Cod Survey

A Data Management Plan created using DMPonline

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Project abstract:

Since 2003 the cod fishery in Kattegat has been restricted by steadily decreasing quotas due to low abundance of cod estimated from the cod assessment. ICES consider, however, the cod assessment in Kattegat uncertain due to the catch data quality and the analytic assessment has not been accepted by ACFM in recent years. The assessment has shown a discrepancy between the estimated fishing mortality and the reported landings and ICES assumed that the majority of the unallocated mortality was caused by discard, but other factors such as migration, non reported landings and re-allocation of catches also could be part of the problem. Furthermore, the surveys conducted at present in the Kattegat area are not very suited for estimation of cod abundance mainly due to the low coverage and sampling intensity. The abundance estimate in the areas is hence rather uncertain and only shows trends in stock development, and the assessment of the cod stock would, without doubt, benefit significantly from a survey directly aimed at cod. The 5 August 2006 a tender was submitted by Swedish Board of Fisheries, Institute of Marine Research (IMR-SE) in response to the open call for tenders, Reference No FISH/2006/15 Studies and Pilot projects for carrying out the common fisheries policy, Lot No 3: “Evaluation of the pilot effort regime in Kattegat” from Directorate-General for Fisheries and Maritime Affairs.

Both Swedish and Danish scientists and the fishermen’s organisations aggress that the poor survey quality hampers the assessment of the cod stock in Kattegat and an expert group consisting of people from the fisherman’s organisations and scientists has designed an improved survey. The initiative has been taken by the LOT 3 project group and was originally a strictly Swedish project. However, the involvement of Denmark has been considered as an improvement of the project and the survey has been designed in all details in agreement between fishers and scientists from both countries. The survey has been conducted since 2008 with a gap in 2012 and only Swedish vessels participating in 2013. The survey strata has been moderated slightly since 2013 to take into account the closed area very a separate strata has been placed.

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Cod Survey

Data collection - 1

The goal of the Kattegat cod survey is to estimate the abundance, biomass and distribution of cod and to establish a fisheries independent time series of catch and effort series. Furthermore, a recruitment index will be established. The results should be used, together with commercial catch and effort data to strengthen the scientific advice on the cod stock in Kattegat. The survey will also monitor the amount and distribution of cod within the proposed “closed area” in order to analyse the effect of the closure.

SQL Database format

- 0-5 GB

Otoliths are stored in storage room in a DTU lab.

Genetics are stored as tissue samples in a freezer in DTU Silkeborg.

Paper versions of logbooks are stored in a DTU lab.

Data collection - 2

The survey is conducedted according to the BITS standard as documented at the ICESwebpage under data portals:

http://ices.dk/sites/pub/Publication%20Reports/ICES%20Survey%20Protocols%20(SISP)/2017/SISP7%20BITS%202017.pdf

The survey area is restricted to the Kattegat area covering from Skagen, to the Tistlarna lighthouse and in south by an south-eastwards line between Ellekilde Hage and Lerbjerg and south-westwards by a line between Gniben og Hassensør on Djursland. Further, the area is restricted by the 20 m depth contour line and the area is split in areas "North" and "South" (Fig. 1).

However, in two fjords Laholmsbugten and Skældervigen fishing at stations shallower than 20 meter will take place and 1 or two stations will be placed in a small area in The Sound “Kilen”.

Survey method and stratification

The survey is designed as a random stratified bottom trawl survey. The survey area is since 2013 stratified in four strata: a stratum with high cod density, a stratum with medium density and a stratum with low cod density based on information from the fishers a forth strata has been designate to make sure not stations are placed within the closed area. Each stratum is further subdivided in 5*5 nm squares. Most stations according to the area are allocated to the high density stratum. In the forthcoming years stations will be allocated to the different strata in order to minimize the variance of the estimation of the cod biomass. The survey design allows a post-stratification of the survey area if necessary without loosing comparability with previous surveys and hence to take changes in the main focus area into account if the stock distribution is changing between years or the stock is increasing or decreasing.

Station (tow) location

The survey is planed with in average 3.3 trawl hauls per day in 6 days for each of the 4 vessels i.e in total 80 trawl hauls. The hauls are allocated randomly to the 5*5 nm squares and each vessel is allocated 20 different squares. In the high and medium density strata several vessels are allowed to fish in the same square. In the low density stratum only one haul is allowed in each square. Furthermore the low density area is divided in a Southern and Northern area.

Numbers of stations by vessel, stratum and area

Ship	High density	Medium density	Low density (South)	Low density (North)	Closed area	Total
Den_1	12	10	7	7	4	40

The folder structure is predefined in the following format

Main folder

- Data

- Data_Documentations

- Data-Managment_Plan

As described in local procedures and guidelines - DTU Aqua

https://www.inside.dtu.dk/-/media/DTU-Inside/Institutter-og-centre/Aqua/Forskning/Research-data-procedures-and-guidelines-DTUAqua.ashx?la=da&hash=5CA3FDF83ADCDD335C389D81F3FDBB2EEFD0A456

An annual survey report and survey manual is developed and stored in the data folder.

Otoliths readings are calibrated on a triannual basis.

A quality control protocol for all processes should be developed in the future.

Documentation and Metadata

An annual report is developed and stored in the project folder containing relevant metadata for the data.

The report is written as part of the annual survey

Reporting

The annual report.

All data is uploaded and stored in our own winSQL database

Ethics and legal compliance

Data is not sensitive, but access is presently restricted to relevant parties.

The data belong to DTU aqua, and we are in charge of data sharing.

No sensitive data.

No sensitive data.

No copyright.

To be resolved.

The survey is a joint project between DTU aqua and SLU aqua in Sweden. Both countries have full access of data and no official licens have been developed.

No

Storage, backup and security

Q:\scientific-projects\Cod-Survey

Data is also stored in the SQL database "FiskeLine"

We have enough data storage

DTU is backing the data up on a regular basis

DTU

DTU procedures

Database is only accessible through logging in with a password provided by DTU aqua security administrators.

No sensitive data

Password

Data is sent by email, as per request.

Standard procedure for digitalization of logbooks and samples

Selection, preservation and sharing

All data present in the database as well as annual reports

All data can be retained

No data

All input and output data for the survey are to be stored

The data is the main source for data management and stock assemesment for cods in Kattegat, however data are made available for scientists and can be used for scientific purposes such as closed areas, MPAs fish distribution etc.

FiskeLine database

In the future data will be uploaded to the public open ICES database "datras"

For all eternity

Its part of the monitoring standard routines

Timeseries

- Yes

Presently data has to be requested at DTU aqua, but in the future data is uploaded in a standard data format which can be downloaded via ICES database

When uploaded to datras it will be free for use. Untill then on a case by case decision

datras database

Only people known to us will gain access before it is public available.

Presently not

Within a 2 year period

datras is a well know database to relevant parties

- Yes (If yes, please continue)

DTU AQUA needs to be informed before data is used.

1 year

No

Responsibilities and Resources

Marie Storr-Paulsen

Marie Storr-Paulsen

Question not answered.

No

No

No

- Yes (If charges are applied, how you are going to cover for the costs?)

In case of special request, there will be a charge in accordance with handling time.