

In cod we trust: DNA test combats fisheries fraud

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Scientists on Tuesday said they had devised a DNA test to pinpoint the geographical origins of commercial seafish, in a breakthrough against illegal trawling that threatens fish stocks worldwide.

The technique so far has been developed for four species -- [Atlantic cod](#), [Atlantic herring](#), common sole and European hake -- under a campaign to combat fisheries fraud in Europe.

But it could easily be widened to more species and help fishery guardians in other jurisdictions, the researchers said.

The invention comprises a databank of changes to the genetic code, called [single nucleotide polymorphisms](#), or SNiPs.

Species that hail from a specific region, such as the North Sea herring or Baltic cod, have a SNiP profile that is exclusive to that area.

Analysing DNA from a single fish, even if it has been processed or cooked, gives the geographical telltale.

As a result, inspectors -- and thus consumers -- can be told whether the fish is indeed the species or from the fishery claimed on the label.

"We set out to develop a method that could be used throughout the European food supply chain and across the fish industry," said Gary Carvalho, a professor at Bangor University in Wales who led the

research consortium.

"The tools can be used to identify or compare a set of pre-identified [genetic markers](#) within fish samples at any point in the consumer chain from net to plate, and to trace the fish back to their region of origin or breeding group."

The project, called FishPopTrace, brought together 15 research groups, from the European Union (EU), Norway and Russia.

It is part of a three-year, four-million-euro (\$5-million) EU initiative to develop better testing and traceability to combat fisheries fraud.

In 2011, EU member states had to introduce laws requiring any fish on sale to be identified according to their species and region of origin.

But there have been many documented cases of abuse.

Fish may be wrongly labelled as having been caught in [sustainable fisheries](#), and fillets from cheaper species are sometimes passed off as being from more expensive ones.

Around a fifth of commercially-caught fish around the world are "IUU," meaning illegal, unreported and unregulated, according to a 2009 investigation.

In lab tests, the SNIp signature was 93-100 percent accurate, say the scientists.

Turning to the practicality of the technique, inspectors would send samples to a DNA laboratory, a facility that is becoming widespread in advanced economies, to test the fish.

"Any reasonably well-equipped molecular genetic laboratory" should be able to SNIp-analyse several hundred fish per day, at a cost of around \$25 (20 euros) per fish, say the authors.

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