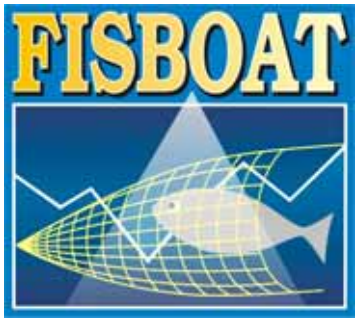
"FISBOAT"

Making more reliable estimates of European fish stocks

The systematic collection of reliable basic data on fisheries is a cornerstone to fish stock assessment and scientific advice, and consequently for the implementation of the Common Fisheries Policy (CFP). There are two main sources of data collected and used by fisheries scientists: fishery-independent and fishery-dependent data.

When assessing European fish stocks, use is usually made of the fishery dependent or commercial catch and effort data (CPUE), which are collected from logbooks.



The underlying assumption for using CPUE is that changes in these data reflect changes in the abundance of the fish stocks. The problem with these data is that they are often unreliable due to, for example, misreporting, non-reported landings and discards.

An obvious alternative would be to base the assessments on the fishery-independent data, which come from existing fisheries surveys. This represents a challenge because survey results are also subject to variation and there is a need to address this by applying new models – or improve existing ones – in order to arrive at reliable stock estimates.

FISBOAT aims to tackle the major issue of unreliable fish stock assessment by developing **new assessment methods that are based exclusively on research vessel survey data.** The project will:

- evaluate how these methods perform in producing advice within defined management criteria, such as determining the optimum level of harvesting;
- study the sensitivity of the methods in anticipating changes in population biology and survey performance; and
- compare, through case studies, test results and the corresponding management advice with historical records and actual events in specified fisheries.

The survey-based assessment includes indices of demography, total mortality, spatial occupation, and biological traits. The project case studies span a diversity of European stocks and regional seas: Barents Sea cod, North Sea cod and herring, Baltic cod, Biscay hake and anchovy, central Mediterranean red mullet and eastern Mediterranean hake.

In its first 18 months, the project has developed the **capacity to estimate population biology and spatial indicators**. A variety of assessment models has been created to estimate population abundance, mortalities and catchabilities using survey data only, based on population dynamics models by age or length.

In the months to come, these models will be tested using simulated data with known properties to quantify their performance in estimating actual abundance, as well as their robustness to different effects in the data. For this purpose, a

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benchmark test has been elaborated which will be applied to each assessment model. In addition, indicator based comprehensive diagnostics will be elaborated as a basis for providing management advice.

Finally, these diagnostics will be compared to actual assessments that have been done in the past based on fishery-dependent data. This way, the project will evaluate whether or not fishery-independent assessment models are more reliable than the fishery dependent models used at present.

By developing fish stock assessment tools based on survey data only, FISBOAT will enable the provision of more robust and reliable scientific advice to fishery managers and policy-makers.

Moreover, the project will foresee a management model driven by numerically defined harvesting rules and an early-warning mechanism that will give policy-makers more time to respond proactively to evolving challenges.

"COMMERCIAL CATCH DATA ARE OFTEN UNRELIABLE DUE TO FOR EXAMPLE MISREPORTING, NON-REPORTED LANDINGS AND DISCARDS"

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