

WHERE OCEAN CURRENTS MEET

Along with the question of climate change, the issue of shifting migration patterns of commercial fish stocks is drawing international attention to oceanography and marine research in the area around the Faroe Islands.

AMID TIMES of changing climate, and altered distribution of living marine resources, the ocean surrounding the Faroe Islands has become the object of intensifying research. With the recent resolution of a four-year dispute over Northeast Atlantic mackerel catch, which saw the Faroes and Iceland pitched against the European Union and Norway, the main argument presented by the Faroese and the Icelanders has in effect been accepted by the EU and Norway—that there is scientific evidence for a significant shift over recent years in the regular migration of the species.

“The Faroe archipelago is indeed located in a geographical area of large scientific interest,” said Eilif Gaard, director of the Faroe Marine Research Institute (FAMRI).

According to Dr. Gaard, Faroe is involved in a growing number of international research projects focusing on issues of climate, oceanography and marine biology.

“In collaboration with other European marine research institutes, FAMRI has for many years conducted substantial research on the ocean currents that are passing the islands. The issue of climate change has attracted international scientific interest to the study of the



northeastward transport of warm seawater. This research is not only related to climate change but it is also related to research on the marine ecosystems and potential effects on the marine ecosystems.”

The ocean around the Faroe Islands is where the warm North Atlantic currents meet the cold currents from the Nordic Seas. Some of the dynamics there are believed to have significant oceanic, climatic and biological implications, not merely for the region but for a much wider area. While many aspects of this have been researched and analyzed over the years, a vast number of questions remain open and so scientists are looking to find out more about the nature, scope and scale of such implications.

Dr. Gaard: “Measurements of ocean currents have shown that the flow of North Atlantic seawater into the Nordic Seas is about 6 million cubic meters per second, of which about half is flowing between Iceland and the Faroes and the other half between the Faroes and Scotland. Although there has been some variability in the strength of the currents, it has not increased or decreased long-term. However, the temperature of the inflowing seawater has increased, resulting in an increased heat transport into the Northern European areas.”

‘SUBSTANTIAL CHANGES’: For communities across Northern Europe dependent on sustainable marine resources, the potential effects of temperature

changes on the marine ecosystems is a serious consideration, Dr. Gaard said.

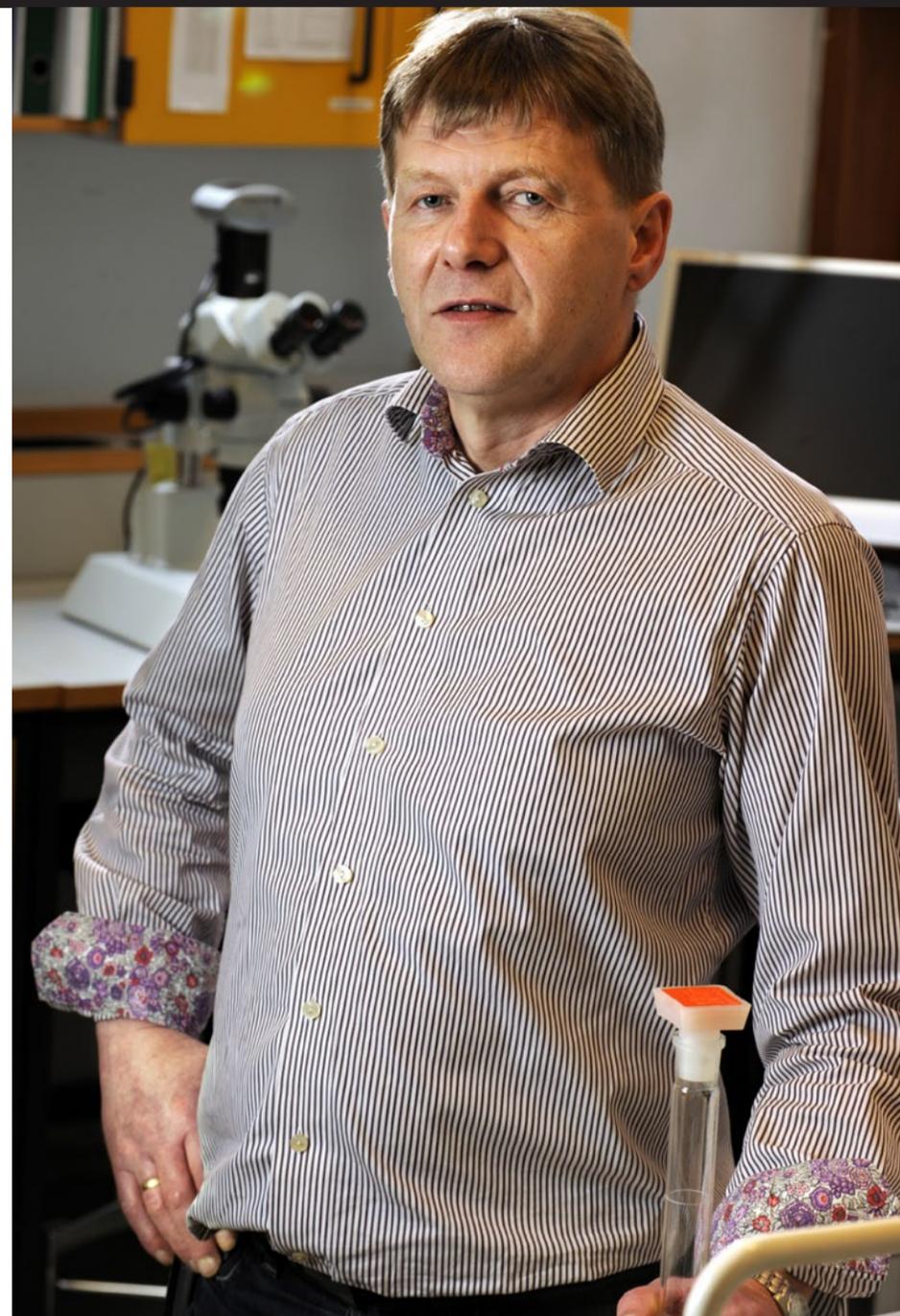
“Of course this is a highly important subject and several marine research institutes including FAMRI are working closely together to research and investigate it.”

An example of one such research project: NACLIM (North Atlantic Climate), a four-year project initiated in late 2012 and funded by the EU’s Seventh Framework Programme, with 18 participating institutions plus one third-party, from nine European countries. The gist of the 11 million EUR project is largely about looking into the extent to which changes in the North Atlantic sea surface trigger global climate variability.

The continuous current of oceanic seawater passing the Faroe Islands from the southwest and into the Nordic Seas is a key element.

“Due to this large inflow of warm seawater,” Dr. Gaard said, “the temperatures in the Nordic Seas and coastal Northern Europe are high when taken into account its quite northerly location. Nowhere else on the planet is the climate so warm, so close to the pole. This process has a pronounced influence on the climate in Northern coastal Europe as well as on the marine ecosystems of Northern Europe, including the Nordic Seas and Arctic regions. For this reason, the current, and potential effects on climate and marine ecosystems, are intensively studied.”

The Nordic Seas are rich on plankton, with some of the world’s largest



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straddling pelagic fish stocks—mainly mackerel, herring and blue whiting—migrating into the area to feed on this plankton during summer.

The fish migrate over long distances between spawning areas, nursery areas, feeding areas and overwintering areas, and may cross several countries’ economic zones in their migration routes. They are therefore considered common resources of several coastal states.

“In recent years we have seen substantial changes in the migration routes of some of these commercial fish stocks,” Dr. Gaard said.

“In close collaboration with marine research institutes of other coastal states, FAMRI participates actively in research on these stocks, their abundances and behavior and the environment that affects their growth and behavior.”

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The Faroe Marine Research Institute (FAMRI) is a governmental institute which conducts various marine research and provides the Government of the Faroe Islands with scientific advice based on its research on marine resources and the environment.

FAMRI’s main tasks are to carry out research of the marine resources harvested by Faroese fishermen and the environment governing their distribution and production.

This includes fish biology, physical and biological oceanography, fish behaviour, gear technology, and seabird biology. Furthermore to advise the authorities and the industry, and to report on the research results.

The aim of the research is to provide a basis for a sustainable exploitation of the marine resources around the Faroe Islands.

Assessments are made of the most important fish stocks. These assessments are based on investigations which are carried out by the research vessel Magnus Heinason — for example, O-group surveys, trawls surveys and acoustic surveys, in addition to catch and effort statistics from the commercial fleet.

The biology of the various species of fish is studied, including fluctuations in the stocks, growth, spawning and feeding.

Experimental fisheries are conducted on fish and benthic invertebrates which have not been fished traditionally. Consideration is then given to whether these could be fished commercially in a sustainable way as experiments are carried out to identify suitable and environmentally friendly fishing gear.

The oceanography and the living organisms in the waters around the Faroes are studied; e.g. temperatures, currents, and the conditions for living organisms to grow and reproduce are examined. In particular climatic changes likely to affect the reproductive success of various species of fish in Faroese waters are investigated.