

Seals threaten Scottish cod stock recovery

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Predatory seals are constraining the recovery of cod stocks in Scottish West coast waters, research led at the University of Strathclyde suggests.

Losses of [cod](#), through fishing and natural causes, have remained high for many years and have caused long-term decline in the stock - in some years, fishing removed around 50% of the total weight of the stock. The study found that, although fishing has now halved, predation by seals has rapidly increased to compensate, eating up more than 40% of the total stock.

Seals have, historically, been anecdotally blamed for the reduction of Atlantic cod stocks. Grey seals are believed to consume nearly 7000 tonnes of cod each year off the west of Scotland, where landed catches now amount to only a few hundred tonnes.

The research paper has been published in the *Journal of Applied Ecology*.

Dr Robin Cook, a Senior Research Fellow in Strathclyde's Department of Mathematics & Statistics, led the study. He said: "In recent years, cod stocks off the [west coast](#) of Scotland had declined to barely 5% of the value they had in 1981. The European Union has introduced a recovery plan to try to curb cod fishing and help the stock recover but there are few signs of improvement off the west of Scotland.

"It appears that fishing played a major part in the decline of the cod but increasing predation by seals is preventing the stock from recovering,

even though the amount of fishing has reduced."

In an effort to protect the stock, the EU Cod Recovery Plan places strict regulations on the amount of time spent at sea by fishermen and the quantity of cod they can land. However, the plan does not take into account the amount of cod eaten by seals, which appears to be a major reason why the strategy in the West of Scotland has had little success so far.

Dr Cook said: "Fishery managers face striking a difficult balance. With high predation by seals, the cod stock will struggle to improve and the Recovery Plan may not deliver the expected results. We may have to live with smaller cod stocks if we want to protect our seals."

Dr Steven Holmes, of the European Commission Joint Research Centre - co-author of the report - said: "Seal populations have increased on the West Coast of Scotland and they also seem to be able to find the cod just as easily, even though the stock is now small. This makes the remaining stock very vulnerable to predation."

Grey seal populations increased significantly around the British Isles after the passing of UK conservation laws in the 1970s but, more recently, their numbers in the West of Scotland have levelled off at around 30,000-40,000. They eat a wide range of [fish](#) with sand eels, a small finger-shaped fish that lives near the sea bed, forming the largest part of their diet.

Although cod form only around 10% of the total weight of fish eaten by [seals](#), this is sufficient to have a significant impact on the stock.

Marine Scotland Science was a partner in the research, along with Strathclyde and the Joint Research Centre.

Provided by University of Strathclyde, Glasgow

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