Scotland's wild stocks 'tainted' by Norwegian strains used in fish farms, writes **Mark Macaskill**

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A salmon farm on Loch Linnhe; inset, a wild Atlantic salmon

AS MANY as one in four wild Atlantic salmon from Scotland has been genetically "tainted" by Norwegian fish, a study suggests. Analysis of almost 1,500 wild salmon from the west coast found 369 possessed genetic markers unique to the Scandinavian fish.

The findings have provoked a fresh row between environmentalists and Scotland's aquaculture industry.

Opponents argue fish farmers, who depend heavily on imported eggs from Norway to build up stocks, are primarily to blame — millions of escapees over the past decade are thought to have "polluted" the gene pool by cross-breeding with their wild cousins.

Last night, however, the Scottish Salmon Producers' Organisation (SSPO) said there was no evidence fish farming was responsible.

It is known, for example, that Norwegian fish have been used to boost salmon stocks in east coast rivers such as the Spey and the Shin. It is possible, said SSPO, that these fish have migrated and bred with west coast populations.

For the study, carried out by Rivers and Fisheries Trusts of Scotland (Rafts), 1,472 Atlantic salmon across more than 50 locations, including rivers such as the Awe, Lochy and Laxford, were sampled between 2005 and 2011.

A particular set of genetic markers unique to Norwegian fish enabled scientists to identify hybrids but it was not possible to determine if a Scottish salmon had bred with a wild fish from Norway or a farmed one. Nevertheless, it found much higher levels of hybridisation than expected in wild salmon on the west coast, home to more than 400 fish farms. Since 2002, according to Scottish government figures, about 2.4m farmed Atlantic salmon have escaped into the sea.

"Most sites had a signature of hybridisation that was significantly higher than expected by chance," states the study. "Across all sites, 369 out of 1, 472 (25.1%) individuals were identified as hybrids, which is significantly higher than that seen for the east coast 'wild' baseline."

Callum Sinclair, from Rafts, added: "The main focus of the report is the detection of introgression between Norwegian aquaculture strains and Scottish fish. [It] indicates significant levels of hybridisation of wild Scottish salmon in the West Highlands and Islands with genetic strains commonly in use in the Norwegian-owned salmon aquaculture industry."

Salmon are known to travel vast distances. A study that tracked the movements of fish released from a Scottish fish farm in 2007 found them as far afield as Norway and Sweden.

It is conceivable that farmed and wild fish from Norway have made the same trip to Scottish waters and bred successfully with native Atlantic salmon. However, Tony Andrews, chairman of the Atlantic Salmon Trust, said there was a "prima facie case" for salmon farming's role in creating hybrid fish.

A spokesman for SSPO said: "It is disappointing that so much public money has been spent on this non-peer-reviewed project that revealed no real differences between wild and farmed fish."