Sustainable fishing: the dangers of ignoring sub-stocks

In Europe, some fisheries have been driven to near collapse – most notably cod stocks in the North Atlantic. A recent study warns of the potential dangers of using a single-management technique across a whole species. Instead, distinct populations should be identified with tailored management techniques where necessary.

Over-fishing and a changing climate are placing extreme pressures on many fish stocks. Stocks of North Atlantic cod in the North Sea have been below the safe biological limit since 2000 and recruitment levels are near the lowest on record.

The study cites evidence which demonstrates that there are distinct populations of cod in the North Sea, and that these ‘sub-stocks’ could have different responses to environmental pressures. For example, a recent study monitored the decline of two distinct North Sea populations, found in the Dogger Bank and Flamborough Head regions. It concluded that they may face extinction before other populations. However, as it is not widely recognised that these populations behave differently to others, cod is still managed as a single stock.

Accurate and timely data on all sub-stocks must therefore be collected to ensure effective management. In the case of the North Sea cod, where data were amalgamated, the collapse of more minor populations was not detected in time for protective measures to be implemented.

Successful identification of distinct populations and their responses to environmental pressures, can lead to more sustainable fishing practices. For example, if a particular population is found to decline rapidly in response to fishing, then fisheries can choose to exploit other, stronger populations instead.

Any loss of sub-stocks reduces the genetic diversity of a species. Ideally, any stocks that are genetically distinct from others, and show signs of an ability to adapt to a changing ecosystem should be protected. However, as it is currently very difficult to assess the genetic ‘worth’ of a stock, the researcher recommends maintaining as much genetic diversity as possible in order to give the species as a whole the best possible chance. This is particularly crucial with new pressures on species from climate change and rising sea temperatures.

This research concludes that current fisheries management is unsustainable. Keeping a close watch on how different stocks respond to fishing practices could help sustain wild fisheries and allow for their continued exploitation.

The European Commission recently announced proposals to cut catch quotas of over-trawled species such as cod and herring in the Baltic Sea to improve sustainability of fishing in the EU. A recovery plan for Baltic cod implemented last year by the EC has shown good signs of progress.


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