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DNA testing identifies juvenile coastal cod in Sweden thought to be extinct

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By Responsible Seafood Advocate

DNA testing reveals 'there is still something left to save' of Sweden's cod populations

It was widely believed a coastal cod population near Sweden was extinct. But a new study, published in the *ICES Journal of Marine Science* (<http://dx.doi.org/10.1093/icesjms/fsac220>), has found that there is still a cod population that spends all its life off the west coast of Sweden.

By genetically analyzing cod collected by test fishing, researchers from the University of Gothenburg and the Swedish University of Agricultural Sciences (SLU) found two distinct types of cod living in the waters along Sweden's west coast. These types of cod belong to the same species – the Atlantic cod (*Gadus morhua*) – but they are different "ecotypes," genetically adapted to different environments or lifestyles. The two types of cod found off the west coast are known as "offshore cod" and "coastal cod," because one has its origins far out to sea, while the other resides close to the coast throughout its life. These two types of cod rarely mate with each other.

"Our analyses show that a high proportion of juvenile cod in the fjords and near the west coast of Sweden are coastal cod," said Simon Henriksson, a researcher at the University of Gothenburg. "That shows that there is still something left to save. But in the test fishing, you get very, very few adult cod. In test fishing near the coast, only a handful of cod over 40 centimeters in length were found."



In the fjords, quite a number of juvenile cod of the coastal ecotype were caught. However, only a few specimens over 40 centimetres long were found in the nets. Photo courtesy of Håkan Wennhage.

For the study, the researchers collected juvenile, decimetre-long, cod from over 100 different sites in the Skagerrak, the Kattegat and the Sound (Öresund), and analyzed them genetically. Their results show that the cod stock in the area is not just made up of offshore cod, but a mixture of both ecotypes. Offshore cod are found mainly far off the coast and the coastal cod are closer to the shore. In the fjords of West Sweden, the proportion of coastal cod is very high, which is unexpected given the theory that they were virtually extinct.



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“In some places, both offshore and coastal cod are found in the same fjord, but they appear to live at different depths,” said Henriksson. “Offshore cod live at slightly greater depths, while coastal cod are more common in shallow waters.”

The results of the genetic analysis do not mean that cod populations are recovering, as the numbers of adult and juvenile cod continue to decline in all Swedish seas. Rather, the findings demonstrate a “need to account for the fact that there are two different types of cod, that differ genetically and geographically if we are going to try to rebuild cod stocks along the west coast.”

[Read the full study here](http://dx.doi.org/10.1093/icesjms/fsac220) (<http://dx.doi.org/10.1093/icesjms/fsac220>).

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Author



RESPONSIBLE SEAFOOD ADVOCATE

editor@globalseafood.org (<mailto:editor@globalseafood.org>).

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