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## Plan Overview

*A Data Management Plan created using DeiC DMP*

**Title:** Cod Survey

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**Funder:** DEFF

**Template:** DEFF DMP template (in English)

### 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 agree 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

### What data types are collected or generated to answer the project's main objectives?

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.

### Which file formats are the data in?

SQL Database format

### How much data will be generated?

- 0-5 GB

### If you are using non digital data (e.g. physical objects), how are you storing those data?

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

### Which data collection standards will you use?

The survey is conducted according to the BITS standard as documented at the ICES webpage under data portals:  
[http://ices.dk/sites/pub/Publication%20Reports/ICES%20Survey%20Protocols%20\(SISP\)/2017/SISP7%20BITS%202017.pdf](http://ices.dk/sites/pub/Publication%20Reports/ICES%20Survey%20Protocols%20(SISP)/2017/SISP7%20BITS%202017.pdf)

### Which methodology will you use to collect the data?

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 fourth stratum has been designate to make sure no 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 losing 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 planned 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 |
|------|--------------|----------------|---------------------|---------------------|-------------|-------|
| Den1 | 12           | 10             | 7                   | 7                   | 4           | 40    |

### How will you structure and name your folders and files?

The folder structure is predefined in the following format

- Main folder
- Data
  - Data\_Documentations
  - Data-Management\_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>

**How will you handle versioning?**

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

**What quality assurance processes will you adopt?**

Otoliths readings are calibrated on a triannual basis.  
A quality control protocol for all processes should be developed in the future.

**Documentation and Metadata**

**How will you capture / create the metadata?**

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

**Can any of this information be created automatically?**

The report is written as part of the annual survey

**What metadata standards will you use?**

Reporting

**What metadata, documentation or other supporting material should accompany the data for it to be interpreted correctly?**

The annual report.

**What information or software needs to be retained to enable the data to be read and interpreted in the future?**

All data is uploaded and stored in our own winSQL database

**Ethics and legal compliance**

**Have you gained consent for data preservation?**

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

**Have you gained consent for data sharing?**

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

**How will sensitive data be handled to ensure it is stored and transferred securely?**

No sensitive data.

**How will you protect the identity of participants?**

No sensitive data.

**How are copyright and IPR of newly generated data regulated?**

No copyright.

**If the data is suitable for reuse. How will they be licensed?**

To be resolved.

**If you are using third-party data, how do the permissions you have been granted affect licensing?**

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.

**Will data sharing be postponed / restricted e.g. to seek patents?**

No

## **Storage, backup and security**

**Where will the data be stored?**

Q:\scientific-projects\Cod-Survey  
Data is also stored in the SQL database "FiskeLine"

**Do you have access to enough storage or will you need to include charges for additional services?**

We have enough data storage

**How will the data be backed up?**

DTU is backing the data up on a regular basis

**Who will be responsible for backup and recovery?**

DTU

**How will the data be recovered in the event of an incident?**

DTU procedures

**What are the risks to data security and how will these be managed?**

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

**How is security for sensitive data guaranteed?**

No sensitive data

**How will you control access to keep the data secure?**

Password

**How will you ensure that collaborators can access your data securely?**

Data is sent by email, as per request.

**If creating or collecting data in the field, how will you ensure its safe transfer into your main secured systems?**

Standard procedure for digitalization of logbooks and samples

## **Selection, preservation and sharing**

**What data should be retained?**

All data present in the database as well as annual reports

**What data must be retained for contractual, legal, or regulatory purposes?**

All data can be retained

**What data must be destroyed for contractual, legal, or regulatory purposes?**

No data

**How will you decide what other data to keep?**

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

**What are the foreseeable research uses for the data?**

The data is the main source for data management and stock assessment 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.

**Where e.g. in which repository or archive will the data be held?**

FiskeLine database

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

**How long will the data be retained and preserved?**

For all eternity

**Have you estimated in time and effort to prepare the data for sharing / preservation?**

Its part of the monitoring standard routines

**What is the potential value of long term preservation?**

Timeseries

**Can you share your data?**

- Yes

**Which data will be shared and how? Specify where the data and associated metadata, documentation and code are deposited.**

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

**With whom will you share the data, and under what conditions?**

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

**Will you share data via a repository, handle requests directly or use another mechanism?**

datras database

**How will the identity of the person accessing the data be ascertained?**

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

**Will you pursue getting a persistent identifier for your data?**

Presently not

**When will you make the data available?**

Within a 2 year period

**How will potential users find out about your data (e.g. by adding keywords)?**

datras is a well know database to relevant parties

**Are there restrictions on data sharing?**

- Yes (If yes, please continue)

**What action will you take to overcome or minimize restrictions?**

DTU AQUA needs to be informed before data is used.

**For how long do you need exclusive use of the data?**

1 year

**Will a data sharing agreement (or equivalent) be required?**

No

## **Responsibilities and Resources**

**Who is responsible for implementing the DMP, and ensure it is reviewed and revised?**

Marie Storr-Paulsen

**Who will be responsible for each data management activity?**

Marie Storr-Paulsen

**How will responsibilities be split across partner sites in collaborative research projects?**

Question not answered.

**Will data ownership and responsibilities for Research Data Management be part of any consortium agreement or contract agreed between partners?**

No

**Is additional specialist expertise on Research Data Management (or training for existing staff) required?**

No

**Do you require hardware or software which is additional or exceptional to existing institutional provision?**

No

**Will charges be applied by data repositories or archive?**

- 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.