

Dutch Ministry of Agriculture, Nature and Food Quality, The Hague

Wageningen Marine Research, IJmuiden

Wageningen Economic Research, The Hague

Regulation (EU) 2017/1004 of the European Parliament and of the Council

on the establishment of a Union framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the common fisheries policy and repealing Council Regulation (EC) No 199/2008 (recast).

Commission Implementing Decision (EU) 2016/1251

adopting a multiannual Union programme for the collection, management and use of data in the fisheries and aquaculture sectors for the period 2017-2019.

Commission Implementing Decision (EU) 2016/1701

laying down rules on the format for the submission of work plans for data collection in the fisheries and aquaculture sectors.

Commission Implementing Decision (EU) 2018/1283

laying down rules on the format and timetables for the submission of annual data collection reports in the fisheries and aquaculture sectors.

Netherlands Annual Report for data collection in the fisheries and aquaculture sectors

2019

Version [1]

[The Hague, May 25, 2020]

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SECTION 1: BIOLOGICAL DATA

Text Box 1C: Sampling intensity for biological variables

General comment: This box fulfils paragraph 2 point (a)(i)(ii)(iii) of Chapter III, Chapter IV of the multiannual Union programme and Article 2, Article 4 paragraph 1 and Article 8 of the Decision (EU) 2016/1701. This box is applicable to the Annual Report.

1. Evidence of data quality assurance

- For area 87: Data collection is carried out by Poland under a Multilateral agreement. Quality assurance is based on end-user's (SPFRMO) requirements and specifications.
- For area 34: Data collection is carried out by Poland under a Multilateral agreement. The sampling protocol is based on end-user's (CECAF) needs and provided with the Multilateral agreement in the Workplan.
- For area 27:
 - On-shore sampling: As described in the accepted workplan, sampling of demersal vessels is based on random selection of vessels visiting the main auctions in The Netherlands. Both national and foreign vessels are sampled. Pelagic fish is not auctioned, catch samples are collected on board of a fixed selection (depends on activities in EU Waters) of trawlers (PEL2), including foreign vessels landing into the Netherlands.
 - At-sea sampling: As described in the accepted Workplan, at-sea sampling occurs on board three pre-defined sampling populations: passive demersal gears (DEMPAS), active demersal gears (DEMACT) and pelagic gears (PEL1). The Netherlands is currently working towards improved random sampling of the sampling populations. The sampling plan for DEMACT is based on a reference fleet scheme. A representative selection of 20-25 vessels from the sampling population collects discard samples (self-sampling) following a random sampling schedule. A weighted random selection of fishing companies managing the pelagic freezer trawlers was applied in the sampling plan for PEL1. For Dempas it has been tried to apply random sampling, but in practice it has proven to be extremely difficult to implement random sampling since the activity of vessels within this sampling population is highly variable and this fishery has a strong seasonal and weather dependent character.

Routine data quality checks and data validation exercises of both on-shore and at-sea sampling are executed during data entry (standardized data entry software) and prior to and during data import (standardized checking routines and data import procedures). Standardized raising procedures including quality control are used for data preparation prior to data transmission to end users.

2. Deviations from the Work Plan

- For area 87: See AR Poland.
- For area 34: See AR Poland.
- For area 27:
 - On-shore sampling: For pelagic species, the total number of achieved samples over all regions is (more than) sufficiently covered in general. By design, the pelagic sampling follows the fishery, hence activity shifts between regions are reflected in sampling achievements. As a consequence, this may lead to apparent over- or undersampling for a specific region. On species level however, the planned numbers are all met in those cases.
Crangon crangon, rays and seabass are subject to specific landing restrictions, limiting the possibilities to sample these species. As a result, these species are undersampled. In some cases, e.g. for *Mullus surmuletus*, additional commercial categories were added by the industry, resulting in additional categories to sample and thus an increased number of individuals that may be mistaken for oversampling.
 - At-sea sampling: While for a number of species the achieved numbers deviate from the planned numbers, the planned trips were reached for nearly all stratum_codes (Table 4A). Over- or undersampling for these species is caused by the fact that sampling follows the fishery. This fact will continue to have an impact in future years, even though the planned number have been tuned to previous achievements. Furthermore, for a number of species, e.g. *Raja brachyura*, the achieved number deviates from the planned number as the planned number is a theoretical number.

3. Actions to avoid deviations.

- For area 27:

- On-shore sampling: Limited possibilities exist to achieve higher numbers of individuals for rays and seabass. Any sampling event is however seen as an opportunity to collect samples for these species, whenever these species are available for sampling.
- Incorrect planned numbers have been corrected in the approved 2020 NLD Workplan, where and when applicable, number will be corrected in future updates.

SECTION 1: BIOLOGICAL DATA

Text Box 1D - Recreational fisheries

General comment: This box fulfills paragraph 2 point (a) (iv) of Chapter III of the multiannual Union programme and Article 2, Article 3 and Article 4 paragraph 1 of the Decision (EU) 2016/1701. This box is applicable to the Annual Report. This box is intended to provide information on the design, implementation and analysis of all components of sampling schemes/ surveys that are listed in Table 1D.

1. Description of the target population

The target population is the whole population of resident recreational fishers fishing in The Netherlands. Recreational fishers are >95% anglers.

A small group are marine gillnet fishermen. The group of gillnet fishers is decreasing because of the recent prohibition to retain seabass and because of the old age of fishers in this group. Gillnet recreational fishery is analysed separately.

2. Type of survey

The Netherlands carries out a multiannual sampling programme covering all recreational fisheries in fresh and marine waters. The surveys provide information on cod, eel and seabass, but also on other species such as salmon and elasmobranchs. As there is no licence system in the Netherlands from which all recreational fishermen can be identified, the programme consists of a biennial screening survey covering about 50.000 randomly selected households. These households are questioned on their participation in recreational fishery. Based on the results of this screening survey about 2000-2500 recreational fishermen have been selected to provide information on their recreational catches in a biennial logbook survey.

Information on the design can be found in Table 5A.

3. Data Quality

Non-responses and refusals are recorded in table 5A. Documentation on data quality can be found in the link in table 5A ([van der Hammen et al 2019](#))

4. Data Analysis and processing

Information about data processing is found in the Work Plan, Table 5A.

Pilot Study 1: Relative share of catches of recreational fisheries compared to commercial fisheries

General comment: This box fulfils paragraph 4 of Chapter V of the multiannual Union programme and Article 2 and Article 4 paragraph (3) point (a) of the Decision (EU) 2016/1701.

General comment: This box is applicable to the Annual Report. This box is intended to provide information on the results obtained from the implementation of the pilot study.

1. Aim of pilot study
2. Duration of pilot study
3. Methodology and expected outcomes of pilot study

not applicable (no pilot study).

SECTION 1: BIOLOGICAL DATA

Text Box 1E: Anadromous and catadromous species data collection in fresh water

General comment: This box fulfills paragraph 2 points (b) and (c) of Chapter III of the multiannual Union programme and Article 2 of the Decision (EU) 2016/1701.
General comment: This box is applicable to the Annual Report.
<p>1. Method selected for collecting data.</p> <p>In the Netherlands, eel (<i>Anguilla anguilla</i>) is the only diadromous fish species that is fished commercially in freshwater. In 2010 the Ministry of Economic Affairs (currently Ministry of Agriculture, Nature and Food Quality) introduced an obligatory online catch registration for all inland waters. In 2012 effort data (type and number of fishing gears) was added to the registration system. In the catch & effort registration system, yellow eel and silver eel catches are not separated. Since 2010 the existing market sampling programme that in Lake IJsselmeer/Lake Markermeer has been implemented in the whole country. Roughly one sample represents 10 tonnes of catch. A sample consists of length measurements of max. 200 eels. In addition to collecting data on the length frequency of the catch, eels are collected for biological sampling (life stage, length, weight, sex, age). Annually several hundred eels are dissected for biological samples and a subset of 50 eels are selected for ageing. From March to June, glasseel sampling takes place at several locations with liftnets. Since 2019 sampling also takes place with glasseel detectors. In addition, ditches and the main WFD waters are sampled with electric gears. In autumn (silver)eels are sampled at several locations with fykenets.</p>
<p>2. Were the planned numbers achieved?</p> <p>In general, the planned numbers were achieved or planned numbers were exceeded (see Table 1E). The only non-conformity is explained in Table 1E and below:</p> <p>Glass eel sampling with liftnets was carried out on 8 instead of 11 locations in 2019. This is due to the set-up of the programme, which relies on volunteers on most of the locations. Some of the planned locations could not be manned, but the data used by WGEEL (ICES), including the long-term series at Den Oever, is not sampled by volunteers and has been continued.</p> <p>Actions to avoid deviations: a new methodology is being developed to depend less on volunteers. Glass eel will be sampled with glass eel traps, starting on a number of locations in 2019 and expanding in the years after.</p>

SECTION 1: BIOLOGICAL DATA

Text box 1F: Incidental by-catch of birds, mammals, reptiles and fish

General Comment: This box fulfils paragraph 3 point (a) of Chapter III of the multiannual Union programme and Article 2 of the Decision (EU) 2016/1701. This box is applicable to the Annual Report. This box is applicable only for those sections where Member States have reported that they have been carrying out regular sampling. Results and deviations for Pilot studies should be reported under Pilot Study 2.
<p>1. Results</p> <p>During all observer trips on board commercial vessels (i.e. 996 hauls) the scientific observers have recorded incidental bycatches (this also includes zero bycatch) and corresponding observation effort on a haul level. The observed incidentally by-caught species were generally released dead.</p> <p>2. Deviations from Work Plan</p> <p>none</p>

3. Data quality

The onboard observer protocol states that:

- the observer registers whether the cod-end was checked in a haul for rare, incidental bycatches and the observer is instructed to indicate when the cod-end was not checked in a haul.
- in gillnet and hook-and-line fisheries the observer registers how much of the hauling process has been observed for incidental bycatches which never came on board.
- in active fisheries the observer indicates what percentage of the sorting or hauling process has been checked at haul level for rare, incidental bycatches.
- the observer should report the use of mitigation devices.

The sampling protocol follows recommendations from [ICES Working Group on Bycatch of Protected Species \(WGBYC\)](#).

Routine data quality checks and data validation exercises are executed during data entry (standardized data entry software) and prior to and during data import (standardized checking routines and data import procedures). Data is stored in the WMR database (Frisbe) and provided to ICES WGBYC.

SECTION 1: BIOLOGICAL DATA

Pilot Study 2: Level of fishing and impact of fisheries on biological resources and marine ecosystem

General comment: This Box fulfills paragraph 3 point (c) of Chapter III of the multiannual Union programme and Article 2 and Article 4 paragraph (3) point (b) of the Decision (EU) 2016/1701.

General comment: This box is applicable to the Annual Report. This box is intended to provide information on the results obtained from the implementation of the pilot study.

No pilot study was planned for 2019 pending discussion at regional level with main end users on needs (variables to deliver, spatio-temporal distribution etc.).

Not applicable

SECTION 1: BIOLOGICAL DATA

Text Box 1G: List of research surveys at sea

Region: North Sea and Eastern Arctic

Survey: International Bottom Trawl Survey (IBTS)
<p>The IBTS is carried out twice a year, one survey is conducted in the first quarter and a second survey in the third quarter. The Netherlands participates only in the first quarter (Q1) survey with RV Tridens (25 days at sea). The survey is listed in 2016/1251 Table 10. The continuity of the previous survey design is guaranteed by participation in the coordinating survey group (IBTSWG).</p>
<p>Objectives of the survey</p> <p>The ICES SISP Manual for the International Bottom Trawl Surveys (revision IX) describes the current objectives:</p> <ol style="list-style-type: none"> To determine the distribution and relative abundance of pre-recruits of the main commercial species with a view of deriving recruitment indices; To monitor changes in the stocks of commercial fish species independently of commercial fisheries data; To monitor the distribution and relative abundance of all fish species and selected invertebrates; To collect data for the determination of biological parameters for selected species; To collect hydrographical and environmental information; To determine the abundance and distribution of late herring larvae (February North Sea survey).
<p>Description of the methods used in the survey</p> <p>During daytime, GOV trawl hauls are conducted. At night time, a Method Isaac Kidd (MIK) plankton trawl is deployed. Hydrographical data is collected with a CTD (downcast) at every trawl station. Since 2011, litter from the trawl catch is being sorted and registered. The complete sampling procedure and the level of precision are defined in the ICES SISP Manual for the International Bottom Trawl Surveys (revision IX) and the Manual for the Midwater Ring Net sampling during IBTS Q1 (revision 2).</p> <p>The ICES IBTS Working Group (IBTSWG) decides annually on the sampling areas for the contributing MSs. The area to be covered by the Netherlands in 2017 is presented in Figure 1 in the NLD WP 2017-2019. The sampling areas were re-distributed during IBTSWG 2016, and may be changed for 2018 and 2019 by the group.</p>
<p>Coordination and participation</p> <p>The survey is coordinated by the ICES IBTS Working Group (IBTSWG) and performed in collaboration with research vessels from France, Germany, Denmark, Sweden, UK and Norway.</p> <p>The data of the survey are uploaded in the ICES Database of Trawl Surveys (DATRAS). The internationally combined recruit indices of various species are used by ICES groups WGNSSK and HAWG, elasmobranch information is used by ICES WGEF, and mackerel information incidentally by WGWISE. The IBTS data are also being used in the 2016 OSPAR MSFD assessment.</p>
<p>International task sharing (physical and/or financial) and the cost sharing agreement used</p> <p>Task sharing applies. The IBTS Q1 survey is carried out by a number of EU MSs and non-EU countries, each contributing with its own vessel.</p> <p>No cost sharing applies.</p>
<p>Explain where thresholds apply: Not applicable</p>
<p>Graphical representation (map) showing the positions (locations) of the realized samples during NLD IBTS 2019. Red dots=MIK samples, Black dots=GOV</p>

Link to the latest meeting report of the coordination group: available via [ICES IBTSWG](#). The MIK sampling is scientifically discussed in [ICES WGSINS](#).

A new manual has become available for the North Sea IBTS (version 10)

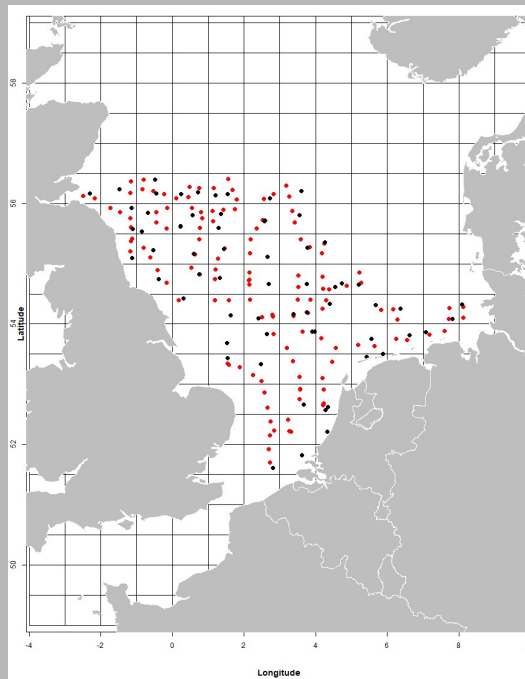
Main use of the results of the survey

The internationally combined recruit indices of various species are used by ICES groups WGNSSK and HAWG, elasmobranch information is used by ICES WGEF, and mackerel information incidentally by WGWIIDE. The IBTS data are also being used in the OSPAR MSFD assessment.

MIK data are used by HAWG.

Extended comments (Tables 1G and 1H)

The link to ICES DATRAS has been changed due to revision of the ICES website:
<http://www.ices.dk/data/data-portals/Pages/DATRAS.aspx>



Survey: North Sea Beam Trawl Survey (BTS)

The BTS is carried out annually in August/September. The Netherlands participates with RV Isis (25 days at sea) and RV Tridens (20 days at sea), both with a different spatial coverage. The survey is listed in 2016/1251 Table 10. The continuity of the previous survey design is guaranteed by participation in the coordinating survey group ([WGBEAM](#)).

Objectives of the survey

The [ICES Manual for the Offshore Beam Trawl Surveys](#) (version 1.0, June 2009) describes the current objectives:

- Create a fisheries-independent stock estimate for plaice and sole
- Collection of data on all fish species and epibenthos species for ecosystem purposes

Description of the methods used in the survey

During daytime, 30 minute beam trawl hauls are conducted. Hydrographical data is collected with a CTD (downcast) at every trawl station. Since 2011, litter from the trawl catch is sorted and registered on board Tridens. The complete sampling procedure is defined in the [ICES Manual for the Offshore Beam Trawl Surveys](#).

The area to be covered by the Netherlands is presented in Figure 2a and 2b in the NLD WP 2017-2019.

Coordination and participation

The survey is coordinated by the ICES Working Group on Beam Trawl Surveys ([WGBEAM](#)). Other MSs carrying out beam trawl surveys in the region are Belgium, Germany and UK.

The data of the survey are uploaded in the [ICES Database of Trawl Surveys](#) (DATRAS). Up to 2016, only the information from the Dutch beam trawl survey in the North Sea is being used by ICES WGNSSK in the fish stock assessments (sole *Solea solea*, plaice *Pleuronectes platessa*, dab *Limanda limanda*). BTS (RV Isis) data is used in the assessment of brill (*Scophthalmus rhombus*) and turbot (*Scophthalmus maximus*).

BTS data (RV Isis and RV Tridens) are being used in the 2016 OSPAR MSFD assessment.

International task sharing (physical and/or financial) and the cost sharing agreement used

Task sharing applies. The survey is carried out by four EU MSs, each contributing with its own vessel. No cost sharing applies.

Explain where thresholds apply: Not applicable

Graphical representation (map) showing the positions (locations) of the realised samples during NLD BTS 2019.

Link to the latest meeting report of the coordination group: available via [ICES WGBEAM](#). A manual has become available in 2019 for the offshore beam trawl surveys ([SISP 14](#)).

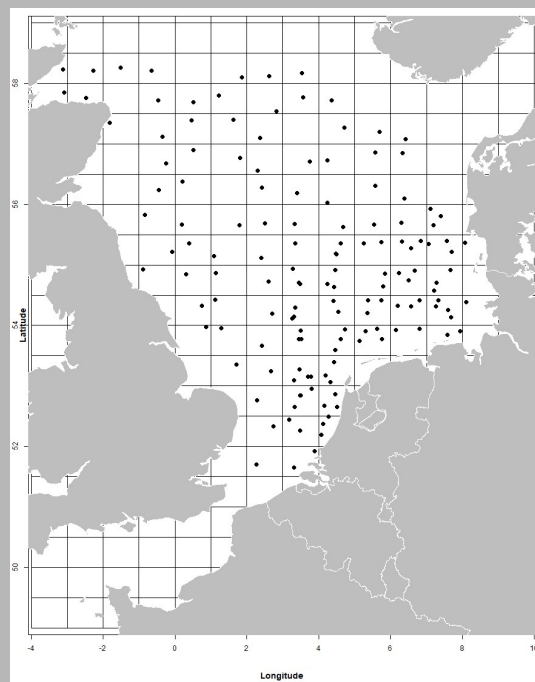
Main use of the results of the survey

The information from the Dutch beam trawl survey in the North Sea is being used by ICES WGNSSK in the fish stock assessments (sole *Solea solea*, plaice *Pleuronectes platessa*, dab *Limanda limanda*), brill (*Scophthalmus rhombus*) and turbot (*Scophthalmus maximus*). Furthermore, the data are used by ICES WGEF in the elasmobranch assessments.

BTS data are being used in the OSPAR MSFD assessment.

Extended comments (Tables 1G and 1H)

The link to ICES DATRAS has been changed due to revision of the ICES website: <http://www.ices.dk/data/data-portals/Pages/DATRAS.aspx>

**Survey: Demersal Young Fish Survey (DYFS)**

The DYFS is carried out annually from end of August-early November. The Netherlands participates with RV Isis (25 days at sea), RV Luctor (15 days at sea), RV Stern (25 days at sea) covering different near shore areas and estuaries. The survey is listed in 2016/1251 Table 10. The continuity of the previous survey design is guaranteed by participation in the coordinating survey group ([WGBEAM](#)).

Objectives of the survey

The ICES Manual for the Inshore Beam Trawl Surveys (in prep.) describes the current objectives:

- Create a fisheries-independent stock estimate for brown shrimp and for 0- and 1-year old plaice, sole and dab
- Collection of data on all fish species and epibenthos species for ecosystem purposes

Description of the methods used in the survey

During daytime, 15 minute beam trawl hauls are conducted. Hydrographical data is collected with a datalog CTD attached to the net. The complete sampling procedure is defined in the ICES Manual for the Inshore Beam Trawl Surveys.

The area to be covered by the Netherlands is presented in Figure 3 in the NLD WP 2017-2019.

Coordination and participation

The survey is coordinated by the ICES Working Group on Beam Trawl Surveys ([WGBEAM](#)). Other MSs carrying out DYFS are Belgium and Germany.

The data of the survey are uploaded in the [ICES Database of Trawl Surveys](#) (DATRAS).

The internationally combined recruit indices for plaice, sole and dab are used by ICES WGNSSK.

The internationally combined abundance indices for brown shrimp are used by ICES WGCAN.

International task sharing (physical and/or financial) and the cost sharing agreement used

The DYFS is carried out by three EU MSs, each contributing with its own vessel. No cost sharing applies.

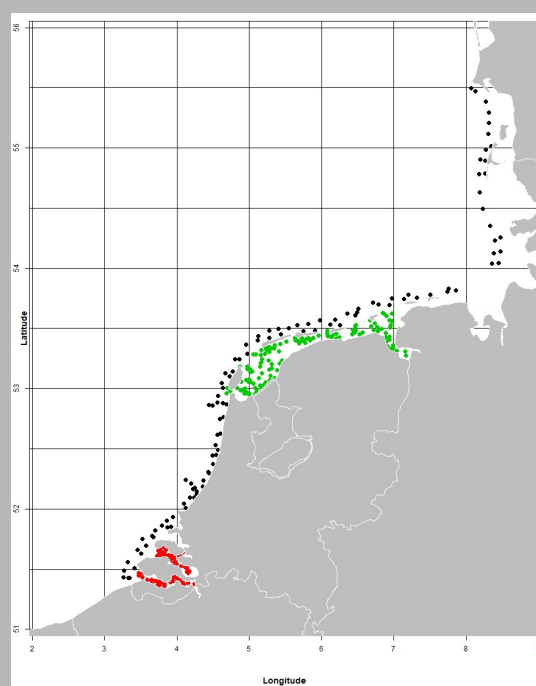
Explain where thresholds apply: Not applicable

Graphical representation (map) showing the positions (locations) of the realised samples during NLD DYFS 2019. Red=Luctor, Green=Stern, Black=Isis.

Latest meeting report of the coordination group: available via [ICES WGBEAM](#)

Main use of the results of the survey (e.g. indices, abundance estimates, environmental indicators)

- The internationally combined recruit indices for plaice, sole and dab are used by ICES WGNSSK
- The internationally combined abundance indices for brown shrimp are used by ICES WGCAN
- The DYFS data collected in the Wadden Sea are also used in [TMAP](#) (Trilateral Monitoring and Assessment Programme in the Wadden Sea)
- The DYFS data collected in the 'Voordelta' and Western Scheldt are delivered to [MONEOS](#) (Dutch-Flemish monitoring programme in the Scheldt area)
- Historical DYFS data in the Wadden Sea have been delivered to [WaLTER](#) (Data portal Wadden Sea monitoring)



Extended comments (Tables 1G and 1H)

The survey in the coastal zone was hampered by bad weather and by delay of the Sole Net Survey (see below). The survey was extended by a week, and all stations could be covered.

The link to ICES DATRAS has been changed due to revision of the ICES website: <http://www.ices.dk/data/data-portals/Pages/DATRAS.aspx>

Survey: Sole Net Survey (SNS)

The SNS is carried out annually in September. The Netherlands participates with RV Isis (10 days at sea) in the Dutch, German and Danish coastal zone. The survey is listed in 2016/1251 Table 10. The continuity of the previous survey design is guaranteed by participation in the coordinating survey group ([WGBEAM](#)).

Objectives of the survey

The ICES Manual for the Inshore Beam Trawl Surveys (in prep.) describes the current objectives:

- a. Create a fisheries-independent stock estimate for 1- to 4-year old plaice and sole
- b. Collection of data on all fish species and epibenthos species for ecosystem purposes

As the manual is under revision, other data use is not yet mentioned: SNS data is currently also used for a fisheries-independent stock estimate in the assessment of turbot (*Scophthalmus maximus*).

Description of the methods used in the survey

During daytime, 15 minute beam trawl hauls are conducted. Hydrographical data is collected with a datalog CTD attached to the net. The complete sampling procedure is defined in the ICES Manual for the Inshore Beam Trawl Surveys.

The area to be covered by the Netherlands is presented in Figure 4 in the NLD WP 2017-2019.

Coordination and participation

The survey is coordinated by the ICES Working Group on Beam Trawl Surveys ([WGBEAM](#)). The Netherlands is the only MS conducting this survey.

The [ICES Database of Trawl Surveys](#) (DATRAS) is under development to have the SNS data stored.

The plaice, sole and turbot indices are used by ICES WGNSSK.

International task sharing (physical and/or financial) and the cost sharing agreement used

No task sharing applies (NLD only MS carrying out this survey). No cost sharing applies.

Explain where thresholds apply: Not applicable

Graphical representation (map) showing the positions (locations) of the realized samples during NLD SNS 2019:

Link to the latest meeting report of the coordination group: available via [ICES WGBEAM](#)

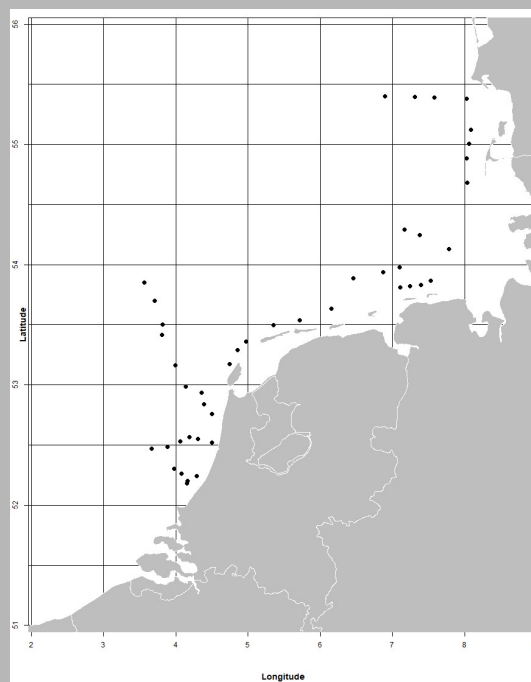
Main use of the results of the survey: the plaice, sole and turbot indices are used by ICES WGNSSK.

Extended comments (Tables 1G and 1H)

During the first week limited sampling could be carried out due to one of the crew members missing and severe weather conditions. The survey could not be completed in two weeks, so choices had to be made to maintain the spatial coverage. No or limited effect is to be expected on the indices.

In 2019, data have been uploaded to ICES DATRAS for SNS 2002-2019.

The link to ICES DATRAS has been changed due to revision of the ICES website: <http://www.ices.dk/data/data-portals/Pages/DATRAS.aspx>



Survey: International Ecosystem Survey in the Nordic Seas (ASH) –see for full description Workplan Denmark

The ASH is carried out annually in the May/June and is carried out by RV Dana (Denmark). The survey is listed in 2016/1251 Table 10. The continuity of the previous survey design is guaranteed by participation in the coordinating survey group ([WGIPS](#)).

Objectives of the survey

The [ICES Manual for International Pelagic Surveys \(IPS\)](#) (version 1.00) describes the current objectives:

- a. Carry out a predetermined survey cruise track
- b. Determine an age stratified estimate of relative abundance of herring within the survey area
- c. Determine an age stratified estimate of relative abundance of blue whiting within the survey area
- d. Collect biological samples from directed trawling on insonified fish echotracers to determine age structure and maturity state of the herring stock
- e. Collect physical oceanography data from vertical profiles (CTD).
- f. Plankton sampling (WP2 and Dyedi)

Description of the methods used in the survey

During the survey acoustic echosounder measurements are done. In addition, trawl hauls are made to identify the species composition of the acoustic recordings. Also hydrographical and plankton data are collected. The complete sampling procedure is defined in the [ICES Manual for International Pelagic Surveys \(IPS\)](#) chapter 2.1.2.

The area to be covered in the survey is presented in Figure 5 in the NLD WP 2017-2019.

Coordination and participation

The survey is coordinated by the ICES Working Group on International Pelagic Surveys ([WGIPS](#)). The Netherlands participates in the ASH as part of a consortium of EU MSs and let two scientists join the survey on-board RV Dana.

Data storage and data use: see work plan Denmark.

International task sharing (physical and/or financial) and the cost sharing agreement used

Task sharing (personnel) applies: the survey is carried out by RV Dana and the Netherlands let two scientists join the survey.

Cost sharing applies: the operational costs of the vessels are shared by EU MSs applying an allocation key proportional to national share of the EU TAC.

Explain where thresholds apply: Not applicable

Graphical representation (map) showing the positions (locations) of the realized samples during ASH 2019: see AR Denmark.

Link to the latest meeting report of the coordination group: available via available via [ICES WGIPS](#)

Main use of the results of the survey: see AR Denmark

Extended comments (Tables 1G and 1H): see AR Denmark

Survey: Mackerel egg Survey (NSMEGS; Triennial)

The mackerel egg survey in the North Sea is an extension of the international mackerel and horse mackerel egg survey in western waters. The NSMEGS is carried out triennially in May/June. The first survey of this planning period was planned and executed in 2017. The next survey was foreseen for 2020, but due to the COVID-19 situation, the 2020 survey is postponed to 2021. The Netherlands participates with RV Tridens (amount of days depending on contribution by other countries), covering the North Sea. The survey is listed in

2016/1251 Table 10. The continuity of the previous survey design is guaranteed by participation in the coordinating survey group ([WGMEGS](#)).

Objectives of the survey

The aim of the survey is to provide abundance estimates of the North Sea component of Atlantic mackerel by measuring the egg abundance. In combination with measurements of fecundity and atresia, which will be collected in the same year, the egg abundance can be converted into estimates of the spawning stock.

Description of the methods used in the survey

The main sampling type are plankton hauls using a Gulf VII plankton sampler, following a fixed station design. The survey is split up into four periods, and in each period the area is fully covered. In addition to the plankton hauls, fish hauls (with a pelagic trawl) are carried out for the collection of adult mackerel biological parameters. Hydrographical data are collected with a Seabird CTD attached to the plankton sampler. The complete sampling procedure is defined in the [SISP Manual for the mackerel and horse mackerel egg surveys \(MEGS\): sampling at sea](#) (version 1.3; new version to be published soon). The methodology for atresia and fecundity estimates is defined in the SISP Manual for the mackerel and horse mackerel egg surveys (MEGS): [SISP 5 - WGMEGS V11 Manual for AEPM and DEPM fecundity](#).

The area to be covered by the Netherlands is presented in Figure 6 in the NLD WP 2017-2019.

Coordination and participation

The survey is coordinated by the ICES Working Group on Mackerel and Horse Mackerel Egg Surveys ([WGMEGS](#)). The Netherlands is the only MS conducting this survey.

The survey data is currently stored in the IMARES database (Frisbe). Egg and fecundity data are made available to WGMEGS before the WGWISE meeting in 2017.

The survey index, fecundity estimate and mackerel biological data is being used by ICES WGWISE.

International task sharing (physical and/or financial) and the cost sharing agreement used

No task sharing applies (NLD is the only MS carrying out this survey). No cost sharing applies.

Explain where thresholds apply: Not applicable

Graphical representation (map)

No survey in 2019 (triennial survey, next survey scheduled for 2020)

Link to the latest meeting report of the coordination group: available via [ICES WGMEGS](#)

Main use of the results of the survey: the survey index, fecundity estimate and mackerel biological data is being used by ICES WGWISE.

Extended comments (Tables 1G and 1H)

Survey: Herring Larvae Survey (IHLS)

The herring larvae survey in the North Sea is annually carried out in September (two weeks) and December (one week). The Netherlands participates with RV Tridens (total 15 days), covering the North Sea. The survey is listed in 2016/1251 Table 10. The continuity of the previous survey design is guaranteed by participation in the coordinating survey group ([WGIPS](#)).

Till 2017 the survey was also carried out in January (one week), but this week has been replaced by the Downs recruitment Survey (DRS), see below.

Objectives of the survey

The aim of the survey is to estimate the adult population of autumn spawning herring based on the abundance of newly hatched herring larvae as this is a reliable index for spawning stock abundance. In particular, the survey gives information on the abundance of different spawning components.. The Netherlands covers Buchan, central North Sea, southern North Sea and English Channel.

Description of the methods used in the survey

The main sampling type are plankton hauls using a Gulf VII plankton sampler, following a fixed station design. In addition to the plankton hauls, fish hauls (with a pelagic trawl) may be carried out for the collection of adult biological parameters. Hydrographical data are collected with a Seabird CTD attached to the plankton sampler. During the herring larvae surveys a standard grid is sampled. In each ICES rectangle 9 stations are sampled (0°30 N x 1°E/W; ca. 30 x 30 NM). The complete sampling procedure is defined in the [ICES Manual for the International herring larvae surveys south of 62° North](#) (Annex 7, January 2010).

The area to be covered by the Netherlands is presented in Figures 7b, c in the NLD WP 2017-2019.

Coordination and participation

The survey is coordinated by the ICES Working Group on International Pelagic Surveys ([WGIPS](#)). Other MS carrying out IHLS is Germany.

The IHLS time-series is part of the [eggs and larvae database](#) at the ICES Data Centre.

The internationally combined indices are used by ICES HAWG for the assessment of the North Sea herring spawning stock biomass.

International task sharing (physical and/or financial) and the cost sharing agreement used

Task sharing applies. The IHLS is carried out by two EU MSs, each contributing with its own vessel. No cost sharing applies.

Explain where thresholds apply: Not applicable

Graphical representation (map) showing the positions (locations) of the realized samples during NLD IHLS 2019 (red=September survey by RV Tridens, black=December survey by RV Arca): the two red dots in the centre of the map are flow meter calibration tows

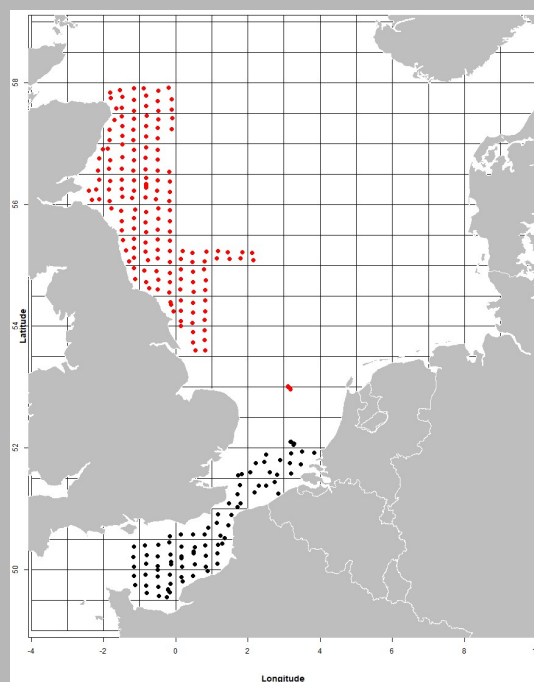
Link to the latest meeting report of the coordination group: available via [ICES WGSINS](#).

Main use of the results of the survey: the internationally combined indices are used by ICES HAWG for the assessment of the North Sea herring spawning stock biomass.

Extended comments (Tables 1G and 1H):

The survey in December 2019 had to be carried out on a different vessel than originally planned. The sampling programme could be carried out, although fishing with a trawl is not possible with that vessel.

The link to ICES eggs and larvae database has been changed due to revision of the ICES website: <http://www.ices.dk/data/data-portals/Pages/Eggs-and-larvae.aspx>



Survey: Downs recruitment survey

The Downs recruitment survey in the North Sea is since 2018 annually carried out in April (one week). The Netherlands participates with RV Tridens (total 5 days), covering the relevant area in the North Sea (sampling area based on larval drift modelling). The survey not is listed in 2016/1251 Table 10. The continuity of the survey design is guaranteed by participation in the coordinating survey group ([WGIPS](#)).

Objectives of the survey

The aim of the DRS is to provide an recruitment index for the winter spawning herring population in the Southern North Sea and English Channel. After the survey in 2019 it will be decided if this new survey will be continued and used for the assessment by HAWG.

Description of the methods used in the survey

The main sampling type are plankton hauls using a Gulf VII plankton sampler, following a fixed station design. Hydrographical data are collected with a Seabird CTD attached to the plankton sampler. During the DRS a standard grid is sampled. In each ICES rectangle 9 stations are sampled (0°30 N x 1°E/W; ca. 30 x 30 NM). The complete sampling procedure is not yet described in an international manual, but the methodology largely follows those used in IHLS (defined in the [ICES Manual for the International herring larvae surveys south of 62° North](#) (Annex 7, January 2010)).

The area to be covered by the Netherlands is presented in Figures 7a.

Coordination and participation

The survey is coordinated by the ICES Working Group on International Pelagic Surveys ([WGIPS](#)). Currently no MS participates in this survey.

The DRS data is stored in the [eggs and larvae database](#) at the ICES Data Centre.

After the survey in 2019 it will be decided if this new survey will be continued and used for the assessment by HAWG.

International task sharing (physical and/or financial) and the cost sharing agreement used

Task sharing does not apply.

No cost sharing applies.

Explain where thresholds apply: Not applicable

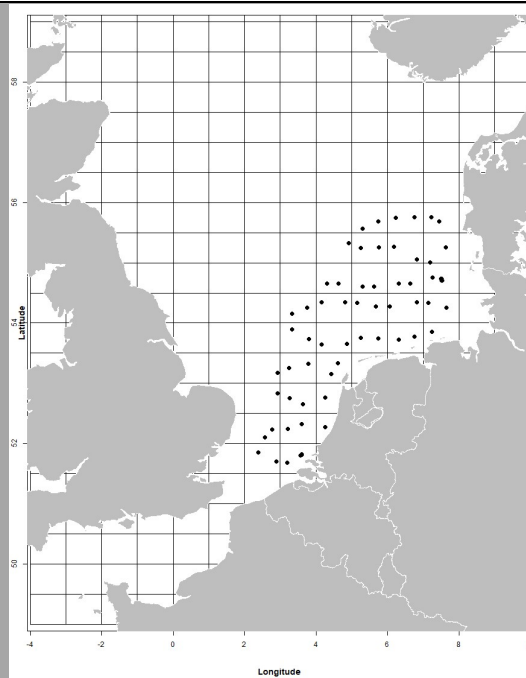
Graphical representation (map) showing the positions (locations) of the realized samples during NLD DRS 2019:

Link to the latest meeting report of the coordination group: available via [ICES WGSINS](#).

Main use of the results of the survey: the survey data are not used in the assessment yet, because the survey only started in 2018. The ICES HAWG however asked to continue the survey to create a timeseries.

Extended comments (Tables 1G and 1H):

The link to ICES eggs and larvae database has been changed due to revision of the ICES website:
<http://www.ices.dk/data/data-portals/Pages/Eggs-and-larvae.aspx>



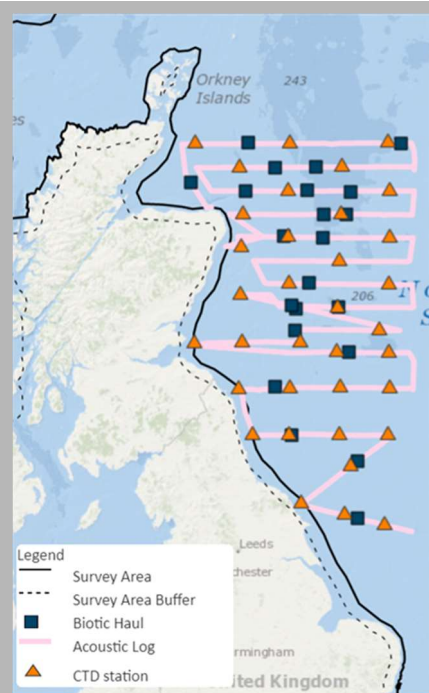
Survey: NS Herring Acoustic Survey (NHAS)
<p>The NHAS is carried out annually in June/July in the North Sea. The Netherlands participates with RV Tridens (total 20 days). The survey is listed in 2016/1251 Table 10. The continuity of the previous survey design is guaranteed by participation in the coordinating survey group (WGIPS).</p>
<p>Objectives of the survey</p> <p>The survey aims to provide an annual estimate of the distribution, abundance and population structure to inform the assessment of the following herring and sprat stocks: Western Baltic Spring-spawning herring (in ICES Divisions IV and IIIa), North Sea Autumn Spawning herring (in IV and IIIa), West of Scotland herring (in VIaN), Malin Shelf herring (west of Scotland/Ireland in VIaN-S and VIIb,c), North Sea sprat (in IV) and Sprat in IIIa (western Baltic).</p>
<p>Description of the methods used in the survey</p> <p>During the survey acoustic echosounder measurements are done, preferably in transects perpendicular to the coast. In addition, trawl hauls are made to identify the species composition of the acoustic recordings. Hydrographical data are collected on regular intervals. The complete sampling procedure is defined in the ICES Manual for International Pelagic Surveys (IPS) chapter 2.1.5.</p> <p>The area to be covered by the Netherlands is presented in Figure 8 in the NLD WP 2017-2019. The ICES Working Group on International Pelagic Surveys (WGIPS) redistributed the sampling areas during the 2016 meeting, so the figure presented differs from the coverage presented in the current version of the manual.</p>
<p>Coordination and participation</p> <p>The survey is coordinated by WGIPS and performed in collaboration with research vessels from Denmark, Germany, UK, Ireland and Norway.</p> <p>The raw acoustic survey data are stored within individual national institutes. Since 2003 until 2014 aggregated survey data were stored in the FishFrame Acoustics database (http://dmz-web08.dfu.min.dk/NorthSea/FishFrame/). However, the platform and maintenance of that database has been discontinued and from 2015 onwards, data are stored in the (developing) ICES acoustic database.</p> <p>The derived estimates and age structure of herring and sprat are used as tuning indices in the respective assessments and are submitted annually to ICES HAWG.</p>
<p>International task sharing (physical and/or financial) and the cost sharing agreement used</p> <p>Task sharing applies. The NHAS is carried out by five EU MSs and one non EU country, each contributing with its own vessel. No cost sharing applies.</p>
<p>Explain where thresholds apply: Not applicable</p>

Graphical representation (map) showing the positions (locations) of the realized samples during NLD NHAS 2019:

Link to the latest meeting report of the coordination group: available via [ICES WGIPS](#)

Main use of the results of the survey: the derived estimates and age structure of herring and sprat are used as tuning indices in the respective assessments and are submitted annually to ICES HAWG.

Extended comments (Tables 1G and 1H): no additional comments.



Survey: Dutch shellfish surveys (Additional survey)

The Dutch shellfish surveys are carried out annually between February and October covering the Dutch coast and estuaries (Wadden Sea, Oosterschelde and Westerschelde estuary). The surveys together form the basis for the national shellfish advice. The survey is not listed in 2016/1251 Table 10. The sampling design has been evaluated in 2015 and is a continuation of the previous design.

Objectives of the survey

The survey aims to provide an annual estimate of:

- the abundance of *Ensis* sp., *Spisula subtruncata*, *Mytilus edulis*, *Cerastoderma edule* and *Lutraria lutraria* in the Dutch coastal zone
- the abundance of *Cerastoderma edule*, *Mytilus edulis* and *Crassostrea gigas* in the Wadden Sea and Oosterschelde and Westerschelde estuary
- the abundance of non-commercial shellfish and infauna species in the Dutch coastal zone, Wadden Sea and Ooster- and Westerschelde estuary

Description of the methods used in the survey

The survey samples a number of commercial shellfish species in the littoral and sublittoral areas in the Dutch coastal zone and estuaries. All sub-surveys are stratified. The sampling device depends on the sampling location and target species. A summary is given in Table 1G and 1H. The complete sampling procedure is defined in the Dutch manual 'Handboek schelpdierbestandsopnames' (available on request).

The area to be covered is presented in Figure 9 in the NLD WP 2017-2019.

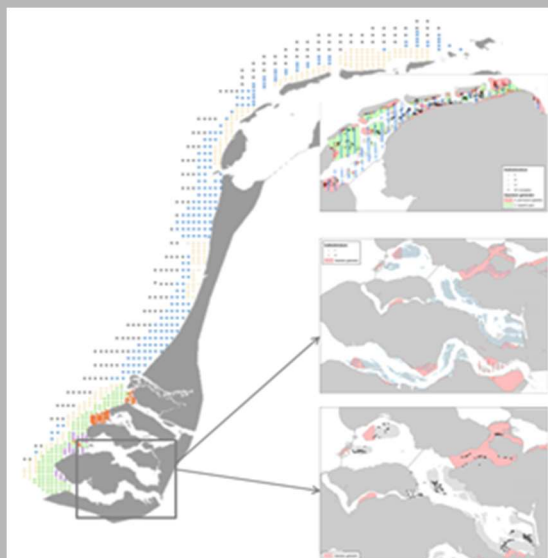
Coordination and participation: Not applicable

International task sharing (physical and/or financial) and the cost sharing agreement used

Not applicable, national survey

Explain where thresholds apply: Not applicable

Graphical representation (map) showing the positions (locations) of the realized samples during NLD shellfish surveys 2019:



Link to the latest meeting report of the coordination group: not applicable, national survey

Main use of the results of the survey

- the survey is primarily used for stock estimation of shellfish stocks in Dutch waters, to provide national advice on shellfish fisheries.
- The data collected in the Wadden Sea are also used in [TMAP](#) (Trilateral Monitoring and Assessment Programme in the Wadden Sea)
- The data collected in the 'Voordelta' and Western Scheldt are delivered to [MONEOS](#) (Dutch-Flemish monitoring programme in the Scheldt area).
- Historical data in the Wadden Sea have been delivered to [WaLTER](#) (Data portal Wadden Sea monitoring)

Extended comments (Tables 1G and 1H)

Due to major summer cockle mortality re-sampling has taken place in the Wadden Sea and Eastern Scheldt. The data have been used to provide a new stock estimate for 2018.

Region: North Atlantic

Survey: Blue whiting survey (IBWSS)

The IBWSS is carried out annually in March/April in the North Sea. The Netherlands participates with RV Tridens (approx. 18 days). The survey is listed in 2016/1251 Table 10. The continuity of the previous survey design is guaranteed by participation in the coordinating survey group ([WGIPS](#)).

Objectives of the survey

The survey aims to determine the distribution and abundance at age and length of the Northeast Atlantic blue whiting stock during the spawning season to the west of Britain and Ireland (Figure 10).

Description of the methods used in the survey

During the survey transect-wise acoustic echosounder measurements are done. In addition, trawl hauls are made to identify the species composition of the acoustic recordings. Hydrographical data are collected on regular intervals. The complete sampling procedure is defined in the [ICES Manual for International Pelagic Surveys \(IPS\)](#) chapter 2.1.1.

The area to be covered is presented in Figure 10 in the NLD WP 2017-2019. The acoustic transects are presented by lines, blue spots indicate hydrography stations.

Coordination and participation

The survey is coordinated by the ICES Working Group on International Pelagic Surveys ([WGIPS](#)) and performed in collaboration with research vessels from Ireland, Faroe Islands, Russia, and Norway.

The disaggregated survey data (hydrographic, biological, & acoustic) are stored in the PGNAPES database hosted by the Faroe Marine Research Institute. By executing SQL queries through the Application Express web-interface (<http://oracle.frs.fo/apex>), the user can extract data. Usernames and passwords are given to every nation participating in the survey.

The blue whiting spawning stock estimate is used as a tuning index by ICES WGWIDE to determine the size of the population.

International task sharing (physical and/or financial) and the cost sharing agreement used

Task sharing applies. The IBWSS is carried out by two EU MSs, and three non EU MSs, each contributing with its own vessel. Furthermore, scientists from Denmark, Germany and UK participate in the survey on board of the Dutch vessel.

Cost sharing applies: the operational costs of the vessels are shared by EU MSs applying an allocation key proportional to national share of the EU TAC.

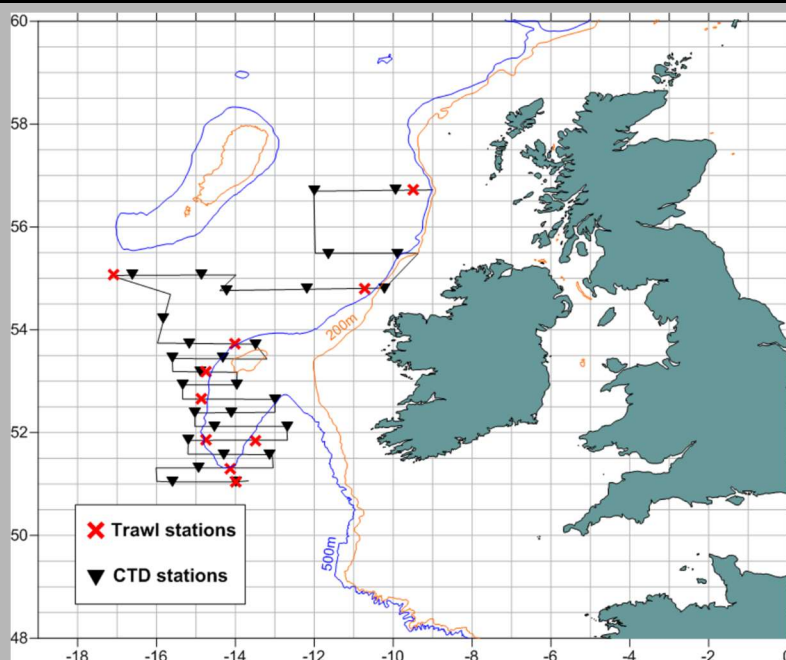
Explain where thresholds apply: not applicable

Graphical representation (map) showing the positions (locations) of the realized samples during NLD IBWSS 2019:

Link to the latest meeting report of the coordination group: available via [ICES WGIPS](#)

Main use of the results of the survey: the blue whiting spawning stock estimate is used as a tuning index by ICES WGWIDE to determine the size of the population.

Extended comments (Tables 1G and 1H): no additional comments.



Survey: International Mackerel and Horse Mackerel Egg Survey (MEGS; Triennial)

<p>The MEGS is carried out triennially from January until July. The first survey of this workplan period was planned and executed in 2019. The Netherlands participated with RV Tridens for 30 days. The survey is listed in 2016/1251 Table 10. The continuity of the previous survey design is guaranteed by participation in the coordinating survey group (WGMEGS). The next survey is foreseen for 2022.</p>
<p>Objectives of the survey</p> <p>The aim of the survey is to provide abundance estimates of the western and southern component of Atlantic mackerel and horse mackerel by measuring the egg abundance. In combination with measurements of fecundity and atresia, which will be collected in the same year, the egg abundance can be converted into estimates of the spawning stock.</p>
<p>Description of the methods used in the survey</p> <p>The main sampling type are plankton hauls using a Gulf VII plankton sampler, following a fixed station design. The survey is split up into 6 or 7 periods, and in each period the spawning area is fully covered. In addition to the plankton hauls, fish hauls (with a pelagic trawl) are carried out for the collection of adult mackerel and horse mackerel biological parameters. Also hydrographical data are collected with a Seabird CTD attached to the plankton sampler. The complete sampling procedure is defined in the SISP Manual for the mackerel and horse mackerel egg surveys (MEGS): sampling at sea (version 1.3). The methodology for atresia and fecundity estimates is defined in the SISP Manual for the mackerel and horse mackerel egg surveys (MEGS): SISP 5 - WGMEGS V11 Manual for AEPM and DEPM fecundity.</p> <p>The survey area is presented in Figure 11 in the NLD WP 2017-2019. ICES Working Group on Mackerel and Horse Mackerel Egg Surveys (WGMEGS) decides on the detailed planning in the meeting the year prior to the survey (for 2019 survey: 2018 WGMEGS meeting).</p>
<p>Coordination and participation The survey is coordinated by ICES WGMEGS (WGMEGS). Germany, Ireland, Netherlands, UK, Portugal, Spain, Iceland and the Faroe Islands participate in the survey.</p> <p>The survey data is stored in the ICES eggs and larvae database. Fecundity and atresia data are currently stored at IMR, Norway for mackerel and WMR for horse mackerel. An ICES database for fecundity and atresia data is currently being developed.</p> <p>The survey index, fecundity estimate and adult biological data is being used by ICES WGWIDE.</p>
<p>International task sharing (physical and/or financial) and the cost sharing agreement used</p> <p>Task sharing applies. The MEGS is carried out by six EU MSs and two non EU countries, each contributing with its own vessel. Fecundity and atresia samples are divided among the four analysing EU countries (Ireland, Netherlands, UK, Spain) and Norway. No cost sharing applies.</p>
<p>Explain where thresholds apply: not applicable</p>

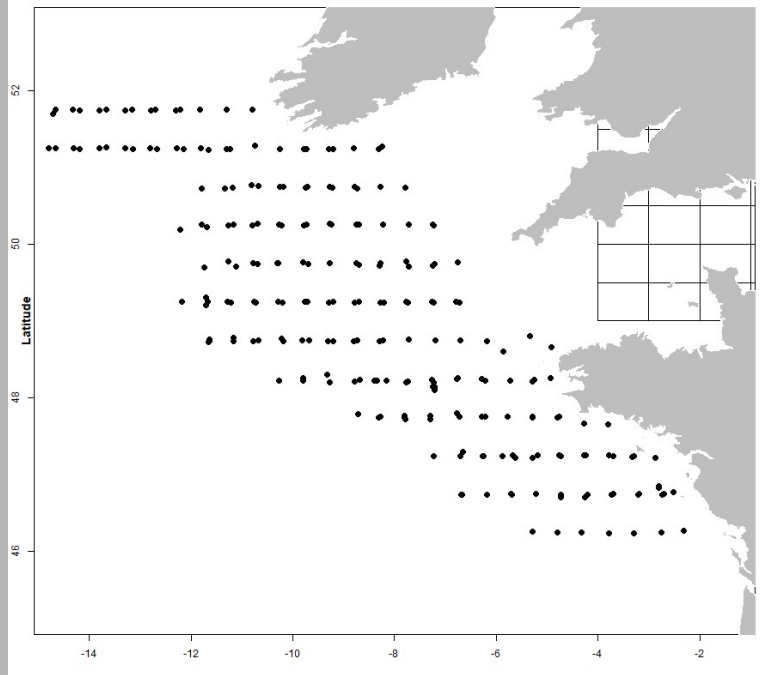
Graphical representation (map) showing the positions (locations) of the realized plankton samples:

Link to the latest meeting report of the coordination group: available via [ICES WGMEGS](#)

Main use of the results of the survey: the plankton (egg) information and the histological sample results have been used by ICES WGWIDE in 2019.

Extended comments (Tables 1G and 1H): the number of samples selected for analysis was low in 2019; presumably due to the new selection method.

The link to ICES eggs and larvae database has been changed due to revision of the ICES website: <http://www.ices.dk/data/data-portals/Pages/Eggs-and-larvae.aspx>



SECTION 2: FISHING ACTIVITY DATA

Text Box 2A: Fishing activity variables data collection strategy

General comment: This box fulfills paragraph 4 of Chapter III of the multiannual Union programme and Article 2, Article 4 paragraph (2) point (b) and Article 5 paragraph (2) of the Decision (EU) 2016/1701. It is intended to describe the method used to derive estimates on representative samples where data are not to be recorded under Regulation (EU) No 1224/2009 or where data collected under Regulation (EU) No 1224/2009 are not at the right aggregation level for the intended scientific use.

General comment: This box is applicable to the Annual Report. This box should provide information on the implementation of the data collection of fishing activity variables of Member States.

1. Description of methodologies used to cross-validate the different sources of data

Price data was collected from sales notes and cross-validated with data from accounts from the collection scheme on Economic data cutters. Landings data were obtained from both official landings information (sales notes and landing declarations) and fishermen's estimation (middle part of the logbook for landings per area) and were checked for inconsistencies. Whenever inconsistencies were found the information on landings per area was adjusted to the landing declarations. As from 1-1-2018 owners of vessels smaller than 10 meters were no longer obliged to keep paper logbooks any longer and register their fishing activities through the E-lite system. This system only registers official landings information. Therefore, the fishermen's estimation does not exist for these vessels any longer.

2. Description of methodologies used to estimate the value of landings

Information on fish prices was available from sales notes (from auctions) for most segments, except for some shellfish species (for dredgers) and for the species caught by the large pelagic trawlers. For the pelagic trawlers the prices were obtained from the accounts of the trawler companies during the collection scheme on Economic data pelagic trawlers. Data covered all fishing activities in both the supra region Baltic Sea; North Sea; Eastern Arctic; NAFO; Extended North-Western waters (Ices areas V, VI and VII) and Southern Western waters and supra region Other regions. For the dredgers price information was obtained by questionnaires within the frame of the collection scheme on Economic data small coastal fisheries.

3. Description of methodologies used to estimate the average price (it is recommended to use weighted averages, trip by trip)

Average prices were calculated by weighted averages on trip level.

4. Description of methodologies used to plan collection of the complementary data (sample plan methodology, type of data collected, frequency of collection etc.)

For the shellfish caught by dredgers and for the pelagic trawlers complementary price data was gathered based on the accounts (pelagic trawlers) and questionnaire data (dredgers). Data was collected in combination with the other economic information as described in box 3A.

5. Deviations from Work Plan methodology used to cross-validate the different sources of data

As from 1-1-2018 owners of vessels smaller than 10 meters were no longer obliged to keep paper logbooks any longer and register their fishing activities through the E-lite system. This system only registers official landings information. Therefore, the fishermen's estimation does not exist for these vessels any longer.

6. Deviations from Work Plan methodology used to estimate the value of landings.

Because of the non-response for the economic data for the dredgers, no price information for the shellfish species could be estimated based on the questionnaires. As an alternative, prices were obtained through a number of telephone interviews with sector experts.

7. Deviations from Work Plan methodology used to estimate the average price.

See point 6.

8. Deviations from Work Plan methodology used to plan collection of the complementary data

See point 6.

Actions to avoid deviations: see point 6.

SECTION 3: ECONOMIC AND SOCIAL DATA

Text Box 3A: Population segments for collection of economic and social data for fisheries

General comment: This box fulfils paragraph 5 points (a) and (b) of Chapter III of the multiannual Union programme and Article 2, Article 4 paragraphs (1), (2) and (5) and Article 5 paragraph (2) of the Decision (EU) 2016/1701. It is intended to specify data to be collected under Tables 5(A) and 6 of the multiannual Union programme.

General comment: This box is applicable to the Annual Report. This box should provide information on the implementation of the fleet socio-economic data collection of Member States.

1. Description of methodologies used to choose the different sources of data

The *Dutch fishing fleet* encompasses a large variety of vessels and fishing techniques. In the economic data collection, three groups of vessels are distinguished:

- Pelagic trawlers targeting small pelagics for human consumption (approx. 30% of the total value of the Dutch fleet).
- Active cutters using demersal active gears on a commercial basis add more than 95% of the remaining commercial catches.
- Vessels in the small coastal fisheries are either vessels that participate occasionally or never in the sea fishery or vessels that use passive gears or dredges.

In order to distinguish between the active cutters and the small coastal fisheries the main gear and lower threshold of 50,000 Euro on gross revenue was used for the active cutter fleet. The Dutch fleet includes 8 pelagic trawlers, 279 cutters and 241 vessels classified in the small coastal fisheries (ultimo 2015). In 2018 the Dutch fleet included 8 pelagic trawlers, 289 cutters and 225 vessels classified in the small coastal fisheries.

The *data sources* used for the collection of economic data for the groups varied:

- Economic data for the pelagic trawlers and the active cutters was obtained from company accounts and balance sheets through the survey of Wageningen Economic Research. Accounts were copied each quarter on a vessel level and all detailed transactions were stored in a database. In addition the balance sheets of the fishing firm were copied.
- Economic data for the small coastal fisheries was collected by means of questionnaires (both telephone and paper).

Landings and effort were obtained from both official logbooks, accounts and questionnaires.

Value of landings (sales notes, accounts and questionnaires): detailed sales notes were available for all Dutch auctions, but do not provide a complete picture of fish sales as some fish (e.g. shellfish and fish caught by the large pelagic trawlers) are sold directly. Therefore, value of landings information was also obtained from accounts and questionnaires. During aggregation procedures data from logbooks, accounts and questionnaires was combined to deliver most accurate estimates.

Data on *investments* and financial position of the cutter sector are gathered from financial accounts, and have a time lag of one year. Therefore, these data only becomes available two years after the reference year.

2. Description of methodologies used to choose the different types of data collection

The data from the active cutters was collected through the panel of Wageningen Economic Research. This panel has an annual turnover of approx. 4% and is assumed to be a probability sample survey. Economic data from the pelagic trawlers was collected by census, because of the small number of companies involved. The data collection from the small coastal vessels was also done by census because of the low response rate. Over the

last years this response rate had been increased by using a combination of a telephone questionnaire and a paper questionnaire.

3. Description of methodologies used to choose sampling frame and allocation scheme

The sampling frame of the economic data covered the complete Dutch marine fishing fleet as registered in the EU vessel register. Inland and aquaculture fishing vessels were excluded from data collection. All pelagic trawlers and small coastal vessels were covered by the economic surveys. The allocation of sampling in the active cutter sector was based on an annual assessment of the representativeness and resulting data quality of the panel data.

4. Description of methodologies used for estimation procedures

For the pelagic trawlers no estimation of economic results was needed as all information was available.

Costs and earnings from the active cutters were estimated through analysis of detailed costs and earnings information from the cutters in the panel and information on technical characteristics, effort and landings from all vessels in the population from the logbooks and the vessel register.

Capital value and depreciation were calculated based on digressive depreciation in accordance with the method followed in the templates published on the DCF website.

Sales note information covered more than 80% of the total value of landings of the demersal species. The missing information (mainly from the pelagic sector and shrimp landings) was estimated using information from logbooks and accounts.

Economic information from the small-scale fleet was estimated using the questionnaire data and the total number of vessels in each EU fishing fleet. As many of the EU segments consisted of less than 10 fishing vessels, these segments were clustered. The clustering procedures were based on technical data and catch composition and follow the procedure described in SCEGA 09-02.

5. Description of methodologies used on data quality

Wageningen Economic Research (formerly LEI) is ISO9001 Certified. Methods for data collection have mostly been described in detail in internal manuals. General descriptions of the followed procedures will be made publicly available in the coming years.

Information on landings, landings value and effort are obtained from different sources (questionnaires, logbooks and accounts) and are cross-checked. Inconsistencies in data mainly consist for the small coastal fisheries. There, information on landings and effort from questionnaires are used whenever data are not consistent. Furthermore, the fleet segmentation might be adjusted based on the outcome of the questionnaires.

6. Deviations from Work Plan methodology for selection of data source

No deviations.

7. Deviations from Work Plan methodology to choose type of data collection

No deviations

8. Deviations from Work Plan methodology regarding sampling frame and allocation scheme

No deviations

9. Deviations from Work Plan methodology used for estimation procedures

From 2019 onwards, regression analysis has been used to estimate the costs and earnings from all active cutters in the population. This resulted in a decrease of the uncertainty (coefficient of variance) of the costs for this part of the sector. For some cost items this reduction was up to 50%.

In 2019 extra effort has been made to increase sample rates for the collection of economic data for all fisheries sectors. For the cutter sector, this has resulted in an increase of the overall achieved sample rate/planned sample rate from 74% for 2017 data to 92% for 2018 data. For the total Assets and Debt, the achieved sample rate

remained low as this information is taken from financial accounts, which are only available for some of the panel members. In 2020 extra effort will be made to increase also the coverage for these variables.

As for the small coastal fisheries and inactive vessels, 100% of the vessel owners were included in the sampling scheme as specified in the National programme. In the small coastal fisheries the response rate increased slightly but the response rate was still relatively low (21%). The response rate for inactive vessels has been quite good, because of the telephone questionnaires (33% in 2018).

In some smaller strata the low response rate caused problems, because no information was available for certain clusters. To overcome this problem the following clusters have been combined in order to estimate the economic variables (income, expenditures, employment and capital):

- Demersal trawlers and/or demersal seiners 0-< 10 m, cluster Beam trawlers 0-< 10 m and cluster Beam trawlers 12-< 18 m
- Cluster Dredgers 24-< 40 m and cluster Drift and/or fixed netters 12-< 18 m

The economic importance of these segments is of minor importance for the Dutch fleet. In 2020 again increased cooperation will be sought with fishermen's organisations to discuss this issue and increase effort to enlarge the response rate for the small coastal fisheries.

Because of the decrease in vessel numbers in the segment Demersal trawlers and/or demersal seiners 18-< 24 m (5 vessels), no accounts were available for this specific segment. In order to keep the time series consistent, the segment was not clustered with another segment. Using the new methodology described above, the costs and earnings of these 5 vessels were estimated using the cost structure of vessels of 18-<24m that were mainly using beam trawls. As the fishing activities were taken into account in the estimation procedure (variable costs are estimated based on the fishing activities of main fisheries), this is believed to result in better estimated than the previous method.

In case of the pelagic trawlers, accounts were missing for 2018 for two vessels. The costs and earnings of these two vessels were estimated, based on the information on their fishing activities (from logbooks), their cost structure for 2017 and information on the general change in cost structure (e.g. gasoil prices) from the other accounts.

10. Quality assurance

10.1 Sound methodology

The methodologies used are in line with those developed in the PGEcon WGs.

10.2. Accuracy and reliability

In all data collections schemes for economic data quality checks are built in the databases and part of the aggregation procedures. For the Cutter data these checks for internal consistency of the data are automated within the ARTIS database in which the data are stored. In case of the data from the large trawler fleet and the small-scale fleet consistency checks and analysis of outliers are performed before the aggregation process. In case of inconsistencies, contact is sought with the provider of the data in order to assess whether the data is wrong or not and the information is corrected.

10.3. Accessibility and Clarity

- Are methodological documents publicly available? No, not yet, will become available in 2020.
- Are data stored in databases? Yes
- Where can methodological and other documentation be found? (Internal) documents are available at Wageningen Economic Research and Ministry of Economic Affairs.
- Provide the web link, if documentation is publicly available. Not yet available, will become available in 2020.

SECTION 3: ECONOMIC AND SOCIAL DATA

Pilot Study 3: Data on employment by education level and nationality

General comment: This box fulfills paragraph 5 point (b) and paragraph 6 point (b) of Chapter III of the multiannual Union programme and Article 2 and Article 3 paragraph (3) point (c) of the Decision (EU) 2016/1701. It is intended to specify data to be collected under Table 6 of the multiannual Union programme.

General comment: This box is applicable to the Annual Report. This box is intended to provide information on the results obtained from the implementation of the pilot study (including deviations from planned and justifications as to why if this was not the case).

1. Aim of pilot study

The pilot study will be split up in two parts, aiming to provide more detailed information on the employment by (1) education level and (2) nationality in the fishing sector and the aquaculture sector, in addition to the information gathered on age and gender

2. Duration of pilot study

The pilot study shall start in 2017 in preparation for the actual data collection in 2018, parallel to the data collection on social variables.

3. Methodology and expected outcomes of pilot study

Data will be gathered by means of questionnaires, sent to fishing vessel owners. The cutter fleet and the pelagic trawler fleet will be used as frame population for the pilot study. Questionnaires will be sent to the vessel owners participating in the cutter panel and will be followed up by phone calls to ensure maximum response levels. Results will be analysed using analyses of variance to check for significant differences in crew characteristics between various fleet segments. If needed data will be aggregated using post stratification. If possible consistency checks with other data sources will be done, but it is not clear yet which sources can be used for this.

4. Achievement of the original expected outcomes of pilot study and justification if this was not the case.

During 2019 no activities were carried out for this pilot study as it was scheduled for 2017 and 2018. Results from the 2018 pilot study have been incorporated in the regular sampling of the social data in the national programme using census data collection by questionnaires and aggregation procedures in accordance with the economic data collection.

5. Incorporation of results from pilot study into regular sampling by the Member State.

Not applicable

Text Box 3B: Population segments for collection of economic and social data for aquaculture

General comment: This box fulfills paragraph 6 points (a) and (b) of Chapter III of the multiannual Union programme and Article 2, Article 4 paragraphs (1) and (5) and Article 5 paragraph (2) of the Decision (EU) 2016/1701. It is intended to specify data to be collected under Tables 6 and 7 of the multiannual Union programme.

General comment: This box is applicable to the Annual Report. This box should provide information on the implementation of the socio-economic data collection for aquaculture of Member States.

1. Description of methodologies used to choose the different sources of data

Economic data for the mussel and oyster sector are available from national auctions, national statistics and the company accounts. Total volume of landings and value of landings for the mussel sector is obtained from the mussel auction, covering 100% of the mussel landings. For the oyster sector no such landings statistics are available, so all data is gathered from the oyster farmers directly. Economic data of both sub-sectors are gathered from annual financial accounts. Because these reports become available only 16 months after the reference year, data collection is delayed by one year, therefore data is available two years after the reference year.

2. Description of methodologies used to choose the different types of data collection

Production data from the oyster sector is gathered by means of a telephone questionnaire involving all oyster companies (census). Data on costs and earnings and employment is gathered from a panel of companies that provide accounts on a voluntary basis. This panel is assumed to be a representative sample. Annual turnover rate of the sample is low (< 10%), but because of earlier experiences of low response rates in random sampling, this is thought to be the most suitable type of data collection.

3. Description of methodologies used to choose sampling frame and allocation scheme

Data from these sectors are obtained by means of a panel covering between 16 and 22% of the total number of companies.

4. Description of methodologies used for estimation procedures

As there is no stratification within the segments, the averages of the obtained panel data will be assumed to be good estimates for the population averages. The total values of the economic variables will be estimated through different aggregation procedures for each of these sectors:

- Mussel segment: total value of the production for the segment is available, all variable cost items and earning items (turnover, subsidies, other income, wages and salaries, energy costs, livestock costs, repair and maintenance, other operational costs) will be aggregated based on this. Fixed cost items (depreciation of capital, financial costs, extraordinary costs) as well as other economic indicators (total value of assets, net investments, debt, number of persons employed, FTE) will be aggregated according the number of enterprises.
- Oyster segment: In principle all variables will be aggregated based on the number of companies. In case total production figures are available, these will be used to correct the estimated production and the costs from the panel data. Herewith, it will be assumed that the cost structure to produce one kg of oysters is constant.

Because the data on costs and earnings are only available two years after the reference year, the economic data of the last year is estimated using the cost structure of the reference year and the total production volume of the following year. E.g. on 01-01-2017 economic data will be available for 2014 and the economic performance for 2015 will be estimated based on the production volume for 2015.

5. Description of methodologies used on data quality

Wageningen Economic Research (formerly LEI) is ISO9001 Certified. Methods for data collection have mostly been described in detail in internal manuals. General descriptions of the followed procedures will be made publicly available in the coming years.

The procedures to estimate totals have been described above. The evaluation of bias will be based on the total production and production value of the sector and companies in the panel. Whenever possible, data will be collected on the total production and total value of sectors to evaluate whether the panel data are biased and to correct for this bias. For the mussel sector, such data are available by means of total production value and volume, and for the oyster sector data on the number of oysters produced will also be used for this purpose.

6. Deviations from Work Plan methodology for selection of data source

No deviations

7. Deviations from Work Plan methodology to choose type of data collection

No deviations

8. Deviations from Work Plan methodology regarding sampling frame and allocation scheme

No deviations

9. Deviations from Work Plan methodology used for estimation procedures

No deviations

10. Quality assurance

10.1 Sound methodology

The data collection in the mussel and oyster sector resembles a panel data collection. As stated above and in the national programme, this data collection scheme was chosen because of the positive effects on long lasting relationships with vessel owners on response rates and data quality. For both sectors the representativity has been checked regularly (mussel sector in the last year).

10.2. Accuracy and reliability

- Response rate and Achieved sample rate are provided in Table 3C. From recent analysis of the data it is clear that the cost structure of the oyster companies is highly variable and that the current sample of 3 companies is not enough to provide a good insight in the costs and earnings of this sector. In 2019 various attempts have been made to increase involvement of the sector through the PO, but these have so far not resulted in an increased number of panel members. In 2020, extra effort will be made to increase the number of participants.
- Raw data are taken from the accounts and entered in the Wageningen Economic Research accounts database. This database includes automated validity and consistency checks. Besides the processed data are checked by our trained administrative staff per enterprise and the aggregated data are checked by research staff.

10.3. Accessibility and Clarity

Indicate with Yes or No:

- Are methodological documents publicly available? No, not yet, will become available in 2020.
- Are data stored in databases? Yes
- Where can methodological and other documentation be found? (Internal) documents are available at Wageningen Economic Research and Ministry of Economic Affairs.
- Provide the web link, if documentation is publicly available. Not yet available, will become available in 2020.

SECTION 3: ECONOMIC AND SOCIAL DATA

Pilot Study 4: Environmental data on aquaculture

General comment: This box fulfills paragraph 6 point (c) of Chapter III of the multiannual Union programme and Article 2 and Article 4 paragraph (3) point (d) of the Decision (EU) 2016/1701. It is intended to specify data to be collected under Table 8 of the multiannual Union programme.

General comment: This box is applicable to the Annual Report. This box is intended to provide information on the results obtained from the implementation of the pilot study (including deviations from planned and justifications as to why if this was not the case).

1. Aim of pilot study

The Netherlands will collect aquaculture data for shellfish bottom culture only. As drugs are not used in this type of aquaculture and information about mortality is not known, no pilot study on environmental data on aquaculture is planned yet.

2. Duration of pilot study

Not (yet) applicable

3. Methodology and expected outcomes of pilot study

Not (yet) applicable

4. Achievement of the original expected outcomes of pilot study and justification if this was not the case.

Not applicable as no pilot study has been carried out

5. Incorporation of results from pilot study into regular sampling by the Member State.

Not applicable as no pilot study has been carried out

Text Box 3C: Population segments for collection of economic and social data for the processing industry

<p>General comment: This box fulfils footnote 6 of paragraph 1.1(d) of Chapter III of the multiannual Union programme, Article 2, Article 4 paragraphs (1) and (5) and Article 5 paragraph (2) of Decision (EU) 2016/1701. It is intended to specify data to be collected under Table 11 of the multiannual Union programme.</p>
<p>General comment: This box is applicable to the Annual Report. This box should provide information on the implementation of the socio-economic data collection for aquaculture of Member States.</p>
<p>1. Description of methodologies used to choose the different sources of data Data collection from the processing sector is voluntary. No data collection is carried out by the Netherlands.</p> <p>2. Description of methodologies used to choose the different types of data collection Not applicable</p> <p>3. Description of methodologies used to choose sampling frame and allocation scheme Not applicable</p> <p>4. Description of methodologies used for estimation procedures Not applicable</p> <p>5. Description of methodologies used on data quality Not applicable</p>

Text Box 4A: Sampling plan description for biological data

General comment: This box fulfills Article 3, Article 4 paragraph (4) and Article 8 of the Decision (EU) 2016/1701 and forms the basis for the fulfilment of paragraph 2 point (a)(i) of Chapter III of the multiannual Union programme. This Table refers to data to be collected under Tables 1(A), 1(B) and 1(C) of the multiannual Union programme.

General comment: This box is applicable to the Annual Report. This box should provide information on the deviations from the planned sampling of Member States.

1. Description of the sampling plan according to Article 5 paragraph (3) of the Decision (EU) 2016/1701
The description of the sampling plan does not deviate from the sampling plan as described in section 4 of the approved WP 2017-2019 for The Netherlands.

Deviation from the sampling plan according to Article 5 paragraph (3) of the Decision (EU) 2016/1701:

2. Deviations from the Work Plan

- For area 87 (SPRFMO): if any deviation: see AR Poland
- For area 34 (CECAF): if any deviation: see AR Poland
- For North Sea and North Western waters:
 - For stratum_code PEL2, the achieved number of PSU was lower than planned. Mainly due to longer trips than average. As a result, less trips are covered in numbers, while sampling continued as usual. Full trips are covered under the regular sampling programme.
 - For stratum_code AUCTION_DEM, the achieved number of PSU exceeds the planned number by 29%. Probably due to sampling a wide variety of vessels due to increased movements of the fleet over the various auctions.

3. Action to avoid deviations

No specific measures to be taken.

SECTION 5: DATA QUALITY

Text Box 5A: Quality assurance framework for biological data

General comment: This box is applicable to the Annual Report. This box fulfills Article 5 paragraph (2) point (a) of the Decision (EU) 2016/1701. This box is intended to specify data to be collected under Tables 1(A), 1(B) and 1(C) of the multiannual Union programme. Use this box to provide additional information on Table 5A.

1. Evidence of data quality assurance

All sampling schemes other than eel and recreational fisheries: Limited documentation of processes to evaluate data accuracy has been made, apart from a multi-year dedicated project to redesign and streamline sampling procedures, quality assurance and reporting. All data undergoes routine validity and completeness checks before import into the standard database. The database import procedures contain additional quality checks on data integrity and consistency.

Where applicable, the actual handbooks, codes, scripts etc. are considered as intellectual property of the research institute. As a result, these documents are not considered suitable for publication in the public domain. The annual data reports for sampling schemes PEL1 and DEMACT broadly describe the methods used for data collection (most recent reports: van Overzee et al., 2019; [van Overzee et al., 2020](#)). Wageningen Marine Research is ISO9001:2015 certified. Future publications (e.g. handbooks) will contain a dedicated section for broad publication.

2. Sampling design

- **EEL:** A national working plan for *Anguilla anguilla* market sampling is available, however this is not officially documented in a report.
- All sampling schemes other than eel: as described in the accepted NLD Workplan, all designs are documented.

3. Sampling implementation

- **EEL:** Refusals of *Anguilla anguilla* market sampling are known, but are not officially documented. Refusals are currently rare. It is not to be expected that non-recording of the refusal rate is of influence on the quality of data.

4. Data capture

- **EEL:** Logbook information is currently obtained by the ministry.
- All sampling schemes other than eel: as described in the accepted NLD Workplan, all scripts for quality checks are documented.

5. Data Storage

- **EEL:** freshwater eel data is currently stored in the national database in a test environment. The finalisation of the database is planned in 2020.
- All sampling schemes: as described in the accepted NLD Workplan, all data is stored in (inter)national databases when available. If no database is available, data is safely stored.

6. Data processing

- **EEL:** For eel logbook data, no editing or imputation is done
- **Recreational fisheries:** see [van der Hammen et al., 2015](#)
- All sampling schemes other than eel and recreational fisheries: as described above, limited documentation on the processes to evaluate data accuracy has been made as part of the routine scripts.

SECTION 5: DATA QUALITY

Text Box 5B: Quality assurance framework for socioeconomic data

General comment: This box fulfills Article 5 paragraph (2) point (b) of the Decision (EU) 2016/1701. This box is intended to specify data to be collected under Tables 5(A), 6 and 7 of the multiannual Union programme. Use this box to provide additional information on Table 5B.

Fisheries sector

1. Evidence of data quality assurance

Wageningen Economic Research is ISO9001 certified. Methods for data collection have mostly been described in detail in internal manuals and project plans. General descriptions of the followed procedures will be made publicly available as annexes in the Methodological report which will be published in 2020 (see also question 12)

2. Section P3 Impartiality and objectiveness

No additional information

3. Section P4 Confidentiality

No additional information

4. Section P5 Sound methodology

No additional information

5. Section P6 Appropriate statistical procedures

No additional information

6. Section P7 Non-excessive burden on respondents

As from 2019 a list of end users is available.

7. Section P8 Cost effectiveness

Data on income and auction fees and costs from the active cutter sector is obtained from auctions and fed into the data base automated. Part of the questionnaires for the small scale sector is filled in through a web based questionnaire, although a large part of the small scale fishermen prefers to fill in a paper questionnaire. As stated in the relevant parts of the AR most of the checks for internal consistency of the data are automated.

8. Section P9 Relevance

End users of the economic data are limited to the Ministry of Agriculture, Nature and Food Quality and the European Commission and its associated bodies (e.g. STECF). National data are published through www.visserijncijfers.nl. Visit statistics from this website are being collected.

9. Section P10 Accuracy and reliability

Data errors for the small scale sector and for the logbook information have been documented and the reasons for adjustments of data is stored in databases.

10. Section P11 Timeliness and punctuality

No additional information

11. Section P12 coherence and comparability

No additional information

12. Section P13 Accessibility and Clarity

Detailed documentation is available in internal working documents and documentation of analysis scripts. As the template for the methodological report became available late 2019 and a workshop on the application of this template was planned in early 2020 the finalisation of the methodological report was delayed until 2020. This was also communicated in the response on comments on the 2018 AR in November 2019.

Aquaculture sector

1. Evidence of data quality assurance

Wageningen Economic Research is ISO9001 certified. Methods for data collection have mostly been described in detail in internal manuals and project plans. General descriptions of the followed procedures will be made publicly available as annexes in the Methodological report which will be published in 2020 (see also question 12 for the fisheries section)

2. Section P3 Impartiality and objectiveness

No additional information

3. Section P4 Confidentiality

No additional information

4. Section P5 Sound methodology

No additional information

5. Section P6 Appropriate statistical procedures

No additional information

6. Section P7 Non-excessive burden on respondents

As from 2019 a list of end users is available.

7. Section P8 Cost effectiveness

Production statistics of Mussels and Oysters are obtained from National administration and the Producers organisations. These data are relative simple data sets that are retrieved by e-mail.

8. Section P9 Relevance

End users of the economic data are limited to the Ministry of Agriculture, Nature and Food Quality and the European Commission and its associated bodies (e.g. STECF). National data are published through www.visserijncijfers.nl. Visit statistics from this website are being collected.

9. Section P10 Accuracy and reliability

No progress was made on this point for aquaculture data yet. In the coming years, data aggregation and checking procedures will be further automated.

10. Section P11 Timeliness and punctuality

No additional information

11. Section P12 coherence and comparability

No additional information

12. Section P13 Accessibility and Clarity

Internal coherence of the production statistics is evaluated based on the time series of the production data.

Detailed documentation is available in internal working documents and documentation of analysis scripts. Progress has been made with an overall methodological document which will be made public in 2020 (see also question 12 in the fisheries section).