ABSTRACT

Land-based observations may contribute to an overall understanding of behaviour of large marine vertebrates and may help us understand how these animals react to climate change. I observed marine megafauna (cetaceans, Basking shark, and Sunfish) from Cape Clear Island situated in the south-west of Ireland. The study took place during the summer months (June - August 2008) because the majority of Leatherback turtles, Sunfish and other megafauna species are sighted in Irish waters in this period. Additionally to sightings, basic weather characteristics were recorded (sea state, visibility, glare and cloud cover) every day of observation.

Unfortunately, no Leatherbacks, my target species, were recorded during the study period (51 days) at Cape Clear. The reason for the turtle absence could be relatively cold and wet weather during the study period. Although no data was obtained on turtles, over 124 sightings of other megafauna were made, mostly cetaceans (five species) but also one individual Basking shark and several Sunfish. The species richness increased with time during the study period, and significantly higher number of individuals as well taxa was observed in the second month of the study when the sea surface temperature was higher. However, I did not detect a significant relationship of number of observations or megafauna species with the sea temperature itself. The recorded weather characteristics also did not have significant relationship with any of these parameters.

Additionally, detailed historical records about Leatherback turtles, Sunfish and Basking Shark sightings at the Cape Clear Island from 1971 until 2008 were collated from the Cape Clear Observatory records. This dataset contains data from 3510 days of sea observation, including the observation effort. The numbers of Leatherback turtle sightings during these years were generally low but there were two peaks in turtle abundance – the first in the period between 1989 and 1996, when around 30 turtles were observed every year, and the second in 2000, when 19 turtles were observed. However, since then the records have declining tendency. Sunfish records have overall increasing tendency. In Basking shark sightings, there are years with higher and lower number of observation, with three particularly prominent peaks – in 1977, between 1994 and 1997, and in 2007. All three species are recorded at the locality only in the months with high sea surface temperature; and, overall, the historical number of observations had a significant relationship with this climatic variable. Numbers of recorded Leatherback turtle observations were also significantly related to the North Atlantic Oscillation index. These data, although preliminary, confirm that changes in the selected megafauna species may be used as climate change indicators.