2015), and the discovery of grey seal DNA in the bite wounds of mutilated

porpoises (Jauniaux et al., 2014; van Bleijswijk et al., 2014). Both grey seal and harbour porpoise numbers had quickly risen in the southern North Sea during the last two decades (Gilles et al., 2009; Camphuysen & Siemensma, 2011; Haelters et al., 2011; Scheidat et al., 2012; Hammond et al., 2013; Strucker et al., 2013; Brasseur et al., 2014, 2015), and apparently grey seals indeed had started to fancy the taste of these small cetaceans (Leopold et al., 2015a, 2015b).

Around the same time as the discovery of mutilated harbour porpoises, mutilated harbour seals (*Phoca vitulina*) became a hot topic around the North Sea, especially in the UK. Strange lesions, referred to as helical or *corkscrew* wounds, observed in at least 80 seals between 2008 and 2010 (Thompson et al., 2013), seemed to have been inflicted by something anthropogenic, with ducted propellers as a plausible explanation (Thompson et al., 2010, 2013; Bexton et al., 2012). That the mutilated seals had predominantly turned up close to major grey seal haul-out locations seemed to have been overlooked, as was an earlier report by Smith (2000) describing a case of predation of a harbour seal by a grey seal. However, as was the case with harbour porpoises, grey seals were later identified as the most likely culprits. First, a grey seal bull was observed killing and feeding on juvenile harbour seals on the Island of Helgoland, Germany (van Neer et al., 2015). Soon after, direct observations around the UK of grey seals taking grey seal pups, leaving evidence of the typical corkscrew lesions (Thompson et al., 2015), further refuted the ducted propeller hypothesis.

Lesions in seals similar to those recently described in Thompson et al. (2015) and van Neer et al. (2015) have also been reported from the western Atlantic. Clean-edged corkscrew wounds were observed in five different seal species found at Sable Island, Nova Scotia, Canada: (1) grey, (2) harbour, (3) harp (*Pagophilus groenlandica*),

(4) hooded (*Cystophora cristata*), and (5) ringed (*Phoca hispida*) seals (Lucas & Stobo, 2000; Lucas & Natanson, 2010). In these studies, grey seals were not initially identified as the predator (and as of early 2015, they are still not), although Sable Island is home to the world's largest grey seal colony, with a staggering 72,000 pups estimated to have been born there in 2014 (Hammill et al., 2014). Almost 5,000 mutilated seal carcasses, mostly of juvenile grey seals and adult harbour seals, were investigated between 1993 and 2001 at Sable Island (Lucas & Natanson, 2010). A minority bore evidence of white shark (*Carcharodon carcharias*) involvement, but most had typical corkscrew lesions that were attributed to attacks by Greenland sharks (*Somniosus microcephalus*). Lucas & Natanson (2010) found the corkscrew lesions very similar to the ones on dead harp and hooded seals found washed ashore in 1998 at Prince Edward Island, Canada. Daoust & Lucas (1998) had investigated this mass mortality and reported skin and blubber defects in 75% of >1,400 carcasses. Some carcasses had cuts/tears running circumferentially around the body, without any evidence of *antemortem* skull fractures that would incriminate seal hunters. The exact cause of their demise remained undetermined (Daoust & Lucas, 1998); however, earlier reports of cannibalism by grey seals at Amet Island, Canada (western Atlantic), that yielded similar lesions (Bédard et al., 1993; Kovacs et al., 1996) were not reviewed by Daoust & Lucas (1998) or by Lucas & Natanson (2010).

There is a striking resemblance between the Canadian cases of grey, harbour, harp, hooded, and ringed seal mortality and the recent predation of grey seals on harbour porpoises, grey seals, and harbour seals: the lesions were similar in nature, the carcasses were found in areas frequented by grey seals, and grey seal numbers had recently increased markedly (Hammill et al., 2014). While a number of causes have been suggested, we believe that the Canadian incidents deserve reconsideration in the light of both earlier and more recent evidence of grey seal predation on conspecifics and on other marine mammals.

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