

Large numbers of salmon are killed by parasites, finds new study

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(Phys.org)—An "unexpectedly large" number of free-ranging salmon are being killed by parasitic lice in European waters every year, according to the results of a major international study.

The study, published today in [Proceedings of the Royal Society B](#),

involved experts at the University of St Andrews and is the first evidence of the full impact of sea lice on [salmon](#) mortality levels.

Professor Christopher Todd, of the Scottish Oceans Institute at St Andrews, was part of an international group which found sea lice to be responsible for 39 per cent of the mortalities amongst salmon in the Northeast Atlantic Ocean.

Professor Todd, a Professor of [Marine Ecology](#), collaborated with experts from New Zealand, Canada, Ireland and Norway in the research paper.

He said: "For the first time we can effectively place a reliable value on the predicted mortality loss of free-ranging salmon subject to infection from this parasite.

"This high per cent mortality attributable to sea lice was unexpected. The salmon aquaculture industry has long placed a high priority on controlling sea lice on their captive salmon – but these results do emphasise the need for the industry to not only maintain the health of their own stocks, but also to minimise the risk of cross-infection of wild fish."

Sea lice are natural parasites of wild salmon and also present the salmon aquaculture industry with major challenges as the parasite can debilitate or kill the salmon host. Natural mortality of [wild salmon](#) during their ocean migration can be as high as 90-95 per cent, but over the past 20 years controversy has surrounded the contribution of sea lice parasites to salmon mortality.

The research team analysed data relating to experimental releases of young salmon, and their rates of survival when they returned to freshwater a year later as [mature adults](#).

The data analysed included 24 trials carried out between 1996-2008 which involved 280,000 smolts (young salmon) which had been individually tagged, before their release, into 10 rivers in Ireland and Norway.

In each trial half the fish were treated chemically before their release to protect them from sea lice infection during their first 1-2 months at sea. The remainder in each trial were untreated control fish. A proportion of each group were then recovered as adults on their return to coastal waters a year later.

By comparing the tags recaptured from both the treated and control groups in each trial, the researchers showed that [sea lice](#) were responsible for an average 39 per cent of the total mortality losses of salmon at sea.

Professor Martin Krkosek of the University of Otago, New Zealand, who led the study, said: "Our research is similar to clinical studies in medicine – except that wild fish are the patients.

"Usually we think of food, climate, predators and fishing as the major drivers of fish abundance, but we have learned that parasites are taking a very large share of the catch."

More information: [rspb.royalsocietypublishing.org ...
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Provided by University of St Andrews

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