

Entanglement as a welfare issue for grey seals *Halichoerus grypus* in North Cornwall, UK

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A large number of the population of grey seals from southwest England are suffering from a debilitating and presumably painful condition for months or even years of their lives, the welfare implications of this need to be addressed.



Fig 1: Haul out site in north Cornwall, UK.

The British Isles are home to a substantial proportion of the world population of grey seals *Halichoerus grypus* and this species are the only pinnipeds found to commonly frequent the Cornish coast. The Cornwall Seal Group (CSG) have been keeping sightings and photo identification records from a haul out site (figure 1) on the north coast since 2001.

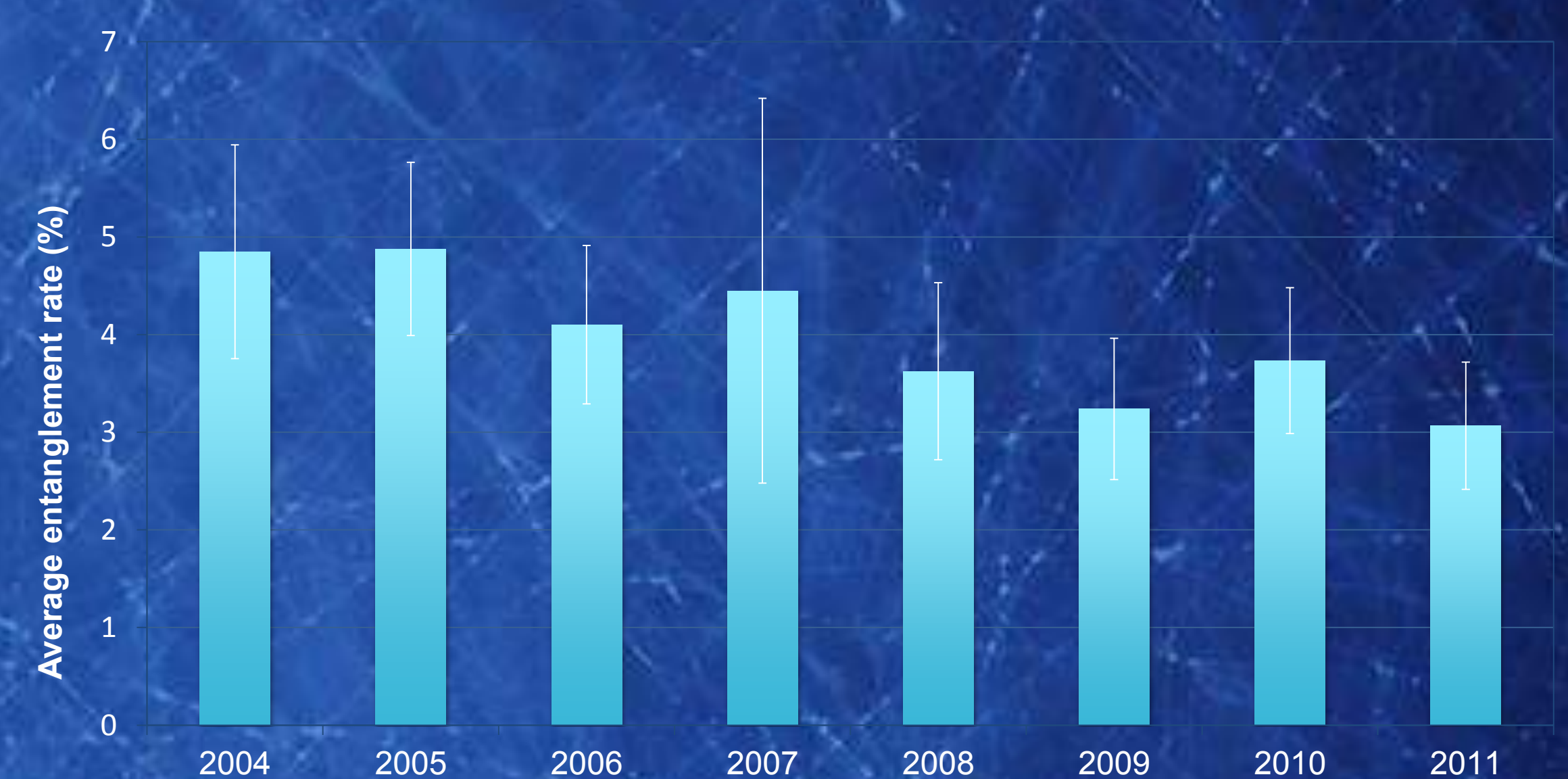


Fig 2: Mean entanglement rate as a percentage of total haul out rates.

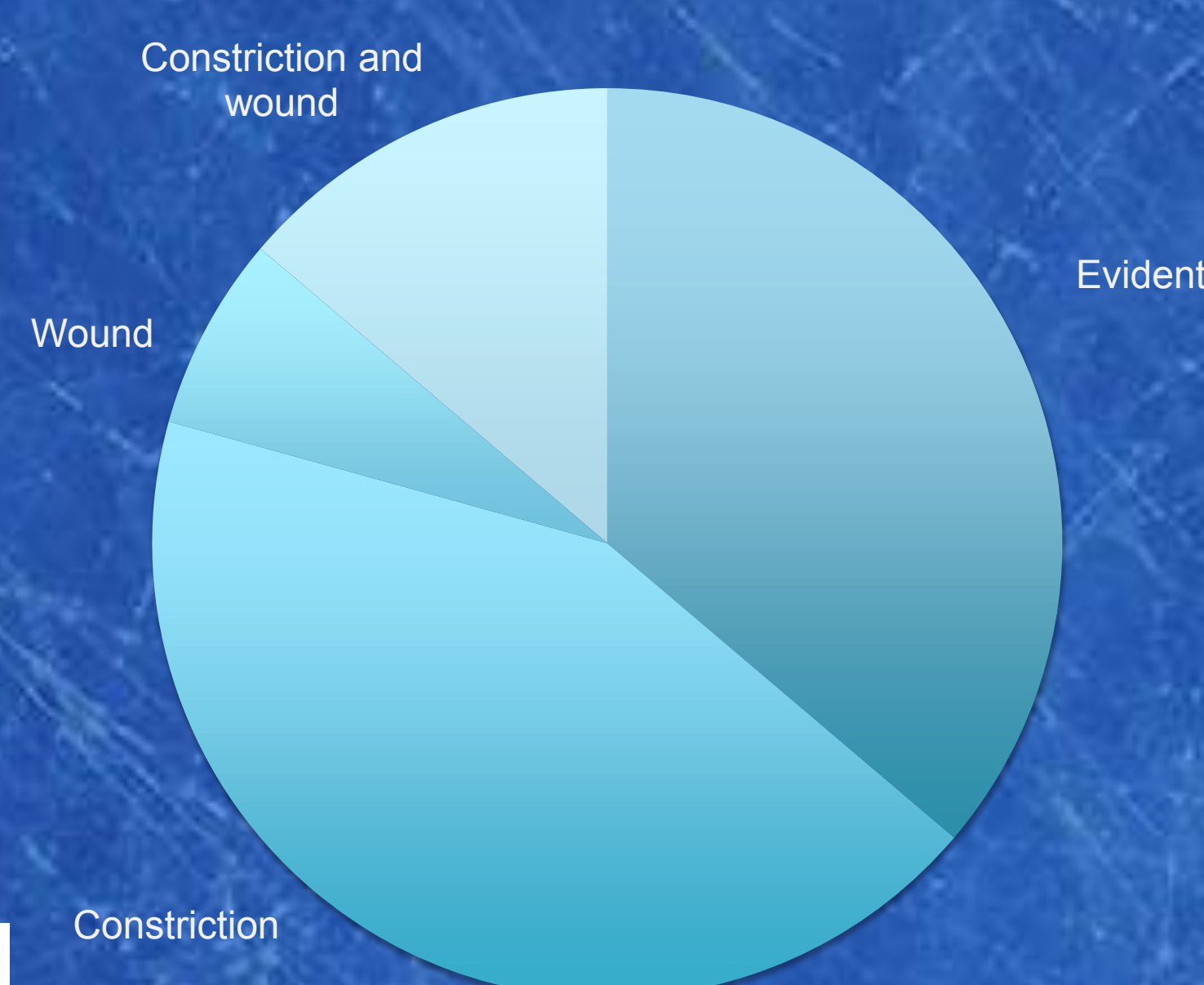


Fig 3: Nature of entanglement injury (n=58) for photo-identified seals.

Average entanglement rates (percentage of the hauled out seals observed per sighting) range from 5% in 2004 to 3.1% in 2011. Entangled seals account for 8.7% of the seals on the photo ID database (as of the end of 2011.) Rates of entanglement an order of magnitude lower have been implicated in population decline for other species¹.

Entangling injuries cause constriction and open wounds and will have welfare impacts through impaired movement and feeding, in addition to increased likelihood of infection². Of 58 entangled seals in the catalogue 37 (64%) had injuries which were either causing a constriction, had formed an open wound, or both (figures 3 & 4).

Where visible the majority of entangling material was identified as fisheries related material (14 of 15 cases).



Fig 4: Injuries were categorised as: "constriction" – bottom right, "open wound" – centre, "constriction and wound" – top left, "evident" (not illustrated - entangling material or encircling mark was observed but no wound or constriction was visible)



Fig 5: Juvenile female seal trailing fisheries related material.



Nine seals had trailing material evident (figure 5), this can seriously increase drag impairing movement and increasing foraging times^{3,4}.

Evidence suggests a reduced survivorship for entangled seals in this study⁵. However the photo identification record has proved that some may still live with debilitating and presumably painful injuries for many years - two examples are shown below in figure 7.



Fig 6: Rescue of juvenile netted seal at the study site

Rescues

Volunteers with British Divers Marine Life Rescue have successfully rescued twenty seals, for most the severity of their injuries required treatment and these were taken to the Cornish Seal Sanctuary in Gweek for rehabilitation (figure 6).

References

1. Laist, D. W., 1997. Impacts of marine debris: entanglement of marine life in marine debris including a comprehensive list of species with entanglement records. In: J. M. Coe and D. B. Rogers (Eds.), Marine Debris Sources, Impacts and Solutions. Springer-Verlag, NY, pp. 99 - 159.
2. Fowler, C. W., 1987. Marine debris and northern fur seals: A case study. Marine Pollution Bulletin 18, 326-335.
3. Feldkamp, S. D., 1985. The effects of net entanglement on the drag and power output of a California sea lion, *Zalophus californianus*. Fisheries Bulletin 84, 692-695.
4. Feldkamp, S. D., Costa, D. P., and Dekrey, G. K., 1989. Energetics and behavioural effects of net entanglement on juvenile northern fur seals, *Callorhinus ursinus*. Fishery Bulletin 87, 85-94.
5. Allen R.J., Sayer S., Jarvis D., Hockley K., and Mills C., 2012. Entanglement of grey seals *Halichoerus grypus* at a haul out site in Cornwall, UK. Marine Pollution Bulletin. Available online 29 October 2012, <http://dx.doi.org/10.1016/j.marpolbul.2012.09.005>



Fig 7: Two seals which have been seen for nine and ten years respectively; DP122 a male seal (left) has survived from 2003 to present, S46 a female seal (right) has been seen from 2002 to present and has pupped twice at this haul out.

