



Impacts of commercial fishing may reach deep sea waters

New research indicates that there has been a decline in the abundance of deep sea fish in recent decades. If this is caused by commercial fishing, then the impacts of commercial fishing could be occurring in deep offshore areas that were previously thought to be unaffected. These areas are not routinely monitored or included in fishing management strategies.

The spatial distribution of deep water fish has been widely studied but their distribution over time is under-researched. The study, supported by the EU's HERMES programme¹, analysed a unique dataset of scientific trawls made from 1977 to 1989 and from 1997 to 2002 at depths from 800 to 4800m in an area in the northeast Atlantic Ocean. The 'early' period (1977-1989) is before and during the development of modern commercial fishing, whilst the late period (1997-2002) is considered to be after the onset of modern commercial fishing.

Overall fish abundance fell significantly at all depths from 800 to 2500m between the two time periods. This is considerably deeper than the level at which commercial fishing generally occurs (1600 m). Large declines were observed in nine of the 15 most common species and were greater in species whose ranges fell at least partly within depths where commercial fishing occurred. For example, numbers of the commercially fished roundnose grenadier declined by 41 per cent and species that are not the target of commercial fishing also declined, such as the smallmouth spiny eel, whose numbers fell by 77 per cent.

The study also considered possible natural explanations for the decline in fish. Changes in food availability could be a possible explanation, but the amount of food available appears to have been stable or even increased between the two periods.

Having discounted natural explanations, the results indicated that the impacts of fishing extend deeper than the reach of fishing gear. It is possible that the impacts are primarily on those fish whose ranges include the shallower areas where fishing occurs. These losses reduce the amount of fish that can spread out into the deeper water and therefore deprive these deeper areas of part of their normal fish community. The ecological consequences are not known.

If fisheries impacts spread beyond the area directly affected by fishing gear, then proposals for future deep water marine protected areas are likely to be limited in their effectiveness unless commercial fishing is controlled in the surrounding area.

1. HERMES (Hotspot Ecosystems Research on the Margins of the European Seas) was supported by the European Commission under the Sixth Framework Programme. See www.eu-hermes.net

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