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| <b>Sampling protocol:</b> DEMACT1  |
| <b>Sampling objective(s):</b> data collection of discards for active demersal fleet  |
| <b>Start of sampling:</b> 1999   |
| <b>Sampling ongoing:</b> yes   |
| <p><b>Data use</b></p> <p>Primary data use:<br/>From 2009 onwards - to verify the accuracy and objectivity of the demersal self-sampling programme (<a href="#">DEMACT2</a>).</p> <p>1999-2009 – data collected, i.e. length frequency and biological data, raised to fleet level, on request available for relevant end-users such as ICES.</p>   |
| <p><b>Sampling design and method</b></p> <p>Every year 10 observer trips are carried out on board of active demersal fishing vessels. At the beginning of the year a sampling schedule is produced through a random selection of the vessels that are participating in the demersal self-sampling programme (see also factsheet DemAct2), i.e. the reference fleet. Selected vessels are divided, according to the order generated by the random selection, over the year with a sampling intensity of 2-3 trips per quarter. Approx. two week before planned sampling, the selected vessel is contacted with the request to observe the selected trip. The scientific observer boards the selected trip where he/she samples discards on haul basis. During these observer trips the fishermen also execute self-sampling (see also factsheet <a href="#">DEMACT2</a>). Next to sampling the discards, the scientific observer records rare, incidental bycatches and corresponding observation effort (expressed in the time observed of catch processing at the conveyer belt) on a haul level. Furthermore, operational- and catch data is collected each time the fishing gear is deployed (each ‘haul’).</p> <p>No length measurements of landings are collected during the observer trips as this fraction is sufficiently covered by the on-shore sampling programme (see also factsheet <a href="#">AUCTION DEM</a>).</p>     |
| <p><b>Sampling protocol and data capture</b></p> <p><i>In the field</i></p> <p>For each discard sampling trip, one observer goes onboard a vessels. Operational- and catch data are collected each time the fishing gear is deployed (each ‘haul’) during a fishing trip, regardless of it being sampled for discards. With each haul the following information is registered: vessel position (at start and end); haul duration; depth; weather conditions; and the volumes of catches and landings.</p> <p>The observer samples as many hauls as possible. From each sampled haul, sample of one fish basket of discards (approx. 35 kg) that is representative for the haul is taken by the observer. The basket is filled by scooping discards at regular intervals from the end of the processing conveyer belt. Numbers at length (‘to the cm below’) are recorded for all fish species, Norway lobster (<i>Nephrops norvegicus</i>) and edible crab (<i>Cancer pagurus</i>) in the discards sample. Numbers without length measurements are recorded for all remaining (benthos) species. Data is written down on specific measurements lists and entered in the computer once back in the lab.</p> <p>In addition, during the trip individual fish are collected for age determination, max. 5 individuals per length class, for a number of species (i.e. plaice, sole, dab, turbot and brill). Age samples are stored on</p> |

ice and taken back to the lab for processing. The observer also monitors incidental bycatches on the bridge and at the conveyor belt in close collaboration with the crew (see also factsheet [PETS](#)).

#### *In the lab*

Age samples are processed in the lab. Individual length measurements ‘to the mm below’ are done using an analogue measuring board. Individual wet weights are taken to the gram using electronic scales. The otoliths are collected, and sex and -if relevant- maturity is determined by opening the body cavity. Measurements are written down on specific measurement lists. The otoliths are embedded in resin and sliced. Images are taken from the otolith coupes. Age reading takes place from those images using the institute’s (in-house further developed) version of [SmartDots](#).

All data collected on board and in the lab is inserted in Billie Turf, the standard in-house data management software. The standard collected haul information (i.e. date, haul position, gear etc.) is also entered in excel. The information collected for age reading is automatically added to the Billie file belonging to the concerning haul.

#### **Data quality**

Quality assurance procedure

Measurement lists of collected data are archived at WMR and inputted data are stored as plain text files at a centralised location for which daily back-up routine is in place. When all data of a sampled trip has been inputted checks for outliers take place. The checks are conducted using standardised scripts (R, SAS) and involve outlier checks for numerical values, consistency checks for text variables, relational checks such as length-weight, length-age relationships, and maps with the sampling positions.

#### **Data storage**

National database: After file corrections, the data are stored in one of the centralised databases, FRISBE. The relevant aspects of this database are described in [Proc databases](#).

International database: ICES RDB(ES) <https://www.ices.dk/data/data-portals/Pages/RDB-FishFrame.aspx>

#### **Data availability**

Institutional availability: data is available to people with access rights to the shared location. Read and write rights can be assigned separately.

Public availability: data is available anonymously on aggregated level.

#### **Reference to full documentation:**

National manual: Bangma, T., A.S. Couperus, M. Dammers, A.T.M. van Helmond, P. Molenaar, H.M.J. van Overzee, 2022. CVO Handboek Discardsbemonstering en bijvangstregistratie. Versie 4.0, november 2022. CVO rapport 22.026

**Review frequency full documentation:** national manual is annually reviewed.

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