Hydroacoustic measurement of swimming speed of North Sea saithe in the field
Saithe Pollachius virens, tracked diurnally with a split-beam echosounder, showed no relationship between size and swimming speed. The average and the median swimming speeds were 1.05 m s\(^{-1}\) (+/- 0.09 m s\(^{-1}\)) and 0.93 m a \(^{-1}\), respectively. However, ping-to-ping speeds up to 3.34 m s \(^{-1}\) were measured for 25-29 cm fish, whose swimming speeds were significantly higher at night (1.08 m s\(^{-1}\)) than during the day (0.72 m s\(^{-1}\)). The high average swimming speed could be related to the: foraging or streaming part of the population and not to potential weakness of the methodology. However, the uncertainty or target location increased with depth and resulted in calculated average swimming speeds of 0.15 m s\(^{-1}\) even for a stationary target. With increasing swimming speed the average error decreased to Om s \(^{-1}\) for speeds >0.34 m s\(^{-1}\). Species identity was verified by trawling in a pelagic layer and on the bottom. >0.34 m s\(^{-1}\). The Fisheries Society of the British Isles
1998 ICES Coordinated Acoustic Survey of ICES division IIIa, IVa, IVb and VIa (north)

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Authors: Simmonds, E. (Ekstern), Bailey, M. (Ekstern), Toresen, R. (Ekstern), Torstensen, E. (Ekstern), Pedersen, J. (Intern), Götze, E. (Ekstern), Fernandes, P. (Ekstern), Couperus, A. (Ekstern)
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**General information**
Projects:

Spatially-explicit management methods for North Sea cod – a Danish fishermen-science collaboration (REX, REX II, REX III) (38430, 38431, 38541)

The REX project started in 2006 as a protest from the Danish Fishermen Association because fishers had a less pessimistic perception of the status of the cod stock in the North Sea than ICES, and they considered the agreed TAC levels far too low. In particular the fishermen considered the scientific surveys as inappropriate due to extremely low catches of large cod because of wrong gear and fishing on smooth bottom only. This seemed to call for more spatially-explicit oriented approaches and REX was born with an aim of getting closer to a common understanding of the true number of adult cod in the North Sea by focusing on communication and collaboration in developing and implementing a scientifically sound and robust survey strategy with commercial ships in a north-eastern area selected by the Danish Fishermen Association using three vessels presenting different fishing methods (flyshooter, trawler and gillnetter).

The development of the fishermen-scientists collaboration with mutual respect has increased the understanding on both sides. In particular the emphasis on defining common goals, facing and solving conflicts immediately and extending
thorough collaboration from survey planning, conducting of field work to interpretation of results during workshops have contributed to bridging the communication gap.

A better understanding of cod biology has also been a focal point in these projects through the new field studies incorporating fishermen’s knowledge. This includes distribution and migration, feeding behavior and importance of Hot-Spots (e.g. ship wrecks). Electronic tags were applied to learn about migration also in the Baltic. Together with the aim of continuing to obtain better assessments of the stocks such more mechanistically oriented studies are needed to answer two apparently simple questions “Where are the cod and why?”

The REX projects have strengthened the scientific collaboration with fishermen and produced several results and types of knowledge that will influence future work on developing spatial explicit management tools. REX also represents capacity building for DTU Aqua’s interdisciplinary field research and monitoring towards the spatial dynamics of cod.

The project is coordinated by DTU Aqua.

National Institute of Aquatic Resources
Section for Marine Living Resources
Danish Fishermen's Association
Period: 01/01/2006 → 31/01/2010
Number of participants: 17
Research area: Marine Living Resources
Project participant:
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Thygesen, Uffe Høgsbro (Intern)
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