Sea Mammal Research Unit
University of St Andrews
NATURAL ENVIRONMENT RESEARCH COUNCIL
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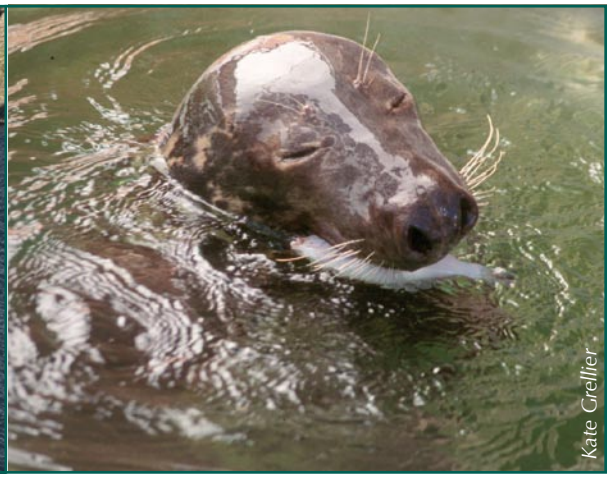
SCOTTISH NATURAL HERITAGE

Seal Diet


Beth Mackey


Kate Grellier

Because seals spend most of their time underwater, finding out what they eat is not a simple (or glamorous) task. Different approaches can be used including seal-borne video camera systems to obtain pictures of what seals eat, or sampling the tissue of live seals – different diets leave different chemical signatures in the blubber, following the principle that you are what you eat.


Paul Thompson

Faecal analysis (recovering from faeces the prey hard parts that survive digestion) is the most widely used method of seal diet determination. It is particularly effective when seals undertake short foraging trips out to sea between hauling out at accessible and predictable sites along the coast; this is typical behaviour of grey and harbour seals found around the British coast. Species of fish consumed by seals can be identified from their ear bones (otoliths) and squid and octopus can be identified from their mouthparts (beaks). Once erosion (due to the digestive process) of these prey hard parts has been accounted for using experimentally derived species-specific correction factors, the size and quantity of prey consumed can be estimated. Although this method is not perfect, it remains the most accurate quantitative means of estimating the type, size and amount of fish that seals eat.

What do UK grey seals eat?

A study carried out in 2002 showed that, throughout much of the North Sea, grey seal diet was dominated by sandeels. In Shetland, the rest of their diet was made-up mainly of gadoids (cod, ling), pelagic (herring, garfish) and benthic (short-spined seascorpion) prey. In Orkney and the Moray Firth, gadoids (cod,

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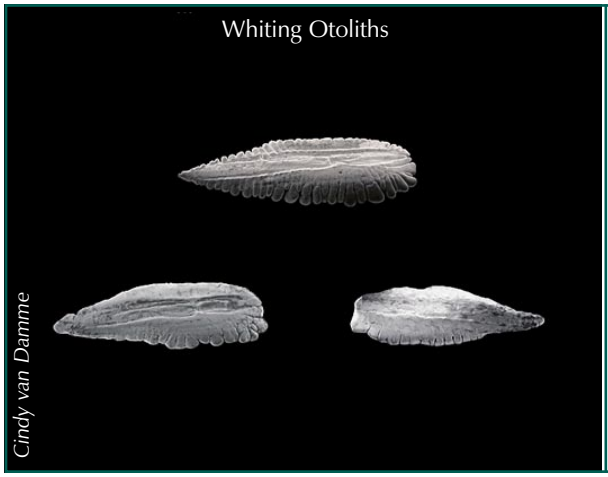

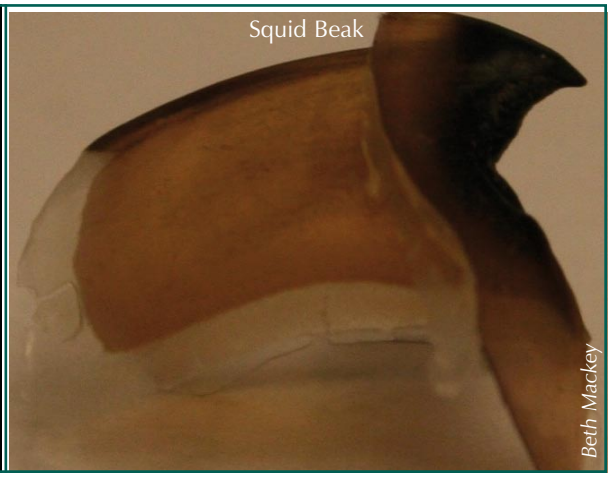

haddock, saithe, whiting), flatfish (plaice) and benthic species (short-spined seascorpion) were important and in the Central North Sea, gadoids (haddock, cod, whiting) were the second biggest contributor after sandeels in every season.
In contrast, diet in the southern North Sea was dominated by benthic species (mainly dragonet, short-spined seascorpion, long-spined seascorpion). Compared to 1985, when the last comprehensive assessment was carried out, an 'average North Sea grey seal' in 2002 ate less sandeel and cod but more haddock, plaice and benthic prey.

In the Hebrides, sandeels and gadoids (mainly cod, haddock, ling) largely dominated the diet in all regions and seasons. An 'average West Coast grey seal' in 2002 ate less sandeel, saithe and ling, about the same amount of cod and whiting, and three times more haddock and herring than in 1985.

What do UK harbour seals eat?

Harbour seal diet has yet to be studied as extensively as that of grey seals, but a few studies have been carried out in selected locations over the years. In the Moray Firth, harbour seal diet was mainly composed of sandeels, lesser octopus and whiting. In St Andrews Bay sandeels and whiting were the two dominant species, while whiting and sole dominated in the southern North Sea.

Why do we need to know what seals eat?

While seals appear to favour certain prey species, their diet composition varies both spatially and temporally. The interaction between the UK's seal populations and dwindling commercial fish stocks is complex. In the context of ecosystem approaches to marine management, it is important to know what effect seals are having on different parts of the marine food web. The specific issue of the interaction between seals and salmon is dealt with in the leaflet entitled 'Marine mammal damage to salmon.'

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