

Grey seals use their vision to find buoys!

by
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Grey seals cause economic losses to professional fishermen when taking the catch and damaging the fishing gears. I have found that grey seals use their vision to locate buoys and that larger buoys are more often detected by seals. This new information can be used when developing new fishing methods.

The grey seal is the largest of three seals species in the Baltic Sea, with males weighing up to 300 kg. They cause economic losses to professional fishermen when taking their catch and destroying their fishing gears¹. There is also a risk that the seals get stuck in the nets and die by drowning.

The grey seal went through a large decline during part of the 20th century due to diseases caused by pollutants and intensive hunting². The population has now started to recover and this increase has resulted in an increased conflict between fishermen and seals. To be able to decrease the number of damages caused by seals we need to know how seals find the fishing gears and what senses they use. In this experiment I tested if grey seals use their vision to detect buoys, which were representing fishing gears. This was done by using four different types of buoys; three types were red and had different diameters. The fourth type was grey, composed by two small net floats and was used as a control. All buoys were baited with fresh herring and 1/3 of them were equipped with an underwater camera to verify that it actually was seals that took the baits. The camera was released when the bait was taken and a picture of the “thief” was taken.

There were 382 buoys set out in the sea and from these 74 baits were taken. All the pictures from the underwater cameras showed grey seals taking the baits (Figure 1).



Figure 1. A picture from an underwater camera showing a grey seal taking a bait.

I could also see that larger buoys are more easily detected by seals because the number of taken baits increased with buoy size (Figure 2).

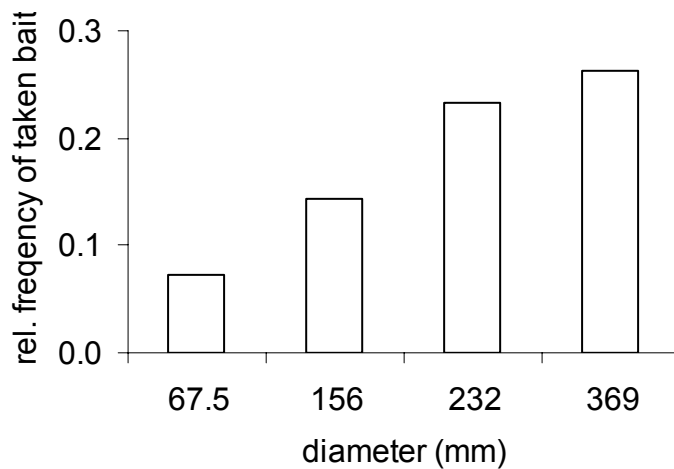


Figure 2. The diagram is showing the relative frequency of taken baits against the buoy diameter.

I was also able to compare the smallest red buoys with white buoys of the same size from another experiment³, thereby comparing two colours; red and white. In this comparison I found that the colour was not important for the detection by the seals. Seals almost totally lack the receptors for colours in their eyes and they do not either have a great need of colour vision due to that only blue and green light penetrates down to deeper water⁴.

I could also see that the longer the buoy was lying in the water the larger was the chance that it would be found by seals. These new findings can be used to develop new fishing methods.

My recommendations are that fishermen should use as small buoys as possible when marking their fishing gears and to leave the fishing equipment soaked as short time as possible to decrease the damages caused by seals as much as possible.

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2. Harding KC & Härkönen TJ (1999) Developments in the Baltic grey seal (*Halichoerus grypus*) and ringed seal (*Phoca hispida*) populations during the 20th century. *Ambio* 28; 7, 619 – 627.
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4. Riedman M (1990) Pinnipeds: Seals, Sea lions, and Walruses. University of California Press: Berkeley, 1 – 149. http://polarmet.mps.ohio-state.edu/ASPIRE_99/seals/science/evtxt.htm