Sea Mammal Research Unit

University of St Andrews

NATURAL ENVIRONMENT RESEARCH COUNCIL

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SCOTTISH NATURAL HERITAGE

Marine mammals and wild salmon

Salmon, seals and dolphins are all protected species. The fisheries for both salmon and sea trout are also economically important. Consequently, it is important that there is reliable information about the extent to which marine mammals affect salmon and sea trout. One potential source of information on these interactions is the damage caused to adult salmon and sea trout returning to rivers. These interactions can be used to inform the management of interactions between these species.

Types of damage

Damage to fish can range from minor including the loss of scales in small areas, to more major with loss of scales over large areas, scratches and puncture wounds to the flesh. Different predators are responsible for these different types of damage.

Bottlenose dolphin with salmon showing parallel rake marks

Harbour seal with salmon showing scratch marks from claws

Dolphins may leave scratch or rake marks with their teeth. If the pattern of scratches is parallel with equal spacing of three or more lines dolphins are likely to be responsible. Bottlenose dolphins have an average tooth spacing of about 12mm and they are all the same length like a comb. Smaller spacing of parallel scratches may be caused by harbour porpoise (average tooth spacing of about 4mm). Larger spacing of scratches may be due to other species of whale and dolphin in more offshore areas.

Seals can leave puncture wounds or scratches from their teeth and claws. If surface or puncture wounds have non-parallel scratches, or just a pair of parallel scratches the damage may have been inflicted by a seal. Their teeth are different sizes, with large canines, rather like dog's teeth. Although seals use their flippers to

Sea Mammal Research Unit, University of St Andrews, St Andrews, Fife KY16 8LB
telephone: 01334 462630 fax: 01334 462632
www.smru.st-andrews.ac.uk

Salmon with puncture wounds possibly from a seal

Salmon showing lamprey damage

handle prey at the surface it is unlikely that they use them for prey capture in open water.

Not all damage to salmon is caused by predators such as seals and dolphins; otters, birds and other species of fish are also sometimes responsible. In addition salmon can be damaged during landing of rod caught fish, and by parasites and fishing gear.

Monitoring damage

The proportion of fish that have been damaged by predators can provide some indication of changes in the number and type of predators that affect salmon or sea trout.

Monitoring predator damage in rod caught salmon and sea trout is being carried out by several of the Moray Firth District Fisheries Boards as part of the Moray Firth Seal Management Plan. In conjunction with counting the number of seals at the mouth of rivers this information can be used to investigate the link between the number of damaged fish and the number of local predators. However, it is not always easy to assign damage to a specific cause.

But remember, damaged fish are 'the ones that got away' so surveys of damaged fish do not necessarily reflect true predation levels.

Further Information

SMRU Leaflet "The Moray Firth Seal Management Plan"

Salmon showing dolphin rake marks

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