

Plastic Entanglement in the Seals of Skomer Island

by Tom Lloyd

Introduction

This spring and summer I have been working as one of the Long-Term Volunteers on Skomer Island. On previous visits I have taken great pleasure in watching the grey seals as they haul out across the island during the spring and autumn, and I was very pleased to have the chance to carry out my personal project on these animals, even though the subject of the project reflected a sad reality.

It has become more and more well known in recent years that man-made waste, particularly plastics, floating in the ocean can be harmful to a wide variety of sea-life. Unfortunately, the grey seals at Skomer are not immune to this and seeing individuals with plastic waste entangled around their bodies is not an uncommon sight.



Figure 1 Entanglements around the throat can interfere with normal feeding and breathing

Seals, especially juveniles, are naturally curious, and it is thought that this may make them more vulnerable to becoming entangled in plastic debris as they investigate and play with objects they are not familiar with (Hofmeyr, et al., 2005).

Animals caught up in plastic waste can potentially live with their injury for many years and there are even records of seals carrying and giving birth to pups while entangled (Kuhn, et al., 2015). However, being entangled in plastic does carry an increased risk of mortality. In one study on Antarctic fur seals it was estimated that 87% of entangled animals eventually died as a result of their entanglement (Waluda and Staniland, 2013). The causes of death are diverse and can include starvation, suffocation, infection or blood loss. Seals that have acquired an entanglement as a juvenile are at further risk, as the entanglement will

become tighter and more restrictive as the animal grows. This may explain the presence in adults of entanglements that have dug far beneath the skin and into the blubber layer underneath.

My project aimed to record the frequency of entanglements in the seals that hauled out at North Haven beach this spring in the hope of acquiring a basic understanding of the severity and prevalence of this problem locally.

Methods

During the spring the grey seals haul themselves out onto beaches in order to moult. I observed the seals hauled out on North Haven beach for a total of 26 days, between the 12th of April and the 15th of May, only stopping data collection after the moulting season had ended and the number of seals hauled out swiftly dropped to zero.



Figure 2 During the spring many grey seals haul out on Skomer's beaches to shed last year's fur.

I used a spot behind the wardens' office and another on the island's isthmus as my observation points, both of which had good views of the beach below. I arrived at low tide and used a telescope and binoculars to observe the seals.

While there I counted the total number of hauled-out seals, the total number of either sex, whether they were juvenile or adult and whether they were entangled in man-made debris. When this occurred I also recorded the sex and age of the animal, the location of the entanglement on the body and the type of material that was involved.

Results

During the study period 32 entanglement events were recorded, involving 14 individual seals. Of those, 9 were female, 3 were male, 1 was a juvenile and 1 could not be sexed. 11 had entanglements around their necks, while 3 had entanglements on or around their front flippers. 10 of these seals were entangled in monofilament netting, while 4 could not have the material confirmed or had residual scars left over from entanglements that were no longer present.

The average number of seals entangled on the beach per day was 1.2, with a range of 0-4. The average rate of entanglement was 1.628%, with a range of 0 to 4.597%.

Discussion

Trying to put a number on entanglement frequency in a population of seals is challenging. Grey seals are extremely mobile and have massive home ranges, so it is difficult to say what exactly constitutes a population. Furthermore, the seals hauled out at North Haven were not consistent, with individuals arriving and leaving every day. However it could be considered that as I recorded the entanglement proportion for multiple days that I was taking a repeated, random sample of the nearby seals, and so the number I received may be a fair indicator of entanglement prevalence in the absence of a larger study and more advanced statistics.

In my study the average rate of entanglement was 1.865%. For context, in another study on grey seals in Cornwall between 3.6 and 5% of seals were entangled, however this was at the time the second highest rate on record (Allen, et al., 2012) and it is thought (on a study in northern fur seals) that even rates of over 0.4% could have a negative influence on the population (Fowler, 1987).

I was surprised to see females formed the majority of my sample. This is not in keeping with other studies where juveniles were the most frequent victims (Hofmeyr, 2006). While unconfirmed it is possible that the high mortality incurred by juveniles during storm Ophelia last winter may have had some effect on this, as only a small proportion (4.4%) of the total recorded population this spring were classed as juveniles.

11 of the entangled animals had injuries around their necks, and for 10 of them the source of the entanglement was confirmed to be monofilament netting, of the type used on fishing vessels. This is certainly in keeping with other studies (Waluda and Staniland, 2013).

From this data it would seem a valid suggestion to seek improved industry waste disposal standards, and better enforcement of the same. Investigating methods of removing waste from the ocean may also help mitigate the issue locally. In the southern fur seal study (Waluda and Staniland, 2013) it was found that a total ban on fishing within 200 miles of the study island resulted in a marked drop off in the numbers of entangled animals. While it would be unreasonable to impose such a wide ban here, covering the entire coast of Wales as it would, improving and adhering to better waste disposal standards should have a similar effect, but for that to occur many, many fishermen would have to change their attitudes to waste disposal at sea.

Continuing to monitor the rate of entanglement in future years could provide us with information on how this issue changes in future; whether it is becoming more or less severe, and whether any mitigating measures that have been implemented are having a positive effect.

References

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