

Scientific Advice and The Stock Book

Scientific advice is a critical part of the process that decides on fishing opportunities. This year the scientific advice for most of the commercial fish stocks was released in July. This was much earlier than normal. The EU requested scientists to develop the advice earlier in order to allow for more consultations between the EU Commission, industry and national administrations on fishing opportunities for 2009.

In October, the remaining advice for mackerel, horse mackerel and blue whiting will be finalised. The Marine Institute's annual review of commercial fish stocks in the waters around Ireland will then be published. Commonly known as The Stock Book, this publication gives the latest scientific advice, based on all our data collection work at sea and on shore.

The Stock Book will be used by the Irish government in their discussions with the Commission on fishing opportunities for 2009.

Dr Paul Connolly, Director of the Marine Institute's Fisheries Science Services team, explains why and how this important publication is put together and comments on the new direction scientific advice will take in the coming years.

What is the Stock Book?

The Stock Book is a compendium of the latest scientific advice on the state of the fish stocks in the waters around Ireland. This scientific advice is produced at the International Council for the Exploration of the Seas (ICES) and is used by the EU Commission and national governments in their discussions on fishing opportunities.

The advice in the Stock Book is based on information gathered over the year from our data collection programme. This programme consists of independent stock surveys on our research vessels and on chartered fishing vessels; from data gathered by our seagoing Fisheries Assessment Technicians on commercial boats (e.g. discards), from landing statistics and from data on fleet activity (e.g. EU Logbook and VMS analyses). It is very important that these data are analysed thoroughly in order to give a clear picture of what is being removed from the stocks and where the fleets have operated and what gears they have used. The better the data, the better the scientific advice.

International Co-operation

The Stock Book brings together information from a wide range of sources, gathered over large and routinely measured areas, over long periods of time. This Irish data is combined with similar data from other countries who fish the same stocks. International co-operation is a vital part of the science advisory process and scientists meet to conduct their analyses at the International Council for the Exploration of the Seas (ICES), based in Copenhagen, Denmark. At ICES, scientists examine the data, analyse them and formulate the scientific advice that helps managers make their decisions on fishing opportunities.

There are serious concerns about the current state of many fish stocks in EU waters. To give some examples, twenty years ago the international fleets (mainly UK and Ireland) were catching 20,000 tonnes from the cod stocks off the west of Scotland. Last year, only 500 tonnes were landed. In the Irish Sea, the international catch of cod declined from 13,000 tonnes twenty years ago, to 1,000 tonnes last year. There is no doubt that we are all facing challenging times. It is essential that scientists and fishermen work together to try and come up with solutions that will aid the recovery of stocks. Stocks of Atlanto-Scandian herring have increased dramatically; this stock which collapsed, has now recovered.

The Need to use Fishermen's Knowledge

Scientists have been criticised in that their advice seems to run counter to what fishermen are observing at sea. For example, scientists may undertake surveys that demonstrate to them that stocks are at very low levels, while fishermen may see good catches during their commercial fishing operations. The difference in viewpoint may be due to a variety of factors.

In order to formulate their advice, scientists gather data from a wide area (even areas where there are no fish) over a long period of time. Fishermen tend to focus on where the fish are and on the good catches they get. This can lead to conflict in the perception of the stock. For example, it would be misleading to estimate the human population density of Ireland based on survey figures from a Dublin shopping centre on a Saturday afternoon. Equally, it can be misleading to estimate the entire stock of cod based on the

good commercial catches only. This is a very important area for collaboration between fishermen and scientists. It is very important that we work together to resolve any conflicts on the state of the stocks.

Fishermen have a huge amount of information in their heads on the stocks. It is a great pity that scientists do not tap into this valuable information more to help improve their scientific advice. A new project funded by the Marine Institute's "Sea Change research funding programme" will focus on working with fishermen to harness their knowledge of the stocks in a "scientific way", so it can be used in the preparation of scientific advice. The project will be carried out at National University of Ireland, Galway (NUIG) and will involve applying techniques already used in other disciplines (e.g. medicine; sociology) to harness the valuable knowledge in "fishermen's heads".

New Form of Scientific Advice

As well as monitoring and advising on each fish stock on its own (e.g. haddock in the Irish Sea), scientists are increasingly turning to the "Ecosystem Approach" in their advice. Here a much broader range of factors influencing the fish stocks in an area are taken into account. The science looks at the place of that particular fish species in the overall "food web"; the animals that stock feeds on; the larger predators that might feed on the stock; impacts of human fishing pressure on the seabed and the influences of climate change. In the near future, scientists will give broader ecosystem advice on a particular area (e.g. The Irish Sea) rather than on a fish stock (e.g. cod in the Irish Sea). This approach hinges on working with fishermen to protect the seas and ensure sustainable fisheries. Future advice will seek to protect sensitive spawning grounds, introduce special fishing gears to reduce by-catch and draw up management plans for areas with fishermen.

Working Together is Key

The scientific advice presented in the Stock Book aims to deliver sustainable TACs and quotas in order to support Irish fishermen into the future. There is no doubt that the format of scientific advice will change in the coming years. However, if it is to change for the better, it must include fishermen's knowledge, be based on a strong working relationship and a culture of trust between scientists and fishermen.