

# CODYSSEY: Cod spatial dynamics and vertical movements in European waters and implications for fishery management

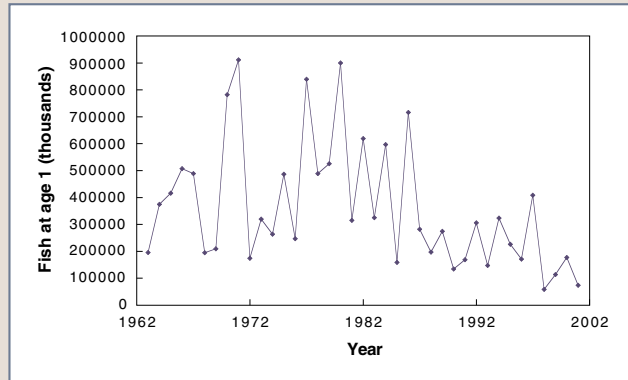


[www.codyssey.co.uk](http://www.codyssey.co.uk)

Centre for Environment, Fisheries & Aquaculture Science, Lowestoft  
www.cefas.co.uk

## Context

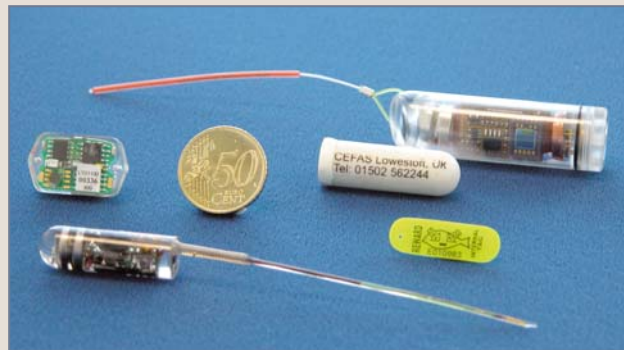
Over the past decade, the state of the NE Atlantic cod stock has become increasingly alarming. Loss of sub-stock structure and depletion over large areas are symptoms typical of a stock on the verge of collapse. Despite the implementation of management structures such as technical conservation measures, TACs/quotas and, more recently, recovery plans in the North and Irish Seas, the need to reduce fishing mortality to the lowest possible level remains urgent. However, the absence of high quality biological data on cod is an obstacle to ensuring the efficacy of long-term management measures.



Decline in one-year old cod since 1963 in the North Sea

## Project description

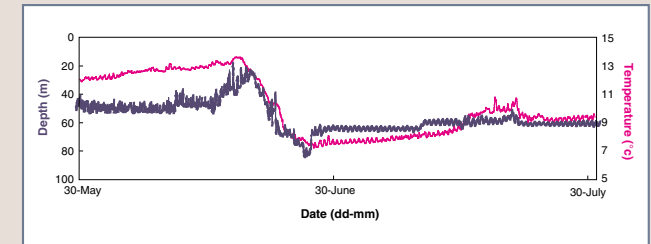
CODYSSEY was a four-year research project extending from 2002 to 2006 that involved nine research institutes in Europe, and was funded jointly by national governments and the EU. The project was designed to increase our understanding of cod behaviour, particularly horizontal and vertical migration, in four ecosystems of the NE Atlantic: the North Sea, the Barents Sea, the Baltic Sea and Icelandic/ Faeroes waters. CODYSSEY was the largest electronic tagging programme ever to be undertaken on a marine fish species, with over 1600 tagged cod being released in these regions in 2003-2004.



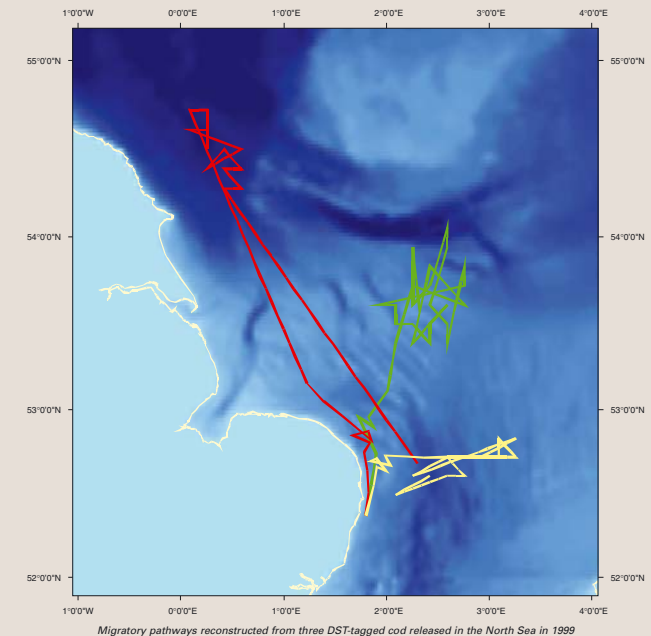
Tagged cod (top picture) and Data Storage Tags (bottom picture) used for internal and external tagging

## Project aims and objectives


The overall aim of CODYSSEY was to provide relevant data for the evaluation of stock assessment methodology, management and conservation of cod stocks in European waters. CODYSSEY has provided high-resolution data on the movement and individual-based behaviour of cod in relation to environmental factors such as temperature, depth and season. Unique behaviourally-based predictive models of cod distributions are generating valuable fisheries-management relevant information of national and international interest. These data should enable rational decisions regarding the interpretation of stock assessments and appropriate management and conservation measures to be made with greater confidence.




Vertical depth profile (blue) in metres with temperature (pink) in °C of a DST-tagged cod released off Lowestoft in the North Sea in 1999




Migratory pathways reconstructed from three DST-tagged cod released in the North Sea in 1999

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 Danish Institute for Fisheries Research  
www.dfu.min.dk

 Institute of Marine Research, Norway  
www.imr.no

 Fisheries Research Services, Marine Laboratory, Scotland  
www.marlab.ac.uk

 Marine Research Institute, Iceland  
www.hafro.is

 Department of Fisheries and Marine Biology, University of Bergen, Norway  
www.ifm.uib.no

 Institute for Marine Research, Sweden  
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