

The Rosette Agent: Monitoring a new threat in Britain's rivers

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There are more than four million anglers in the UK and the sport generates an estimated £3.5 billion for the economy. But research by Dr Demetra Andreou and her colleagues at Bournemouth University's Centre for Conservation Ecology & Environmental Change has uncovered a new threat that could put many of the native fish species UK anglers rely on at risk.

The culprit is a single celled parasite called *Sphaerothecum destruens*; also known as the Rosette Agent. Dr Andreou's work has revealed that the parasite has the potential to cause widespread harm to many popular species of UK [fish](#), including salmon, bream, carp and roach. With her results suggesting mortality levels of up to 90% in native salmon and 53% in bream, it could prove a nightmare scenario for the angling community. If the parasite got into the UK's aquaculture industry, the impact could be devastating.

"Here we have a parasite that could cause massive decline in native fish," says Dr Demetra Andreou. "Yet no one even knows which rivers it is in."

The problem, she explains, is that the fish die in small numbers, just a few each day. Such small losses in a river can easily go unnoticed as the sick individuals get picked off by predators, or the bodies get washed away.

"These [parasites](#) looked like one that had been found before in salmon in the US aquaculture industry," explains Dr Andreou.

In the US the Rosette Agent had devastated salmon populations, causing up to 90% of salmon stocks to die.

Using laboratory studies, Dr Andreou and her colleagues set about trying to determine whether the sub-type of the parasite found in the UK could cause similar harm to UK fish species.

By infecting salmon, trout, bream, carp and roach with the parasite, they were able to accurately determine the impact the parasite could have on the fish without having to account for other changes in environment such as temperature and food, which can complicate studies in the wild.

They found that UK Atlantic [salmon](#) is just as susceptible to the parasite as their American cousins and coarse fish like bream, carp and roach were also susceptible to the parasite.

Despite this, very little is known about how many UK lakes, rivers and fisheries the parasite is present in. It does not feature on a list of parasites that the Environment Agency routinely tests for, but Dr Andreou and her colleagues hope to change that.

"One of the things we are trying to do is to get it listed on the Environment Agency's Novel and Category 2 parasites. This means that when fish are moved from one water body to another, they will check for this parasite as part of the health check."

The Environment Agency is already attempting to eradicate topmouth gudgeon, an unaffected carrier of the Rosette Agent, from UK waterways. The Agency has already removed hundreds of thousands of the three-inch long fish from English rivers.

"We are also developing a way of testing for the parasite in the water," says Dr Andreou. "By filtering the water we can extract DNA onto the

filter paper and using PCR, we can detect whether the parasite's genetic information is in the water. It can help to narrow down the places where we should look in the fish community for the parasite."

Dr Andreou is also now focusing on understanding what conditions are needed for the Rosette Agent to cause an outbreak. She believes that as some species of fish are less affected than others, it is important to determine how different species compositions can influence disease emergence.

More information: For more information on the parasite visit TheRosetteAgent.org

Provided by Bournemouth University

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