ZERO CARBON BRITAIN and our oceans

By Debbie Crockard

The Marine Conservation Society (MCS) believe that climate change may have a huge impact on our oceans and in turn our fish and fisheries.

There have been a number of studies conducted in the North East Atlantic on the movement of fish stocks in relation to climate change and prey abundance and changes have been particularly identified in highly mobile and migratory species (Heath et al., 2012). On the surface it may not appear to be a big issue that fish are moving a few kilometres north or south, but what does that actually mean to us? How does it affect our fishermen or what is available to us in our supermarkets?

To use a well publicised example the recent disagreement between the EU and Norway and the Faroe Islands and Iceland over mackerel quota is, at its heart, a result of climate change and the movement of fish stocks in response to this change. In the UK alone mackerel is worth approximately £205million to the fishing industry, is arguably one of our most important fish stocks and was, for a time, fished sustainably and profitably by the EU, Norway, the Faroe Islands and Iceland.

However, in 2012 the stock had its Marine Stewardship Council certification of sustainability suspended and has been moved from the fish to eat list, to the fish to eat only occasionally by MCS. What role has climate change played in the fall of mackerel from the sustainability check list and how has this led to a disagreement polarising the Faroe Islands and Iceland from the EU and Norway?

Mackerel distribution and migration has been shown to strongly correlate with water temperature, and their path of migration closely follows the relatively warm shelf edge current (Jansen et al., 2012). They can migrate up to 500km along the continental shelf following the warm waters from their northern feeding areas to their spawning grounds in the south (ibid.). Mackerel have taken advantage of the larger thermal habitat (warmer waters) available to them with the increase in temperature of the North East Atlantic, have moved northwards and westwards, and are subsequently being found more commonly in Icelandic waters than they were previously (Utne et al., 2013). However, mackerel are not simply moving as a direct result of ocean warming but they are also following the changing distribution patterns of one of their main prey species, the zooplankton *Calanus finmarchicus*, which has been moving north due to range constriction as a result of its requirement for colder waters (ibid.).

At first glance it is difficult to see why this has become a hot political issue, until you consider how we split up ownership of our seas and how we manage what our fishermen can catch. Since mackerel are moving north and west they are now being found more regularly in Icelandic and Faroese waters – where they were previously found in much smaller numbers.

The original agreement between the four interested parties (Iceland, the Faroe Islands, the EU and Norway) awarded the lion's share of the mackerel quota to the EU and Norway as mackerel was more commonly fished by these two parties, with the UK holding a significant share of the EU's quota. Now that mackerel is being caught more regularly in Icelandic and Faroese waters, they are demanding a greater share of the allocated quota and, until negotiations have been agreed between all nations to their satisfaction, are setting quota for themselves far in excess of their previous share (Iceland quota in 2002 - 53tonnes, Iceland quota in 2011 - 159,263tonnes).

Naturally, the EU and Norway are hesitant to release quota with such a high value and over which they had historic ownership, and so negotiations have been difficult between the four parties, with Iceland and the Faroe Islands having now stepped away from the negotiating table completely. The increase in catch, from the Iceland and Faroese self designated quotas, has resulted in the Marine Stewardship Council suspending the certification of the fishery due to it being subjected to heavy overfishing well beyond the catch limits recommended by scientists as sustainable.

So now we can link political disagreements, fisheries sustainability, fishermen's livelihoods all back to the beginning – climate change – and show it's not just the direct effects but the indirect ones that will add up; climate change impacts us all and it must be addressed now.

References

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Debbie Crockard joined the MCS as Fisheries Policy Officer in 2011, her main areas of work within fisheries include the reform of the Common Fisheries Policy, the associated European Maritime and Fisheries Fund reform and the conservation of the deep sea. Before working for MCS she studied Marine and Fisheries Ecology at the University of Aberdeen and worked as a deep sea research assistant on a number of projects both in the UK and Internationally.