

Wageningen Marine Research, Wageningen Social & Economic Research,
Ministry of Agriculture, Fisheries, Food Security and Nature

**Regulation (EU) 2017/1004 of the European Parliament and of the
Council of 17 May 2017**

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 Delegated Decision (EU) 2021/1167 of 27 April 2021

establishing the multiannual Union programme for the collection and management of
biological, environmental, technical and socioeconomic data in the fisheries and aquaculture
sectors from 2022

**Commission Implementing Decision (EU) 2021/1168 of 27 April
2021**

establishing the list of mandatory research surveys at sea and thresholds as part of the
multiannual Union programme for the collection and management of data in the fisheries and
aquaculture sectors from 2022

**Commission Implementing Decision (EU) 2022/39 of 12 January
2022**

laying down rules on the format and timetables for the submission of national work plans and
annual reports for data collection in the fisheries and aquaculture sectors, and repealing
Implementing Decisions (EU) 2016/1701 and (EU) 2018/1283

Netherlands Work Plan for data collection in the fisheries and aquaculture sectors

2025-2027

Version 4 – 2024

IJmuiden, the Netherlands - 04 November 2024

CONTENTS

SECTION 1: GENERAL INFORMATION	6
DATA COLLECTION FRAMEWORK AT NATIONAL LEVEL	6
TEXT BOX 1A: TEST STUDIES DESCRIPTION	7
<i>Region: North-East Atlantic, North Atlantic, North Sea and Eastern Arctic</i>	<i>7</i>
<i>Test study: Genetics.....</i>	<i>7</i>
<i>Test study: Regional Sampling Plan Pelagic Freezer trawler.....</i>	<i>7</i>
<i>Test study: Diadromous species data collection.....</i>	<i>7</i>
<i>Test study: North Sea bass (Dicentrarchus labrax) stock marine recreational fisheries sampling.....</i>	<i>7</i>
<i>Test study: Pilot new social variables</i>	<i>7</i>
TEXT BOX 1B: OTHER DATA COLLECTION ACTIVITIES.....	9
<i>Region: North-East Atlantic, North Sea and Eastern Arctic, Long Distance fisheries.....</i>	<i>9</i>
<i>Activity: RCGs Secretariat</i>	<i>9</i>
<i>Region: North-East Atlantic, North Sea and Eastern Arctic, Long distance fisheries</i>	<i>9</i>
<i>Activity: Regional data base and estimation System (RDBES).....</i>	<i>9</i>
<i>Activity: Regional Coordination taking place in Inter Sessional SubGroups (ISSGs) and pan regional cooperation between RCGs</i>	<i>9</i>
<i>Activity: Smart Dots.....</i>	<i>9</i>
<i>Activity: Catch, effort and sampling overviews for RCG Technical Meeting.....</i>	<i>10</i>
SECTION 2: BIOLOGICAL DATA	10
TEXT BOX 2.3: DIADROMOUS SPECIES DATA COLLECTION IN FRESHWATER.....	10
TEXT BOX 2.4: RECREATIONAL FISHERIES.....	11
<i>Region: North Sea and Eastern Arctic</i>	<i>11</i>
TEXT BOX 2.5: SAMPLING PLAN DESCRIPTION FOR BIOLOGICAL DATA	11
<i>Region: North-East Atlantic, North Sea and Eastern Arctic</i>	<i>11</i>
<i>Sampling scheme name: PEL1</i>	<i>11</i>
<i>Sampling scheme name: PEL2</i>	<i>12</i>
<i>Region: North Sea and Eastern Arctic</i>	<i>12</i>
<i>Sampling scheme name: DEMPAS.....</i>	<i>12</i>
<i>Sampling scheme name: DEMACT1</i>	<i>12</i>
<i>Sampling scheme name: DEMACT2</i>	<i>13</i>
<i>Sampling scheme name: AUCTION DEM.....</i>	<i>13</i>
<i>Sampling scheme name: AUCTION_SHRIMP</i>	<i>14</i>
<i>Region: Other regions</i>	<i>14</i>
<i>Sampling scheme name: CECAF at sea sampling.....</i>	<i>14</i>
<i>Sampling scheme name: SPRFMO at sea sampling.....</i>	<i>15</i>
<i>Sampling scheme name: NPFC at sea sampling</i>	<i>15</i>
TEXT BOX 2.6: RESEARCH SURVEYS AT SEA	15
<i>Region: North Sea and Eastern Arctic</i>	<i>15</i>
<i>Research survey: International Ecosystem Survey in the Nordic Seas (ASH; ICES acronym: IESNS).....</i>	<i>15</i>
<i>Research survey: North Sea Beam Trawl Survey (BTS).....</i>	<i>16</i>
<i>Research survey: Demersal Young Fish Survey (DYFS).....</i>	<i>16</i>
<i>Research survey: International Bottom Trawl Survey (IBTS_Q1)</i>	<i>16</i>
<i>Research survey: International Herring Larvae Surveys (IHLS)</i>	<i>16</i>
<i>Research survey: North Sea Herring Acoustic Survey (NHAS).....</i>	<i>16</i>
<i>Research survey: Sole Net Survey (SNS_NLD)</i>	<i>17</i>
<i>Research survey: Downs recruitment survey (IHLS-DRS).....</i>	<i>17</i>
<i>Research survey: Open water monitoring Lakes IJsselmeer and Markermeer (FYMA)</i>	<i>17</i>

<i>Region: North Sea and Eastern Arctic</i>	18
<i>Research survey: International Blue Whiting Spawning Survey (IBWSS)</i>	18
<i>Research survey: International Mackerel and Horse Mackerel Egg Survey (MEGS)</i>	18
SECTION 3: FISHING ACTIVITY DATA	18
TEXT BOX 3.1: FISHING ACTIVITY VARIABLES DATA COLLECTION STRATEGY	18
TEXT BOX 3.2: FISHING ACTIVITY VARIABLES DATA COLLECTION STRATEGY (FOR INLAND EEL COMMERCIAL FISHERIES).....	19
SECTION 4: IMPACT OF FISHERIES ON MARINE BIOLOGICAL RESOURCES	19
TEXT BOX 4.2: INCIDENTAL CATCHES OF SENSITIVE SPECIES.....	19
<i>Region: North-East Atlantic, North Sea and Eastern Arctic</i>	19
<i>Region: North Sea and Eastern Arctic</i>	19
TEXT BOX 4.3: FISHERIES IMPACT ON MARINE HABITATS	20
<i>Region: North-East Atlantic, North Sea and Eastern Arctic</i>	20
<i>Study: Regionally coordinated stomach sampling program</i>	20
SECTION 5: ECONOMIC AND SOCIAL DATA IN FISHERIES	21
TEXT BOX 5.2: ECONOMIC AND SOCIAL VARIABLES FOR FISHERIES DATA COLLECTION.....	21
SECTION 6: ECONOMIC AND SOCIAL DATA IN AQUACULTURE	22
TEXT BOX 6.1: ECONOMIC AND SOCIAL VARIABLES FOR AQUACULTURE DATA COLLECTION.....	22
SECTION 7: ECONOMIC AND SOCIAL DATA IN FISH PROCESSING	22
TEXT BOX 7.1: ECONOMIC AND SOCIAL VARIABLES FOR FISH PROCESSING DATA COLLECTION	22
ANNEX 1.1 - QUALITY REPORT FOR BIOLOGICAL DATA SAMPLING SCHEME	24
<i>Related to Table 2.3 [and Text Box 2.3] (diadromous data collection)</i>	24
<i>Sampling scheme identifier: ELE-FRS-MPM</i>	24
<i>Sampling scheme identifier: ELE-FRS-LNP</i>	26
<i>Sampling scheme identifier: ELE-FRS-MIS-commercial fishing</i>	28
<i>Sampling scheme identifier: Sal-FGRZ</i>	30
<i>Related to Table 2.4 [and Text Box 2.4] (recreational fisheries)</i>	32
<i>Sampling scheme identifier: REC_Self</i>	32
<i>Related to Table 2.5 [and Text Box 2.5] (commercial fisheries data collection)</i>	33
<i>Sampling scheme identifier: PEL1</i>	33
<i>Sampling scheme identifier: PEL2</i>	36
<i>Sampling scheme identifier: DEMACT1</i>	39
<i>Sampling scheme identifier: DEMACT2</i>	44
<i>Sampling scheme identifier: DEMPAS</i>	48
<i>Sampling scheme identifier: AUCTION_DEM</i>	51
<i>Sampling scheme identifier: AUCTION_SHRIMP</i>	55
<i>Sampling scheme identifier: CECAF at sea sampling</i>	58
<i>Sampling scheme identifier: SPRFMO at sea sampling</i>	60
<i>Sampling scheme identifier: NPFC at sea sampling</i>	62
<i>Related to Table 2.6 [and Text Box 2.6] (commercial fisheries data collection)</i>	64
<i>Sampling scheme identifier: IBWSS, NHAS</i>	64
<i>Sampling scheme identifier: BTS, IBTS_Q1, IBWSS, NHAS</i>	66
<i>Sampling scheme identifier: DYFS, IBTS_Q1, IHLS, IHLS-DRS, MEGS, SNS_NLD</i>	67
<i>Sampling scheme identifier: BTS, DYFS, FYMA, IBTS_Q1, IBWSS, MEGS, NHAS, SNS_NLD</i>	69
<i>Sampling scheme identifier: IBTS_Q1, IHLS, IHLS-DRS, MEGS</i>	74
<i>Sampling scheme identifier: IBTS_Q1, BTS</i>	76
<i>Related to Table 4.1 (stomach sampling)</i>	78

<i>Sampling scheme identifier: IBTS_Q1</i>	78
ANNEX 1.2 - QUALITY REPORT FOR SOCIOECONOMIC DATA SAMPLING SCHEME	81
<i>Sampling scheme identifier: RWP_ECON</i>	81
<i>Sampling scheme identifier: FisheriesCOtherCoastal</i>	89
<i>Sampling scheme identifier: AquaculturePSSMussel</i>	92
<i>Sampling scheme identifier: AquaculturePSSOyster and Eel</i>	94
<i>Sampling scheme identifier: FisheriesCSocial</i>	95
<i>Sampling scheme identifier: AquacultureCSocial</i>	96

SECTION 1: GENERAL INFORMATION

Data collection framework at national level

General comment: Use this text box to describe how data collection is organised in your Member State (institutions involved, contact information) and in which regional coordination groups (RCG) your Member State participates.

In the Netherlands, the data collection programme is conducted by Wageningen Marine Research (WMR, biological components) and Wageningen Social & Economic Research (WESR), social-economic components) under the statutory tasks programmes of the Ministry of Agriculture, Fisheries, Food Security and Nature (LVVN). Both institutes provide an annual work plan to the Ministry for the statutory tasks of next year. The national statutory tasks encompass a wider range of activities than the EU data collection programme, e.g. data collection on freshwater fish and fisheries, shellfish and shellfish fisheries data collection.

The data collection methodologies are generally constant over time, and no major changes in approach are foreseen compared to previous years. This update reflects changes in end-user requirements, updates to reference periods, and, foremost, the inclusion of the various aspects stemming from the Regional Workplans.

In line with Article 9.10 of EU regulation 2017/1004 and where applicable, the relevant regional work plan parts shall be considered to replace or supplement the relevant parts of this national work plan.

Contact details:

Wageningen Marine Research (WMR)
S.W. Verver (*National Correspondent*)
P.O. Box 68
1970 AB IJmuiden
The Netherlands
Sieto.Verver@wur.nl

Wageningen Social & Economic Research (WSER)
Dr. Ir. J.A.E. van Oostenbrugge
P.O. Box 29703
2502 LS Den Haag
The Netherlands
Hans.vanOostenbrugge@wur.nl

Ministry of Agriculture, Fisheries, Food Security and Nature
Dr. Ir. R. Schaap
P.O. Box 20401
2224 JX Den Haag
The Netherlands
r.schaap@minlnv.nl

Link to national data collection website: <https://www.wur.nl/nl/onderzoek-resultaten/kennisonline-onderzoeksprojecten-lvvn/soorten-onderzoek/wettelijke-onderzoekstaken/centrum-voor-visserijonderzoek-1.htm>

National databases are not publicly accessible.

Text Box 1a: Test studies description

Region: North-East Atlantic, North Atlantic, North Sea and Eastern Arctic

Test study: Genetics

General comment: This text box fulfils Chapter II, section 1.2 of the EU MAP Delegated Decision annex.

Name of the regional test study: Genetics

RWP NANSEA 2025-2027

Test study: Regional Sampling Plan Pelagic Freezer trawler

General comment: This text box fulfils Chapter II, section 1.2 of the EU MAP Delegated Decision annex.

Name of the regional test study: Regional Sampling Plan Pelagic Freezer trawler

RWP NANSEA 2025-2027

Test study: Diadromous species data collection

General comment: This text box fulfils Chapter II, section 1.2 of the EU MAP Delegated Decision annex.

Name of the regional test study: Diadromous species data collection

RWP NANSEA 2025-2027

Test study: North Sea bass (*Dicentrarchus labrax*) stock marine recreational fisheries sampling

General comment: This text box fulfils Chapter II, section 1.2 of the EU MAP Delegated Decision annex.

Name of the regional test study: North Sea bass (*Dicentrarchus labrax*) stock marine recreational fisheries sampling

RWP NANSEA 2025-2027

Test study: Pilot new social variables

General comment: This text box fulfils Chapter II, section 1.2 of the EU MAP Delegated Decision annex.

Name of the national test study: Pilot new social variables

1. Aim of the test study

Following the EWG Social 2024-05 and the RCG Econ meeting in June, RCG-ECON organized an ISSG in September 2024 to discuss the 12 social indicators that were proposed as new social indicators. These 12 (see below) had been developed by the EWG, following a prioritization of five priority areas of stakeholders consulted by the EU commission, and were selected out of a total of 38 social indicators as being most straightforward to be collected relatively soon. Of these 12 indicators 7 need additional data collection. The aim of this study is to test whether the information for these proposed indicators can be collected from existing sources or needs additional data collection and to evaluate potential issues with the outcomes of the data and their collection.

2. Duration of the test study

The study will be carried out in 2025.

3. Methodology and expected outcomes of the test study

The table below describes how this will be done, per social indicator.

Social indicators	Approach in the Netherlands
1 – financial position - compare average net income (self-employed/employee) with national averages	This information is already available and no additional data collection will be carried out.
2 – nr of fishers in trade unions	<i>The vakbonden</i> in the Netherlands will be contacted, to see if they have any information about fishers. Most will most likely be ‘self employed’, thus in addition we will also contact the Social fonds <i>maatschapsvissers</i> to see if they can share data with us on this topic.
3 – working conditions – min req crew per vessel	These requirements can be found in the legislation. This requires an online search and some interviews (Ministry, <i>Sociale partners</i>)
4 – working conditions – mandatory safety training	Safety training is mandatory on all fishing vessels. We need to see whether this is true for all crew at the same level (SW 4,5 or 6 and also factory personnel vs fishers on pelagic, as well as foreign workers vs national fishers). This will be done through interviews with key informants.
5 – working conditions – wellbeing – time away from home (DAS)	This information is already available and no additional data collection will be carried out.
6 – working conditions – time away from home – nr of trips	This information is already available and no additional data collection will be carried out.
7 - Working conditions – average wage	This information is already available and no additional data collection will be carried out.
8 - % of sea allocated to other uses	Data on % of sea allocated to other uses will be gathered from research projects and interviews with staff from the Ministry. If possible data from the last period since 2010 will be obtained.
9 - Level of professionalization – nr of years working as a fisher	This aspect will be taken up in the survey that we send out to our fleets. As we have not sent it out yet in 2024, we can pilot this question already in 2024.
10 - Number of people entering the fishing industry - Number of people enrolled and recent graduates of mandatory safety training	An overview of the places in the Netherlands where such safety trainings can be followed, will be made and these will be asked whether they can share with us what the nr of people are that do this safety training and are fisher as profession.
11- Number of people entering the fishing industry - Number of people enrolled in fisheries vocational training	An overview of the places where fishers follow vocational training is available. They will be contacted to provide information on numbers of students. We need to make a differentiation between students in the <i>visserijscholen</i> (fishing schools) and the fishers whom need to follow a follow-up training.
12 - Number of people entering the fishing industry - Number of new entrants in the vessel register	This information is already available and no additional data collection will be carried out.

(max 900 words per study)

Text Box 1b: Other data collection activities

Region: North-East Atlantic, North Sea and Eastern Arctic, Long Distance fisheries

Activity: RCGs Secretariat

General comment: Describe either activities that are funded by the DCF without a direct link to the EU MAP specific requirements or WP template tables, like marine knowledge, or activities funded by other financial instruments and/or programmes that relate to EU MAP requirements, like actions under the marine action plan. You can also include one-off specific studies for a particular end-user need that will not enter the regular data collection.

Name of the regional activity: RCGs Secretariat

RWP NANSEA 2025-2027;
ECON RWP 2025-2027;
RWP_LDF_2025-2027.

Region: North-East Atlantic, North Sea and Eastern Arctic, Long distance fisheries

Activity: Regional data base and estimation System (RDBES)

General comment: Describe either activities that are funded by the DCF without a direct link to the EU MAP specific requirements or WP template tables, like marine knowledge, or activities funded by other financial instruments and/or programmes that relate to EU MAP requirements, like actions under the marine action plan. You can also include one-off specific studies for a particular end-user need that will not enter the regular data collection.

Name of the regional activity: Regional data base and estimation System (RDBES)

RWP NANSEA 2025-2027;
RWP_LDF_2025-2027.

Activity: Regional Coordination taking place in Inter Sessional SubGroups (ISSGs) and pan regional cooperation between RCGs

General comment: Describe either activities that are funded by the DCF without a direct link to the EU MAP specific requirements or WP template tables, like marine knowledge, or activities funded by other financial instruments and/or programmes that relate to EU MAP requirements, like actions under the marine action plan. You can also include one-off specific studies for a particular end-user need that will not enter the regular data collection.

Name of the regional activity: Regional Coordination taking place in Inter Sessional SubGroups (ISSGs) and pan regional cooperation between RCGs

RWP NANSEA 2025-2027;
RWP_LDF_2025-2027.

Activity: Smart Dots

General comment: Describe either activities that are funded by the DCF without a direct link to the EU MAP specific requirements or WP template tables, like marine knowledge, or activities funded by other financial instruments and/or programmes that relate to EU MAP requirements, like actions under the marine action plan. You can also include one-off specific studies for a particular end-user need that will not enter the regular data collection.

Name of the regional activity: Smart Dots

RWP NANSEA 2025-2027;
RWP_LDF_2025-2027.

Activity: Catch, effort and sampling overviews for RCG Technical Meeting

General comment: Describe either activities that are funded by the DCF without a direct link to the EU MAP specific requirements or WP template tables, like marine knowledge, or activities funded by other financial instruments and/or programmes that relate to EU MAP requirements, like actions under the marine action plan. You can also include one-off specific studies for a particular end-user need that will not enter the regular data collection.

Name of the regional activity: Catch, effort and sampling overviews for RCG Technical Meeting
RWP NANSEA 2025-2027;
RWP_LDF_2025-2027.

SECTION 2: BIOLOGICAL DATA

Text Box 2.3: Diadromous species data collection in freshwater

General comment: This text box fulfils Article 5(2)(a), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter II point 2.1(b) and point 2.3 of the EU MAP Delegated Decision annex. Use this text box to give an overview of the methodology used to collect data from freshwater and inland commercial and recreational fisheries for salmon, sea trout and eel. Also include overview of data to be collected from research surveys on salmon, sea trout and eel in freshwater, and on eel in any relevant habitat including coastal waters.

In the Netherlands, eel (*Anguilla anguilla*) is the only diadromous fish species that is fished commercially in freshwater. In 2010 an obligatory online catch registration was introduced for all freshwater waterbodies. In 2012, effort data (type and number of fishing gear) was added to the registration system. In the catch & effort registration system, yellow eel and silver eel catches are not separated.

The existing market sampling programme consists of 36 samples (= fishing trip) collected between May and August, and in the province of Friesland also in autumn. In each sample, length measurements of approximately 150 (max. 200) eels are taken from the unsorted catches. Maturity (silver eel/yellow eel) is registered separately. In addition to collecting length data, eels are collected for biological sampling (life stage, length, weight, sex, age). Annually, several hundred eels are dissected for biological samples (4 eels per 10cm class until 50 cm and 2 eels per 10 cm class for eel >50cm). From this eel, a subset of 100 otoliths are selected for ageing, and the otoliths are sent to SLU (Swedish University of Agricultural Sciences). See also Annex 1.1 sampling scheme ELE-FRS-MIS-commercial.

In addition to the fisheries data, fisheries independent surveys take place:

- Glass eel survey: Yearly survey with 9 glass eel detectors (elvi's). The glass eel monitoring with detectors started in 2019 and is continuous during the glass eel season. See also Annex 1.1 sampling scheme ELE-FRS-MPM.
- Glass eel survey with a liftnet (1*1m) at Den Oever and at IJmuiden during March/May. The survey started in 1938 and is an important series in the ICES assessment for a European glass eel index. See also Annex 1.1 sampling scheme ELE-FRS-LNP.
- Lake IJsselmeer and Markermeer are sampled yearly with electric gear (beam trawl in the open water, dipping net in the shore). See also Text box 2.6 (FYMA) and Annex 1.1 Type of sampling activity: trawl hauls.

For *Salmo salar* and *Salmo trutta* commercial fishery is banned, so no data from commercial catches will be collected. One fisheries-independent survey takes place: sampling with a traditional salmon fyke on three

locations in the Rhine & Meuse catchment area. In total, three locations are sampled in May-July and October-November. One location (river Waal) is sampled annually, the other two (river Maas, river IJssel) biennially. See Annex 1.1 sampling scheme SAL-FGRZ. The Ministry of Infrastructure and Environment funds this survey as part of the Water Framework Directive.

Text Box 2.4: Recreational Fisheries

Region: North Sea and Eastern Arctic

General comment: This text box fulfils Article 5(2)(a), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter II point 2.2 of the EU MAP Delegated Decision annex. Use this text box to give an overview of the methodology used to collect data on marine and freshwater recreational catches. For freshwater diadromous species, use Table and Text Box 2.3.

The target population is represented by the resident recreational fishers in the Netherlands. Over 95% of the Dutch recreational fishers are anglers.

The Netherlands conducts a biennial sampling programme covering all recreational fisheries in fresh and marine waters. The catches of all species are recorded. There is no licence system in the Netherlands for marine fishing, so the programme consists of a biennial screening survey covering about 25,000 - 60,000 households. These households are questioned on their participation in the recreational fishery. Based on the results of this screening survey, about 2500 recreational fishermen were selected to provide information on their recreational catches in a biennial logbook survey for one year (see also [van der Hammen et al 2019](#)).

Text Box 2.5: Sampling plan description for biological data

Region: North-East Atlantic, North Sea and Eastern Arctic

Sampling scheme name: PEL1

General Comment: This text box fulfils Article 5(2)(a) and (b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter 2 point 2.1(a) of the EU MAP Delegated Decision annex. This text box complements Table 2.5.

Sampling scheme name (or identifier): PEL1

The onboard sampling plan for commercial pelagic fisheries in the North-East Atlantic regions and the North Sea and Eastern Arctic region consists of sampling schemes from, in principle, one sampling population: pelagic gears (PEL1 and PEL2).

Additional information on sampling schemes

The on-board sampling plan for pelagic trawlers (PEL1) concerns a probabilistic vessel*time sampling scheme, with a sampling intensity of one trip per month. Sampling is carried out by observers, including routine data collection of incidental bycatch.

Additional description on sampling frames

The sampling frame descriptions as indicated in Table 2.5 include information by sampling scheme on the fisheries and area. Further details of the sampling scheme are provided in Annex 1.1.

Sampling scheme name: PEL2

General Comment: This text box fulfils Article 5(2)(a) and (b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter 2 point 2.1(a) of the EU MAP Delegated Decision annex. This text box complements Table 2.5.

Sampling scheme name (or identifier): PEL2

The onboard sampling plan for commercial pelagic fisheries in the North-East Atlantic regions and the North Sea and Eastern Arctic region consists of sampling schemes from, in principle, one sampling population: vessels fishing with pelagic gears (PEL1 and PEL2).

Additional information on sampling schemes

The PEL2 sampling plan is based on self-sampling by instructed fishermen of a reference fleet and concerns a week*ICES division scheme for a predefined species list. The sampling scheme covers the pelagic freezer trawler fleet operating in EU waters.

Additional description on sampling frames

The sampling frame descriptions as indicated in Table 2.5 include information by sampling scheme on the fisheries and area. Further details of the sampling scheme are provided in Annex 1.1.

Region: North Sea and Eastern Arctic**Sampling scheme name: DEMPAS**

General Comment: This text box fulfils Article 5(2)(a) and (b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter 2 point 2.1(a) of the EU MAP Delegated Decision annex. This text box complements Table 2.5.

Sampling scheme name (or identifier): DEMPAS

The onboard sampling plan for commercial fisheries in the North Sea and Eastern Arctic region consists of sampling schemes from, in principle, three predefined sampling populations: passive demersal gears (DEMPAS), active demersal gears (DEMACT1, DEMACT2) and pelagic gears (PEL1 and PEL2). PEL1 and PEL2 are described above, as they also apply to the North-East Atlantic..Additional information on sampling schemes

The sampling of passive demersal gears (DEMPAS) concerns a non-probabilistic vessel*trip scheme, with a sampling intensity of 20 trips per year. In practice, probabilistic selection is hampered by the high variability of fishing activity throughout the year and the seasonal and weather-dependent character of the fisheries. Incidental bycatch is sampled as part of the routine data collection procedures.

The sampling intensity has been increased compared to the previous Workplan to reflect the anticipated needs stemming from the Marine Action Plan combined with national requirements.

Additional description on sampling frames

The sampling frame descriptions as indicated in Table 2.5 include information by sampling scheme on the fisheries and area. Further details of the sampling scheme are provided in Annex 1.1.

Sampling scheme name: DEMACT1

General Comment: This text box fulfils Article 5(2)(a) and (b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter 2 point 2.1(a) of the EU MAP Delegated Decision annex. This text box complements Table 2.5.

Sampling scheme name (or identifier): DEMACT1

The onboard sampling plan for commercial fisheries in the North Sea and Eastern Arctic region consists of sampling schemes from, in principle, three predefined sampling populations: passive demersal gears (DEMPAS), active demersal gears (DEMACT1, DEMACT2) and pelagic gears (PEL1 and PEL2). PEL1 and PEL2 are described above, as they also apply to the North-East Atlantic. Additional information on sampling schemes

The population of vessels in the sampling scheme for onboard sampling of active demersal gears is based on a reference fleet. The DEMACT1 sampling scheme is a probabilistic vessel*week scheme with a sampling intensity of 16 observer trips per year. The trips are distributed over various representative fleet components, e.g., beam trawlers and fly-shoot vessels. Incidental bycatch is sampled as part of the routine data collection procedures.

The sampling intensity has been increased compared to the previous Workplan to reflect the anticipated needs stemming from the Marine Action Plan combined with national requirements.

Additional description on sampling frames

The sampling frame descriptions as indicated in Table 2.5 include information by sampling scheme on the fisheries and area. Further details of the sampling scheme are provided in Annex 1.1.

Sampling scheme name: DEMACT2

General Comment: This text box fulfils Article 5(2)(a) and (b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter 2 point 2.1(a) of the EU MAP Delegated Decision annex. This text box complements Table 2.5.

Sampling scheme name (or identifier): DEMACT2

The onboard sampling plan for commercial fisheries in the North Sea and Eastern Arctic region consists of sampling schemes from, in principle, three predefined sampling populations: passive demersal gears (DEMPAS), active demersal gears (DEMACT1, DEMACT2) and pelagic gears (PEL1 and PEL2). PEL1 and PEL2 are described above, as they also apply to the North-East Atlantic. Additional information on sampling schemes

The population of vessels in the sampling scheme for onboard sampling of active demersal gears is based on a reference fleet. The sampling scheme is a probabilistic vessel*week scheme containing 180 self-sampling trips per year. The sampling intensity has been increased compared to the previous Workplan to reflect the anticipated needs stemming from the end-users combined with national requirements.

Additional description on sampling frames

The sampling frame descriptions as indicated in Table 2.5 include information by sampling scheme on the fisheries and area. Further details of the sampling scheme are provided in Annex 1.1.

Sampling scheme name: AUCTION_DEM

General Comment: This text box fulfils Article 5(2)(a) and (b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter 2 point 2.1(a) of the EU MAP Delegated Decision annex. This text box complements Table 2.5.

Sampling scheme name (or identifier): AUCTION_DEM

The on-shore sampling schemes for commercial demersal fisheries in the North Sea and Eastern Arctic region consist of sampling schemes from, in principle, two predefined sampling populations: demersal fish (scheme AUCTION_DEM) and brown shrimp (Crangon crangon, scheme AUCTION_SHRIMP) landings in the main Dutch auctions.

Additional information on sampling schemes

Auction sampling for demersal fish and related species (apart from brown shrimp) is carried out in the primary auctions in the Netherlands, accounting for over 80% of the demersal landings. The sampling scheme is based on auction*time stratified by quarter, and samples are further stratified by size categories where relevant.

Additional description on sampling frames

The sampling frame descriptions as indicated in Table 2.5 include information by sampling scheme on the fisheries and area. Further details of the sampling scheme are provided in Annex 1.1.

Sampling scheme name: AUCTION_SHRIMP

General Comment: This text box fulfils Article 5(2)(a) and (b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter 2 point 2.1(a) of the EU MAP Delegated Decision annex. This text box complements Table 2.5.

Sampling scheme name (or identifier): AUCTION_SHRIMP

The on-shore sampling schemes for commercial demersal fisheries in the North Sea and Eastern Arctic region consist of sampling schemes from, in principle, two predefined sampling populations: demersal fish (scheme AUCTION_DEM) and brown shrimp (Crangon crangon, scheme AUCTION_SHRIMP) landings in the main Dutch auctions.

Additional information on sampling schemes

Auction sampling for brown shrimp is carried out in the primary auctions in the Netherlands, accounting for over 80% of the brown shrimp landings. The sampling scheme is based on auction*time stratified by quarter.

Additional description on sampling frames

The sampling frame descriptions as indicated in Table 2.5 include information by sampling scheme on the fisheries and area. Further details of the sampling scheme are provided in Annex 1.1.

Region: Other regions

Sampling scheme name: CECAF at sea sampling

General Comment: This text box fulfils Article 5(2)(a) and (b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter 2 point 2.1(a) of the EU MAP Delegated Decision annex. This text box complements Table 2.5.

Sampling scheme name (or identifier): CECAF at sea sampling

RWP_LDF_2025-2027

National specifics

Data collection and data provision to the end user is coordinated and executed by NLD under the joint sampling programme based on “Multi-lateral agreement for 2025-2027 between Germany, Latvia, Lithuania, The Netherlands and Poland for biological data collection of pelagic fisheries in CECAF waters”. The multi-lateral agreement is valid until the end of 2027 with an option for extension.

The sampling scheme is described in the Annex 1.1

Sampling scheme name: SPRFMO at sea sampling

General Comment: This text box fulfils Article 5(2)(a) and (b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter 2 point 2.1(a) of the EU MAP Delegated Decision annex. This text box complements Table 2.5.

Sampling scheme name (or identifier): SPRFMO at sea sampling

RWP_LDF_2025-2027

National specifics

Data collection and data provision to the end user is coordinated and executed by NLD under the joint sampling programme based on “Multi-lateral agreement for 2025-2027 between Germany, Lithuania, The Netherlands and Poland for biological data collection of pelagic fisheries in SPRFMO waters”. The multi-lateral agreement is valid until the end of 2027 with an option for extension.

The sampling scheme is described in the Annex 1.1

Sampling scheme name: NPFC at sea sampling

General Comment: This text box fulfils Article 5(2)(a) and (b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter 2 point 2.1(a) of the EU MAP Delegated Decision annex. This text box complements Table 2.5.

Sampling scheme name (or identifier): NPFC at sea sampling

RWP_LDF_2025-2027

National specifics

Data collection and data provision to the end user is coordinated and executed by NLD under the joint sampling programme based on “Multi-lateral agreement for 2025-2027 between Germany, Lithuania, The Netherlands and Poland for biological data collection of pelagic fisheries in NPFC waters”. The multi-lateral agreement is valid until the end of 2027 with an option for extension.

The sampling scheme is described in the Annex 1.1

Text Box 2.6: Research surveys at sea**Region: North Sea and Eastern Arctic****Research survey: International Ecosystem Survey in the Nordic Seas (ASH; ICES acronym: IESNS)**

General Comment: This text box fulfils Article 5(1)(b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapters I and II of the EU MAP Implementing Decision annex. It is intended to specify which research surveys at sea, as set out in Table 2 of the EU MAP Implementing Decision annex will be carried out. Member States shall specify whether the research survey is included in Table 2 of the EU MAP Implementing Decision annex or whether it is an additional survey.

Research survey: International Ecosystem Survey in the Nordic Seas (ASH; ICES acronym: IESNS)

RWP NANSEA 2025-2027

Research survey: North Sea Beam Trawl Survey (BTS)

General Comment: This text box fulfils Article 5(1)(b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapters I and II of the EU MAP Implementing Decision annex. It is intended to specify which research surveys at sea, as set out in Table 2 of the EU MAP Implementing Decision annex will be carried out. Member States shall specify whether the research survey is included in Table 2 of the EU MAP Implementing Decision annex or whether it is an additional survey.

Research survey: North Sea Beam Trawl Survey (BTS)

RWP NANSEA 2025-2027

Research survey: Demersal Young Fish Survey (DYFS)

General Comment: This text box fulfils Article 5(1)(b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapters I and II of the EU MAP Implementing Decision annex. It is intended to specify which research surveys at sea, as set out in Table 2 of the EU MAP Implementing Decision annex will be carried out. Member States shall specify whether the research survey is included in Table 2 of the EU MAP Implementing Decision annex or whether it is an additional survey.

Research survey: Demersal Young Fish Survey (DYFS)

RWP NANSEA 2025-2027

Research survey: International Bottom Trawl Survey (IBTS_Q1)

General Comment: This text box fulfils Article 5(1)(b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapters I and II of the EU MAP Implementing Decision annex. It is intended to specify which research surveys at sea, as set out in Table 2 of the EU MAP Implementing Decision annex will be carried out. Member States shall specify whether the research survey is included in Table 2 of the EU MAP Implementing Decision annex or whether it is an additional survey.

Research survey: International Bottom Trawl Survey (IBTS_Q1)

RWP NANSEA 2025-2027

Research survey: International Herring Larvae Surveys (IHLS)

General Comment: This text box fulfils Article 5(1)(b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapters I and II of the EU MAP Implementing Decision annex. It is intended to specify which research surveys at sea, as set out in Table 2 of the EU MAP Implementing Decision annex will be carried out. Member States shall specify whether the research survey is included in Table 2 of the EU MAP Implementing Decision annex or whether it is an additional survey.

Research survey: International Herring Larvae Surveys (IHLS)

RWP NANSEA 2025-2027

Research survey: North Sea Herring Acoustic Survey (NHAS)

General Comment: This text box fulfils Article 5(1)(b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapters I and II of the EU MAP Implementing Decision annex. It is intended to specify which research surveys at sea, as set out in Table 2 of the EU MAP Implementing Decision annex will be carried out. Member States shall specify whether the research survey is included in Table 2 of the EU MAP Implementing Decision annex or whether it is an additional survey.

Research survey: North Sea Herring Acoustic Survey (NHAS)

RWP NANSEA 2025-2027

Research survey: Sole Net Survey (SNS_NLD)

General Comment: This text box fulfils Article 5(1)(b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapters I and II of the EU MAP Implementing Decision annex. It is intended to specify which research surveys at sea, as set out in Table 2 of the EU MAP Implementing Decision annex will be carried out. Member States shall specify whether the research survey is included in Table 2 of the EU MAP Implementing Decision annex or whether it is an additional survey.

Research survey: Sole Net Survey (SNS_NLD)

RWP NANSEA 2025-2027

Research survey: Downs recruitment survey (IHLS-DRS)

General Comment: This text box fulfils Article 5(1)(b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapters I and II of the EU MAP Implementing Decision annex. It is intended to specify which research surveys at sea, as set out in Table 2 of the EU MAP Implementing Decision annex will be carried out. Member States shall specify whether the research survey is included in Table 2 of the EU MAP Implementing Decision annex or whether it is an additional survey.

Research survey: Downs recruitment survey (IHLS-DRS)

1. Objectives of the survey

The Downs recruitment survey in the North Sea is since 2018 annually carried out in April. The Netherlands participates with RV Tridens (total 10 days), covering the relevant area in the North Sea (sampling area based on larval drift modelling). The survey is not mandatory under the DCF. The survey is part of the Dutch statutory task programme for fisheries.

The aim of the DRS is to provide a recruitment index for the winter spawning herring population in the Southern North Sea and English Channel. This index is intended to be added to the existing IBTS-MIK index for tuning of the North Sea herring assessment.

2. Description of the survey design, vessel and methods used in the survey for each type of data collection as listed in Table 2.6 for this specific survey.

In order for the 'Downs' recruitment index to be similar to the already existing MIK-index, the survey is carried out as similar as possible as the IBTS-MIK. Both IBTS-MIK and DRS target larger herring larvae. Survey protocols of the IBTS-MIK are followed ([Manual for the Midwater Ring Net sampling](#) during IBTS Q1). In 2018-2023 (2020 no survey due to COVID-19) the sampling was conducted during day and night. As of 2024 the survey is carried out at nighttime only, upon request of the end user (ICES Herring assessment working group).

Details on the sample processing are in Annex 1.1

Research survey: Open water monitoring Lakes IJsselmeer and Markermeer (FYMA)

General Comment: This text box fulfils Article 5(1)(b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapters I and II of the EU MAP Implementing Decision annex. It is intended to specify which research surveys at sea, as set out in Table 2 of the EU MAP Implementing Decision annex will be carried out. Member States shall specify whether the research survey is included in Table 2 of the EU MAP Implementing Decision annex or whether it is an additional survey.

Research survey: Open water monitoring Lakes IJsselmeer and Markermeer (FYMA)

1. Objectives of the survey

The Dutch open water survey on the lakes IJsselmeer and Markermeer is carried out annually in October/November (open water monitoring, FYMA), covering both lakes. The survey delivers data to the international advice on eel as well as to national advice on smelt, bream, roach, perch, pikeperch. The survey is not mandatory under the DCF. The survey is part of the Dutch statutory task programme for fisheries.

The survey aims to provide an annual estimate of: - the abundance of eel, smelt, bream, roach, perch and pikeperch in lakes IJsselmeer and Markermeer - age composition of eel, bream, roach, perch and pikeperch in both lakes - the abundance of non-commercial fish species in both lakes - provide information to the national evaluation of the Water Framework Directive 2. Description of the survey design, vessel and methods used in the survey for each type of data collection as listed in Table 2.6 for this specific survey. The open water survey is carried out in October/November with an electric beam trawl (approx. 40 hauls) for eel sampling and with a 4 meter beam trawl (approx. 40 hauls) for the other species, and standardised since 1989. The survey has a fixed sampling design. The complete sampling procedure for both surveys is defined in the Dutch manual https://doi.org/10.18174/633142 (open water monitoring chapter 4.1) Details on the sample processing are in Annex 1.1

Region: North Sea and Eastern Arctic

Research survey: International Blue Whiting Spawning Survey (IBWSS)

General Comment: This text box fulfils Article 5(1)(b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapters I and II of the EU MAP Implementing Decision annex. It is intended to specify which research surveys at sea, as set out in Table 2 of the EU MAP Implementing Decision annex will be carried out. Member States shall specify whether the research survey is included in Table 2 of the EU MAP Implementing Decision annex or whether it is an additional survey.

Research survey: International Blue Whiting Spawning Survey (IBWSS)

RWP NANSEA 2025-2027

Research survey: International Mackerel and Horse Mackerel Egg Survey (MEGS)

General Comment: This text box fulfils Article 5(1)(b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapters I and II of the EU MAP Implementing Decision annex. It is intended to specify which research surveys at sea, as set out in Table 2 of the EU MAP Implementing Decision annex will be carried out. Member States shall specify whether the research survey is included in Table 2 of the EU MAP Implementing Decision annex or whether it is an additional survey.

Research survey: International Mackerel and Horse Mackerel Egg Survey (MEGS)

RWP NANSEA 2025-2027

SECTION 3: FISHING ACTIVITY DATA

Text Box 3.1: Fishing activity variables data collection strategy

General comment: This text box fulfils Article 5 (2)(c), Article 6 (3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter II point 3.1 of the EU MAP Delegated Decision annex. It is intended to describe the method used to derive estimates on representative samples where data are not to be recorded under the Control Regulation (EC) No 1224/2009 or where data collected under Regulation (EC) No 1224/2009 are not at the right aggregation level for the intended scientific use. Text Box 3.1 should be filled only in case complementary data collection is planned

Data on capacity, effort, landings and prices is generally available data collected under Regulation (EC) No 1224/2009. For large pelagic trawlers and for dredgers price information is not available

from sales notes. This is because many of these vessels are part of integrated companies or sell their catches directly to processing companies. To overcome this problem price information from the large pelagic trawlers is obtained from the accounts of the companies (see also Annex 1.2, Complementary dataActivityC). These prices are internal prices used to calculate crew wages. For the dredgers, price information is gathered by means of questionnaires in the survey on the economic information from small coastal fisheries (see also Annex 1.2, Complementary dataActivityC).

Text Box 3.2: Fishing activity variables data collection strategy (for inland eel commercial fisheries)

General comment: This text box fulfils Article 5(2)(c), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter II point 3.2 of the EU MAP Delegated Decision annex. It is intended to describe the methods and data sources used to estimate fishing capacity, effort and landings data.

Mandatory registration (census) and reporting by fishermen. Since 2010, all freshwater fishermen with a licence to land eel have monitored their catches and supplied them online to the Ministry every week by gear type. Since 2012, the effort is also monitored through this system. The eel regulation obliges this catch and effort monitoring system (EC 1100/2007). Data is stored by the Ministry and provided to the research institute regularly. No additional data collection is required as all variables are sufficiently covered.

SECTION 4: IMPACT OF FISHERIES ON MARINE BIOLOGICAL RESOURCES

Text Box 4.2: Incidental catches of sensitive species

Region: North-East Atlantic, North Sea and Eastern Arctic

General Comment: This text box fulfils Article 5(2)(a) and (b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter 2 point 4.1 of the EU-MAP Delegated Decision annex. This text box complements Table 2.5.

RWP NANSEA 2025-2027

Region: North Sea and Eastern Arctic

General Comment: This text box fulfils Article 5(2)(a) and (b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter 2 point 4.1 of the EU-MAP Delegated Decision annex. This text box complements Table 2.5.

During the observer trips (DEMACT1, DEMPAS) the scientific observers routinely record incidental bycatches of sensitive species and corresponding observation effort as part of the standard sampling protocol As STECF 23-16 indicated that ‘it is expected from MSs to undertake efforts to improve monitoring on PETS according to the Marine Action Plan and include this in WP submission in October 2024 for the 2025-2027 WP’, the annual number of observer trips has been increased for DEMACT1 (from 10 to 16 trips) and DEMPAS (from 10 to 20 trips).

Annex 1.1 provides further details on the sampling schemes. Sampling scheme PEL1 covers the North Sea area as well, but given its wider geographical scope, it is covered under region ‘North-East Atlantic, North Sea and Eastern Arctic’.

Additional information on planning the observation of incidental catches of sensitive species:

- Has an assessment of the relative risk of bycatch for the different gear types/metiers taken place and been taken into account for the sampling design?

The FishPi project (page 375, EU MARE/2014/19) ‘analysed risk from various gears to seabirds and marine mammals and determined that observations were most needed in fisheries using set gillnets, trammelnets, drift nets, and bottom trawls’. DEMACT1 covers the bottom trawlers, DEMPAS covers the set gillnet and trammelnet fisheries (drift nets are not relevant for NLD). - What are the gear types/metiers that present the highest risk of bycatch per species/taxa of PETS in a given region? Bottom trawls, gillnets and trammelnets. See point above on assessment. - What are the methods to calculate the observation effort? For the active fisheries, which covers the bottom trawls, (DEMACT1) the observation effort is determined by the scientific observer through expressing the time observed of catch processing at the conveyer belt. For the passive fisheries (DEMPAS), which amongst others covers the set gillnets and trammelnets, the observation effort is expressed by the scientific observer, depending on the type of fisheries, through the observed metres nets (set gillnet and trammelnet fisheries), number of fykes (fyke fisheries), number of fishing (handline fisheries). - Does the sampling design and protocol follow the recommendations from relevant expert groups? Provide appropriate references. If there are no relevant expert groups, the design and protocol have to be explained in the text. The sampling protocol follows recommendations from ICES Working Group on Bycatch of Protected Species (WGBYC). Additional information on observer protocols: - Does the on-board observer protocol contain a check for rare specimens in the catch at opening of the cod-end? If YES, is the observer instructed to indicate if the cod-end was NOT checked in a haul? The scientific 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 gill nets and hook-and-line fisheries: does the on-board observer protocol instruct the observer to indicate how much of the hauling process has been observed for (large) incidental bycatches that slip out of the net? In gillnet and hook-and-line fisheries the scientific observer registers how much of the hauling process has been observed for incidental bycatches which never came on board. - In large catches: does the protocol instruct to check for rare specimens during sorting of the catch (i.e. at conveyor belt)? Is the observer instructed to indicate what percentage of the sorting or hauling process has been checked at “haul level”? In active fisheries the scientific observer indicates what percentage of the sorting or hauling process has been checked at haul level for rare, incidental bycatches.

Text Box 4.3: Fisheries impact on marine habitats

Region: North-East Atlantic, North Sea and Eastern Arctic

Study: Regionally coordinated stomach sampling program

General comment: This text box fulfils Article 5 paragraph 2(a) and 2(b), Article 6 paragraph 3(a), 3(b) and 3(c) of Regulation (EU) 2017/1004 and Chapter 2, section 4.2 of the EU MAP Delegated Decision annex. It contains information on additional studies on the fisheries impact on marine habitats.

Name of the study: Regionally coordinated stomach sampling program
RWP NANSEA 2025-2027

SECTION 5: ECONOMIC AND SOCIAL DATA IN FISHERIES

Text Box 5.2: Economic and social variables for fisheries data collection

General comment: This Text box fulfils Article 5(2)(d), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004, and Chapter II point 5 of the EU MAP Delegated Decision annex. It is intended to specify data to be collected under Tables 7, 8 and 9 of the EU MAP Delegated Decision annex.

Definitions follow RWP on data collection in the fisheries and aquaculture sectors 2025-2027

1. Description of clustering

The Dutch fishing fleet consists of a large variety of vessel types, ranging from large pelagic trawlers to small scale vessels using handlines. As a result, the 2023 national fleet consisted of 34 segments, of which only 8 included more than 10 active vessels (total 401 vessels). Besides, 21 segments included less than 10 vessels (a total of 72 vessels), and 6 segments included inactive vessels (a total of 212 vessels). The small segments provide an issue both for privacy and sampling purposes. Almost all smaller segments included <5 vessels and contributed <3% to the total landings and revenues. Only the segment of the large pelagic trawlers contributed considerably to the total landings and value: 75% of total landings and 30% of landings value. Because of this, the segment of large pelagic trawlers is considered a separate segment. The other segments were considered non-important segments and clustered, considering the distinction in fishing patterns. Clusters of less important segments were constructed based on the difference in cost structure of vessels with passive gears and active gears and based on the length of the vessels and consistency of the clustering with previous data collection programmes. The resulting clustering is given in the table below. The segment of the dredgers 24-40 m was just above the threshold this year for the first time, but to keep the time series consistent, it was agreed to maintain the clustering the same as in the previous years.

segment	cluster	activity level	Number of vessels	% landings	% value	% sea days
Dredgers 0-< 10 m	Beam trawlers 0-< 10 m	NA	8	0,0%	0,0%	0,0%
Dredgers 10-< 12 m	Beam trawlers 0-< 10 m	NA	1	0,0%	0,0%	0,0%
Demersal trawlers and/or demersal seiners 0-< 10 m	Beam trawlers 0-< 10 m	NA	3	0,0%	0,0%	0,0%
Demersal trawlers and/or demersal seiners 10-< 12 m	Beam trawlers 0-< 10 m	NA	2	0,0%	0,0%	0,0%
Beam trawlers 0-< 10 m	Beam trawlers 0-< 10 m	NA	6	0,0%	0,0%	0,0%
Beam trawlers 10-< 12 m	Beam trawlers 0-< 10 m	NA	1	0,0%	0,0%	0,0%
Pelagic trawlers 0-< 10 m	Beam trawlers 0-< 10 m	NA	1	0,0%	0,0%	0,0%
Drift and/or fixed netters 12-< 18 m	Drift and/or fixed netters 18-< 24 m	NA	2	0,0%	0,0%	0,0%
Drift and/or fixed netters 18-< 24 m	Drift and/or fixed netters 18-< 24 m	NA	2	0,0%	0,0%	0,0%
Vessels using Pots and/or traps 12-< 18 m	Drift and/or fixed netters 18-< 24 m	NA	3	0,0%	0,0%	0,0%
Vessels using Pots and/or traps 18-< 24 m	Drift and/or fixed netters 18-< 24 m	NA	5	0,0%	0,0%	0,0%
Vessels using Pots and/or traps 24-< 40 m	Drift and/or fixed netters 18-< 24 m	NA	1	0,0%	0,0%	0,0%
Vessels using hooks 12-< 18 m	Drift and/or fixed netters 18-< 24 m	NA	1	0,0%	0,0%	0,0%
Dredgers 12-< 18 m	Vessel using other active gears 18-< 24 m	NA	1	0,0%	0,0%	0,0%
Dredgers 18-< 24 m	Vessel using other active gears 18-< 24 m	NA	7	0,0%	0,0%	1,0%
Dredgers 40 m or larger	Vessel using other active gears 18-< 24 m	NA	5	5,0%	6,0%	1,0%
Dredgers 24-< 40 m	Vessel using other active gears 18-< 24 m	NA	11	1,0%	1,0%	2,0%

Vessels with active gears of less than 12 meters were clustered in one segment. Because of consistency with previous data collection program the cluster was named Beam trawlers 0<10 m.

Vessels deploying passive gears larger than 12 m were clustered in the segment Drift and/or fixed netters 18-<24 m. Although most of the vessels in this segment mainly use pots, the naming was used for consistency as this name was also used in previous programmes. All vessels using active gears from small segments were clustered in the segment Vessel using other active gears 18-<24 m.

2. Description of activity indicator

No distinction was made based on activity level.

3. Deviation from the RCG ECON (ex. PGECON) definitions

For the large pelagic trawlers >40 m no information on financial data can be gathered. This information is regarded as privacy sensitive information and is not available.

For the other small coastal fisheries, the value of the physical capital was based on the insurance value (see Annex 1.2).

SECTION 6: ECONOMIC AND SOCIAL DATA IN AQUACULTURE

Text Box 6.1: Economic and social variables for aquaculture data collection

General comment: This text box fulfils Article 5(2)(e), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004, and Chapter II point 6 of the EU MAP Delegated Decision annex. It is intended to specify data to be collected under Tables 10 and 11 of the EU MAP Delegated Decision annex.

Definitions follow RWP on data collection in the fisheries and aquaculture sectors 2025-2027

1. Description of the threshold application

The total Dutch aquaculture production in 2022 was 39,090 tonnes with a total value of 113.8 million euro. As a result, the 5% threshold is 1,955 tonnes and 5.7 million euro.

	value (* mln euro)	Weight (*mln kg)
Mytilus edulis (Blue mussel)	51,2	29,6
Anguilla anguilla (European eel)	25,0	2,0
Actinopterygii (Marine fishes nei)	23,5	1,6
Crassostrea spp (Cupped oysters nei)	7,8	3,3
Clarias gariepinus (North African catfish)	4,9	2,4
Ostrea edulis (European flat oyster)	1,4	0,2
Total	113,8	39,1

Production of mussels, oysters (combined flat and cupped oyster production) and eel are well above the threshold and are included in the data collection scheme. Production of African catfish consists of two different fish types (Clarias and so called Claresse) that are cultured by different companies (respectively three and one company). Because the production of both Claresse and Clarias is below the threshold and the number of companies involved is so small no data will be collected for this species. Other marine species and other freshwater species are well below the threshold.

2. Deviation from the RCG ECON (ex. PGECON) definitions

No deviations from the definitions.

SECTION 7: ECONOMIC AND SOCIAL DATA IN FISH PROCESSING

Text Box 7.1: Economic and social variables for fish processing data collection

General comment: This text box fulfils Article 5(2)(f), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004, and Chapter II point 7 of the EU MAP Delegated Decision annex.

Definitions follow RWP on data collection in the fisheries and aquaculture sectors 2025-2027

No data will be collected on the fish processing sector.

ANNEX 1.1 - QUALITY REPORT FOR BIOLOGICAL DATA SAMPLING SCHEME

The quality report fulfils Article 6(3)(d) of Regulation (EU) 2017/1004. This document is intended to specify data to be collected under Chapter II, point 2 of the EU MAP Delegated Decision annex: Biological data on exploited biological resources caught by Union commercial and recreational fisheries.

Related to Table 2.3 [and Text Box 2.3] (diadromous data collection)

Sampling scheme identifier: ELE-FRS-MPM

MS : NLD
Region: All regions
Sampling scheme identifier: ELE-FRS-MPM
Sampling scheme type: Diadromous (scientific)
Observation type: EMAtSea
Time period of validity: 2025-2027
Short description (max 100 words): Every year at the main glass eel entrance points glass eel detectors are placed during the main glass eel migration period. Glass eel (<i>Anguilla anguilla</i> larvae) is attracted by the freshwater current and trapped in the detector. The detectors are emptied regularly and (a subsample of) glasseel are counted and weighted. In total 9 detectors are used in (March) April - May (June). Already since 2019 a gradual shift from the original sampling method (1*1m lift net) to detectors is in progress. Due to different external factors such as infrastructural maintenance at the sampling locations, the transition phase is long to ensure a stable and reliable shift. The transition phase is expected to finish by 2027.
Description of the population
Population targeted: glass eel (larval stage of <i>Anguilla anguilla</i>) migrating from sea to fresh water at the main fresh water entrance points in the Netherlands, during the main glass eel migration period.
Population sampled: glass eel (larval stage of <i>Anguilla anguilla</i>) migrating from sea to fresh water at the main fresh water entrance points in the Netherlands, during the main glass eel migration period.
Stratification: detectors are situated at all main entrance points (9) in the Netherlands (figure 6.2 in https://doi.org/10.18174/522029).
Sampling design and protocols
Sampling design description: the glass eel detectors are positioned on locations where the glass eel enters the fresh water bodies of the Netherlands, to estimate the glass eel abundance. Every year at the main glass eel entrance points glass eel detectors are placed during the main glass eel migration period. The detectors are emptied regularly and (a subsample of) glass eels are measured, counted and weighted (see also Data capture).
Is the sampling design compliant with the 4S principle?: NA
Regional coordination: N
Link to sampling design documentation: Hammen, T. van der & A.B. Griffioen 2023. Glass eel sampling (ELE-FRS-LNP, ELE-FRS-MPM) https://research.wur.nl/en/publications/factsheet-glass-eel-sampling-ele-frs-lnp-ele-frs-mpm
Design follows international recommendations: Y

Link to sampling protocol documentation: Hammen, T. van der & A.B. Griffioen 2023. Glass eel sampling (ELE-FRS-LNP, ELE-FRS-MPM) https://research.wur.nl/en/publications/factsheet-glass-eel-sampling-ele-frs-lnp-ele-frs-mpm
Protocol follows international recommendations: Y
Sampling implementation
Recording of refusal rate: NA
Monitoring of sampling progress within the sampling year: NA
Data capture
Means of data capture: the glass eel is collected in detectors. After emptying, the total glass eel is sorted from the rest of the catch. Wet weight of the total sample is taken using electronic scales, to the gram. Scales are maintained annually and calibrated at least daily. All, or a representative subsample of the glass eel is measured to the mm below. Length measurements are done using an analogue measuring board, of which the set-off is checked before the start of the sampling. Length measurements and haul information are written down on specific measurement lists, and data is entered as soon as possible. Software used for data entry is in-house developed: Billie Turf. Data are stored as plain text files at a centralised location for which a daily back-up routine is put in place. Data capture documentation: Hammen, T. van der & A.B. Griffioen 2023. Glass eel sampling (ELE-FRS-LNP, ELE-FRS-MPM) https://research.wur.nl/en/publications/factsheet-glass-eel-sampling-ele-frs-lnp-ele-frs-mpm Quality checks documentation: Y, in national manuals (available upon request). Summary of quality checks documentation: Quality checks are conducted upon processing at the institute, and before entry into the national database FRISBE. Standardised SAS scripts are used for the data quality checks (available upon request). Essentially, the trawl haul data are checked for outliers on numerical values (either by plotting or by providing minimum, mean, and maximum values), consistency in text variables (e.g. station coding, crew members).
Data storage
National database: after processing, and a standardised quality check on outliers, the information for is stored in the database WMR database FRISBE (Relational database). Permanent access for WMR personnel after signing a form with general use instructions. Access to databases containing data collected DCF related data is described in the 'Protocol databases WMR' (in Dutch, available upon request). Different user access rights and restrictions apply for the databases. All databases below are relational databases. For data managers and database managers other access permissions apply, also described in the protocol. See factsheet proc_databases (wur.nl) International database: NA Quality checks and data validation documentation: the database FRISBE also conducts data validation checks during the import. Documentation of those checks is available upon request.
Sample storage
Storage description: NA. The catch is after processing release to the environment. No samples are taken back to the institute. In some years marking of glass eel takes place (mark recapture experiment). In that case, a subsample of glass eel are stored in water trays in the lab alive until release in the same water body. Sample analysis: NA
Data processing
Evaluation of data accuracy (bias and precision): N, but foreseen as soon as the method is put completely in place.

Editing and imputation methods: Editing and imputation only takes place when odd values are encountered. Corrections then are done in the institute's data and a new dataset is submitted to the international database, mentioning the corrections done.

Quality document associated to a dataset: N, but foreseen as soon as the method is put completely in place.

Validation of the final dataset: N, although before submitting the data to the end-user the data has been reviewed to prevent erroneous incorrect information due to data entry mistakes.

Sampling scheme identifier: ELE-FRS-LNP

MS : NLD
Region: All regions
Sampling scheme identifier: ELE-FRS-LNP
Sampling scheme type: Diadromous (scientific)
Observation type: SciObs water body
Time period of validity: 2025-2027
Short description (max 100 words): Every year, at a main glasseel entrance point (Den Oever) sampling with lift net (1*1m) takes place in the glasseel migration period. The timeseries in Den Oever runs since 1938, IJmuiden since 1973. Data are used in the glass eel index and submitted to ICES WGEEL.
Description of the population
Population targeted: glass eel (larval stage of <i>Anguilla anguilla</i>) migrating from sea to fresh water at a fresh water entrance point in the Netherlands, during the main glass eel migration period.
Population sampled: glass eel (larval stage of <i>Anguilla anguilla</i>) migrating from sea to fresh water at a fresh water entrance point in the Netherlands, during the main glass eel migration period.
Stratification: samples are taken at the location with the longest glass eel monitoring (Den Oever, since 1938). On this location, a glass eel detectors is placed as well (see Sampling scheme identifier ELE-FRS-MPM).
Sampling design and protocols
Sampling design description: From March till May glass eel abundance at the main entrance points for fresh water is determined by means of lift net catches. Sampling takes place at night time.
Is the sampling design compliant with the 4S principle?: NA
Regional coordination: N
Link to sampling design documentation: Sampling design documentation is available in Dutch. A general description is available in https://doi.org/10.18174/522029 , chapter 6.1.3.
Design follows international recommendations: Y
Link to sampling protocol documentation: Sampling protocols are available in Dutch. A general description is available in https://doi.org/10.18174/522029 , chapter 6.1.3. During night time, every hour a lift net is lowered to the bottom, and hauled after five minutes. The glass eel in the net is counted and released back into the environment. Hauls are replicated twice (three subsequent hauls).
Protocol follows international recommendations: Y
Sampling implementation
Recording of refusal rate: NA

Monitoring of sampling progress within the sampling year: NA
Data capture
Means of data capture: After hauling the net, the total glass eel is sorted from the other catch. Number of glass eel in the catch is counted. Counts and haul information are written down on specific measurement lists, and data is entered as soon as possible. Software used for data entry is in-house developed: Billie Turf. Data are stored as plain text files at a centralised location for which a daily back-up routine is put in place. Data capture documentation: Hammen, T. van der & A.B. Griffioen 2023. Glass eel sampling (ELE-FRS-LNP, ELE-FRS-MPM) https://research.wur.nl/en/publications/factsheet-glass-eel-sampling-ele-frs-lnp-ele-frs-mpm in Dutch (available upon request). Annex 43 in Keeken, O.A. van, K. Kwakman-Schilder, P. de Bruijn, J. de Leeuw, T. Leijzer, B. Griffioen, M. van Hoppe, E. van Os-Koomen, J.C. van Rijssel, M. Scholl, N. Tien. 2022. Handboek zoetwater vismonitoringen versie 2022 (CVO_h_008). Internal CVO report 22.024 Quality checks documentation: Y, in national manuals (available upon request). Summary of quality checks documentation: Quality checks are conducted upon processing at the institute, and before entry into the national database FRISBE. Standardised SAS scripts are used for the data quality checks (available upon request). Essentially, the trawl haul data are checked for outliers on numerical values (either by plotting or by providing minimum, mean, and maximum values), consistency in text variables (e.g. station coding, crew members).
Data storage
National database: after processing, and a standardised quality check on outliers, the information for is stored in the database WMR database FRISBE (Relational database). Permanent access for WMR personnel after signing a form with general use instructions. Access to databases containing data collected DCF related data is described in the ‘Protocol databases WMR’ (in Dutch, available upon request). Different user access rights and restrictions apply for the databases. All databases below are relational databases. For data managers and database managers other access permissions apply, also described in the protocol. See factsheet proc_databases (wur.nl) International database: NA Quality checks and data validation documentation: the database FRISBE also conducts data validation checks during the import. Documentation of those checks is available upon request.
Sample storage
Storage description: NA. The catch is after processing release to the environment. No samples are taken back to the institute. In some years marking of glass eel takes place (mark recapture experiment). In that case, a subsample of glass eel are stored in water trays in the lab alive until release in the same water body. Sample analysis: NA
Data processing
Evaluation of data accuracy (bias and precision): N, but foreseen as soon as the method is put completely in place. Editing and imputation methods: Editing and imputation only takes place when odd values are encountered. Corrections then are done in the institute’s data and a new dataset is submitted to the international database, mentioning the corrections done. Quality document associated to a dataset: N, but foreseen as soon as the method is put completely in place. Validation of the final dataset: N, although before submitting the data to the end-user the data has been reviewed to prevent erroneous incorrect information due to data entry mistakes.

Sampling scheme identifier: ELE-FRS-MIS-commercial fishing

MS : NLD
Region: All regions
Sampling scheme identifier: ELE-FRS-MIS-commercial fishing
Sampling scheme type: Diadromous (scientific)
Observation type: SciObsOnShore
Time period of validity: 2025-2027
Short description (max 100 words): length measurements and biological information is collected from eel (mostly yellow eel, but also some silver eel) during three periods in the year: May-June, July-August, Sept-Nov. Sampling in the last period occurs only in the province of Friesland where there is a quota system and they are allowed to fish during the closed period for other areas (Sept-Nov). Eel (<i>Anguilla anguilla</i>) is collected from approx. 20 commercial eel fishers in the Netherlands.
Description of the population
Population targeted: Eel (<i>Anguilla anguilla</i>), mostly 'yellow eel' stage, but also some silver eel caught by fishers in the Netherlands.
Population sampled: Eel (<i>Anguilla anguilla</i>), mostly 'yellow eel' stage, but also some silver eel caught by fishers in the Netherlands.
Stratification: Based on the annual catch recordings in the national fishery management units (VBCs), fishers are selected. The number of fishers to be sampled in each VBC is based on the total catch per VBC. Within the VBC the fishers with the largest catches are selected. Two samples are taken from each selected fisher.
Lakes IJsselmeer and Markermeer (combined VBC) are sampled every year, and selection of fishers is done based on annual landings per water body and fishing gear. The fishers with the largest catches are selected for sampling.
Sampling design and protocols
Sampling design description: Length measurements: 150 eel is randomly selected from the unsorted catch (or landings). In VBC IJsselmeer & Markermeer the catch is, if possible, measured on board, for the other VBCs the catch is sampled when the fisher has caught at least 150 eel. Length measurements are taken together with the fisher.
Biological information: For each 10 cm length class, a number of eels are selected for biological sampling (20-29, 30-39, 40-49: 4 per 10 cm class; from 50 cm onwards: 2 per 10 cm class). Data on individual length, weight, eye diameter, liver weight, parasites, sex, and otoliths are collected. 100 otoliths are sent to SLU (Sweden) to analyse the ages.
Is the sampling design compliant with the 4S principle?: NA
Regional coordination: N
Link to sampling design documentation: Hammen, T. van der & O.A. van Keeken 2023. Auction sampling eel (ELE-FRS-MIS) factsheet ele-FRS-mis commercial fisheries (wur.nl)
Sampling design documentation is available in Dutch. Chapter 7.2. in in Keeken, O.A. van, K. Kwakman-Schilder, P. de Bruijn, J. de Leeuw, T. Leijzer, B. Griffioen, M. van Hoppe, E. van Os-Koomen, J.C. van Rijssel, M. Scholl, N. Tien. 2022. Handboek zoetwater vismonitoringen versie 2022 (CVO_h_008). Internal CVO report 22.024
Design follows international recommendations: Y

Link to sampling protocol documentation: Hammen, T. van der & O.A. van Keeken 2023. Auction sampling eel (ELE-FRS-MIS) factsheet ele-FRS-mis commercial fisheries (wur.nl) Sampling protocol documentation is available in Dutch. Chapter 7.2. in in Keeken, O.A. van, K. Kwakman-Schilder, P. de Bruijn, J. de Leeuw, T. Leijzer, B. Griffioen, M. van Hoppe, E. van Os-Koomen, J.C. van Rijssel, M. Scholl, N. Tien. 2022. Handboek zoetwater vismonitoringen versie 2022 (CVO_h_008). Internal CVO report 22.024
Protocol follows international recommendations: Y
Sampling implementation
Recording of refusal rate: NA
Monitoring of sampling progress within the sampling year: NA
Data capture
Means of data capture: length measurements are done using an analogue measuring board, of which the set-off is checked before the start of the survey. Wet weights are taken using electronic scales to the gram or 5 grammes (depending on the sample size). Scales are maintained annually and calibrated at least daily. Measurements and haul information are written down on specific measurement lists, and data is entered as soon as possible. Software used for data entry has been developed in-house: Billie Turf. Data are stored as plain text files at a centralised location, where a daily backup routine is implemented. Data capture documentation: Hammen, T. van der & O.A. van Keeken 2023. Auction sampling eel (ELE-FRS-MIS) factsheet ele-FRS-mis commercial fisheries (wur.nl) in Dutch (available upon request). Annex 47 in Keeken, O.A. van, K. Kwakman-Schilder, P. de Bruijn, J. de Leeuw, T. Leijzer, B. Griffioen, M. van Hoppe, E. van Os-Koomen, J.C. van Rijssel, M. Scholl, N. Tien. 2022. Handboek zoetwater vismonitoringen versie 2022 (CVO_h_008). Internal CVO report 22.024 Quality checks documentation: Y, in national manuals (available upon request). Summary of quality checks documentation: Quality checks are conducted upon processing at the institute and before entry into the national database FRISBE. Standardised SAS scripts are used for the data quality checks (available upon request). Essentially, the trawl haul data are checked for outliers on numerical values (either by plotting or by providing minimum, mean, and maximum values) and consistency in text variables (e.g. station coding, crew members).
Data storage
National database: after processing and a standardised quality check on outliers, the information is stored in the database WMR database FRISBE (Relational database). Permanent access for WMR personnel after signing a form with general use instructions. Access to databases containing data collected DCF related data is described in the 'Protocol databases WMR' (in Dutch, available upon request). Different user access rights and restrictions apply for the databases. All databases below are relational databases. Other access permissions apply for data managers and database managers, also described in the protocol. See factsheet proc_databases (wur.nl) International database: NA Quality checks and data validation documentation: the database FRISBE also conducts data validation checks during the import. Documentation of those checks is available upon request.
Sample storage
Storage description: The fish for biological samples is kept frozen till processing, in -20° freezers at WMR. Otoliths are archived at Wageningen Marine Research without time limitation. Sample analysis: Eel otoliths are analysed in Sweden (SLU). Images are taken from the otolith coupes. Age reading takes place from those images.
Data processing

Evaluation of data accuracy (bias and precision): N, but foreseen as soon as the method is put completely in place.

Editing and imputation methods: Editing and imputation only takes place when odd values are encountered. Corrections then are done in the institute's data and a new dataset is submitted to the international database, mentioning the corrections done.

Quality document associated to a dataset: N, but foreseen as soon as the method is put completely in place.

Validation of the final dataset: N, although before submitting the data to the end-user the data has been reviewed to prevent erroneous incorrect information due to data entry mistakes.

Sampling scheme identifier: Sal-FGRZ

MS : NLD
Region: All regions
Sampling scheme identifier: ELE-FRS-MIS-commercial fishing
Sampling scheme type: Diadromous (scientific)
Observation type: SciObs water body
Time period of validity: 2025-2027
Short description (max 100 words): Every year at two locations in the Rhine & Meuse catchment area, migrating salmonids are sampled using traditional salmon fykes. Apart from <i>Salmo salar</i> and <i>Salmo trutta</i> also all other species in the catch are measured. Annual sampling takes place at sampling location Waal, alternating biennial sampling is conducted at locations Maas (even years) and IJssel (odd years).
Description of the population
Population targeted: migrating salmonids in the Rhine and Meuse catchment area.
Population sampled: migrating salmonids in the Rhine and Meuse catchment area.
Stratification: The monitoring takes place annually in spring (6 weeks) and in autumn (6 weeks). In the even years, sampling takes place in rivers Maas and Waal, in the odd years in rivers IJssel and Waal.
Sampling design and protocols
Sampling design description: Traditional salmon fykes are placed in shallow water with the opening towards the flow direction. Commercial fishers are hired to empty the fykes daily (Maas) or 2-3 times a week (IJssel, Waal).
Is the sampling design compliant with the 4S principle?: NA
Regional coordination: N
Link to sampling design documentation: Boois, I.J. de, O.A. van Keeken, T. van der Hammen 2023. Diadromous fish data collection (SAL-FGRZ) factsheet (wur.nl)
Sampling design documentation is available in Dutch. Chapter 5.3. in in Keeken, O.A. van, K. Kwakman-Schilder, P. de Bruijn, J. de Leeuw, T. Leijzer, B. Griffioen, M. van Hoppe, E. van Os-Koomen, J.C. van Rijssel, M. Scholl, N. Tien. 2022. Handboek zoetwater vismonitoringen versie 2022 (CVO_h_008). Internal CVO report 22.024
Design follows international recommendations: Y

Link to sampling protocol documentation: Boois, I.J. de, O.A. van Keeken, T. van der Hammen 2023. Diadromous fish data collection (SAL-FGRZ) factsheet (wur.nl) Sampling protocol documentation is available in Dutch. Chapter 5.3. in in Keeken, O.A. van, K. Kwakman-Schilder, P. de Bruijn, J. de Leeuw, T. Leijzer, B. Griffioen, M. van Hoppe, E. van Os-Koomen, J.C. van Rijssel, M. Scholl, N. Tien. 2022. Handboek zoetwater vismonitoringen versie 2022 (CVO_h_008). Internal CVO report 22.024
Protocol follows international recommendations: Y
Sampling implementation
Recording of refusal rate: NA
Monitoring of sampling progress within the sampling year: NA
Data capture
Means of data capture: After hauling the fyke, the all fish is sorted by species. Salmonids are measured to the cm below, other species are recorded by length group (<25, 25-50, > 50 cm). Effort (fyke days and number of fykes sampled) is also registered. A DNA sample is taken from every salmonid by cutting a small part of the fat fin, which is stored in ethanol. Data capture documentation: Boois, I.J. de, O.A. van Keeken, T. van der Hammen 2023. Diadromous fish data collection (SAL-FGRZ) factsheet (wur.nl) in Dutch (available upon request). Annex 33 in Keeken, O.A. van, K. Kwakman-Schilder, P. de Bruijn, J. de Leeuw, T. Leijzer, B. Griffioen, M. van Hoppe, E. van Os-Koomen, J.C. van Rijssel, M. Scholl, N. Tien. 2022. Handboek zoetwater vismonitoringen versie 2022 (CVO_h_008). Internal CVO report 22.024 Quality checks documentation: Y, in national manuals (available upon request). Summary of quality checks documentation: Quality checks are conducted upon processing at the institute and before entry into the national database FRISBE. Standardised SAS scripts are used for the data quality checks (available upon request). Essentially, the trawl haul data are checked for outliers on numerical values (either by plotting or by providing minimum, mean, and maximum values) and consistency in text variables (e.g. station coding, crew members).
Data storage
National database: after processing, and a standardised quality check on outliers, the information for is stored in the database WMR database FRISBE (Relational database). Permanent access for WMR personnel after signing a form with general use instructions. Access to databases containing data collected DCF related data is described in the 'Protocol databases WMR' (in Dutch, available upon request). Different user access rights and restrictions apply for the databases. All databases below are relational databases. For data managers and database managers other access permissions apply, also described in the protocol. See factsheet proc_databases (wur.nl) International database: NA Quality checks and data validation documentation: the database FRISBE also conducts data validation checks during the import. Documentation of those checks is available upon request.
Sample storage
Storage description: NA. The catch released in the water after processing.
Sample analysis: NA
Data processing
Evaluation of data accuracy (bias and precision): N, but foreseen as soon as the method is put completely in place.

Editing and imputation methods: Editing and imputation only takes place when odd values are encountered. Corrections then are done in the institute's data and a new dataset is submitted to the international database, mentioning the corrections done.

Quality document associated to a dataset: N, but foreseen as soon as the method is put completely in place.

Validation of the final dataset: N, although before submitting the data to the end-user the data has been reviewed to prevent erroneous incorrect information due to data entry mistakes.

Related to Table 2.4 [and Text Box 2.4] (recreational fisheries)

Sampling scheme identifier: REC_Self

MS : NLD
Region: All regions
Sampling scheme identifier: REC_Self
Sampling scheme type: Recreational (off site survey)
Observation type: SelfOnShore (SelfAtSea)
Time period of validity: 2025-2027
Short description (max 100 words): Sampling scheme REC_Self is aiming at collecting data on retained and returned catches by recreational fishers as well as length samples from recreational landings on-shore for seabass, cod, eel, salmon, pollock and elasmobranchs.
Description of the population
Population targeted: The target population is the catches of all resident fishers fishing in Dutch water bodies. PSU is (catches per fishermen per year)
Population sampled: 30,000-50,000 households in the screening survey (biennial) and 2,500 marine and fresh water fishermen keep a logbook for a whole year (biennial).
Stratification: Screening is stratified by several (demographical) characteristics (resident location, age, gender, education, etc.), which is executed by the research institute Verian (previously called Kantar).
Sampling design and protocols
Sampling design description: Surveys are executed by market research company Kantar. Kantar keeps an extensive database stratified by demographic characteristics and resident location. Questions in the screening survey (to define the total number of fishermen in the population) are asked online to everyone in the Kantar database. Respondents who declare to be recreational fishers are asked to join the logbook for a year and register all catches.
Is the sampling design compliant with the 4S principle?: NA
Regional coordination: N
Link to sampling design documentation: https://doi.org/10.1093/icesjms/fsv190 and Hammen, T. van der 2023. Recreational fisheries monitoring (REC_Self) factsheet rec_self (wur.nl)
Design follows international recommendations: Y
Link to sampling protocol documentation: https://doi.org/10.1093/icesjms/fsv190 and Hammen, T. van der 2023. Recreational fisheries monitoring (REC_Self) factsheet rec_self (wur.nl)
Protocol follows international recommendations: Y

Sampling implementation
Recording of refusal rate: Y
Monitoring of sampling progress within the sampling year: Verian sends reminders to those who are not responding.
Data capture
Means of data capture: The data is sampled by market research company Verian, data is stored in WMR database RECFISH.
Data capture documentation: https://doi.org/10.1093/icesjms/fsv190
Quality checks documentation: Y Quality checks documentation is available at https://doi.org/10.1093/icesjms/fsv190 Additionally, the market research institute Verian has its own quality checks.
Data storage
National database: Data from Verian is uploaded to the WMR database RECFISH
International database: NA
Quality checks and data validation documentation: Access to databases containing data collected DCF related data is described in the ‘Protocol databases WMR’ (in Dutch, available upon request). Different user access rights and restrictions apply for the databases. All databases below are relational databases. For data managers and database managers other access permissions apply, also described in the protocol. See factsheet proc_databases (wur.nl)
Sample storage
Storage description: NA.
Sample analysis: NA
Data processing
Evaluation of data accuracy (bias and precision): Y, described in https://doi.org/10.1093/icesjms/fsv190
Editing and imputation methods: Y, described in https://doi.org/10.1093/icesjms/fsv190
Quality document associated to a dataset: Y, https://doi.org/10.1093/icesjms/fsv190
Validation of the final dataset: Y, described in https://doi.org/10.1093/icesjms/fsv190

Related to Table 2.5 [and Text Box 2.5] (commercial fisheries data collection)

Sampling scheme identifier: PEL1

MS : NLD
Region: All regions
Sampling scheme identifier: PEL1
Sampling scheme type: Commercial fishing trip
Observation type: SciObsAtSea
Time period of validity: 2025-2027
Short description (max 100 words): Sampling scheme to collect: - length frequency from commercial catches for all species listed in Table 1 of the EU MAP

- quantity data for rare, incidental bycatches for all species listed in Table 2 of the EU MAP
The sampling scheme covers the Pelagic freezer trawler fleet operating in EU water. Both Dutch and foreign (except German) flagged vessels are included.

Description of the population

Population targeted: The pelagic freezer trawler fleet (>40 m) targets specific pelagic species and operates in EU water.

Population sampled: Annually 12 trips of the pelagic freezer trawler fleet operating in EU water are sampled. The sampling population is defined through vessel lists made available through the VISSTAT database (national catch and effort registration database). The population is dynamic rather than static, as trip duration differs between vessels throughout the year, and a number of vessels are also partly active outside European waters.

Stratification: NA

Sampling design and protocols

Sampling design description: Every year 12 observer trips are carried out on board of pelagic freezer trawlers. The pelagic freezer trawlers are owned by a limited number of fishing companies. At the beginning of the year a sampling schedule is produced through a random weighted selection of fishing companies, where the weight is based on the number of freezer trawlers owned by each company. Selected companies are divided, according to the order generated by the random selection, over the year with a sampling intensity of 1 trip per month. At the end of the month the selected company (for the next month) is contacted and requested for a scientific observer to board their next departing vessel.

A scientific observer boards a selected trip where he/she:

- samples the unsorted catch (length sampling) on haul level
- records rare, incidental bycatches on haul level. Corresponding observation effort (expressed in the time observed of catch processing at the conveyer belt), whether an excluder was used in the net and if positive whether the scientific observer checked the excluder on rare, incidental bycatches is also recorded.

Furthermore, operational- and catch data (i.e. vessel position (at start and end); haul duration; depth; weather conditions; and the volume of catches) each time the fishing gear is deployed (each 'haul') is collected.

Is the sampling design compliant with the 4S principle?: Y

Regional coordination: Sampling design and protocols are not part of a regional or multi-lateral agreement. The RCG InterSessional SubGroup "Case study on freezer trawler fleet exploiting pelagic fisheries in the NEA", of which NLD is participant is working towards a regional sampling plan for this fleet.

Link to sampling design documentation: The table and text below provides insight on the sampling design of PEL1.

Sampling scheme	Sampling unit	Sampling frame	Stratification	Selection method	Sampling effort
Length sampling	Sampled trip ¹⁾	Vessel x time	-	Probabilistic (SRSWOR)	12 trips
	Hauls ²⁾	All hauls in sampled trip	-	Opportunistic	All hauls
	Catch sample ³⁾	Sampled haul	-	Systematic	30-150 kg
	All species ⁴⁾	Catch sample	All species	Census when nr <50	All individuals

Monitoring rare, incidental bycatch	Rare, incidental bycatch ⁵⁾	Sampled haul	Protected sea birds, mammals, reptiles and fish species	Census	All individuals
¹⁾Annually 12 trips, evenly divided over the months, are randomly selected (SRSWOR) through the fishing companies. ²⁾The scientific observer is instructed to sample all hauls. However, in practice it incidentally occurs that a haul is not sampled due to resting hours. ³⁾The unsorted catch sample is taken of 30-150 kg (size of the sample depends on the target species) prior to the sorting process from the different cooling tanks where the catch is temporarily stored. ⁴⁾From each catch sample all species are identified. Numbers at length (cm or 0.5 cm) are recorded for all fish species. For the abundant species a pseudo-random sub-sample of at least 50 individuals is taken. ⁵⁾Scientific observer records rare, incidental bycatches and corresponding observation effort (expressed in the time observed of catch processing at the conveyer belt). Design follows international recommendations: No relevant expert or coordination groups exists. However, ICES WGCATCH discussions have guided WMR on how to develop probabilistic sampling in this fisheries. See section 'Link to sampling design documentation' for sampling design. Link to sampling protocol documentation: Overzee, H.M.J. van 2023. Sampling pelagic fisheries through observer trips (PEL1) factsheet pel1 (wur.nl) The annual data report for sampling scheme PEL1 broadly describes the methods used for data collection (most recent report: van Overzee et al., 2024). See sections 'Sampling design description' and 'Link to sampling design documentation' for further details on sampling protocol. Protocol follows international recommendations: No relevant expert or coordination groups exists. However, ICES WGCATCH discussions have guided WMR on how to develop probabilistic sampling in this fisheries. See section 'Link to sampling design documentation' for sampling design.					
Sampling implementation					
Recording of refusal rate: Y					
Monitoring of sampling progress within the sampling year: Sampling progress is monitored throughout the year on trip by trip basis. If needed the pelagic freezer trawler companies are contacted to discuss cooperation.					
Data capture					
Means of data capture: Length measurements are done using an analogue measuring board, of which the set-off is checked annually. Quantity measurements are done by counting individuals. Data is noted down on specific measurement lists. Data is entered in in-house developed software (Billie Turf) as soon as possible. Species identification workshops for demersal and pelagic marine species as well as freshwater species are organised on an annual to triennial basis, and reported upon in internal reports (available upon request). All personnel at WMR is allowed to participate, for personnel directly contributing to the research surveys, frequent participation is mandatory to keep a view on species identification quality. Data capture documentation: Overzee, H.M.J. van 2023. Sampling pelagic fisheries through observer trips (PEL1) factsheet pel1 (wur.nl) Internal document 'CVO Handboek Discardsbemonstering en Bijvangstregistratie CVO_h_002' CVO 22.026. The handbook is in Dutch and is for internal use only. The handbook is not considered suitable for publication in					

the public domain at it contains internal procedures and sensitive business information. Upon request, this handbook can be discussed.

Quality checks documentation: Data from any field sampling (at sea, on shore), are entered using in-house developed software (Billie Turf). Data is noted down on specific measurement lists. Data is entered Billie Turf as soon as possible. Measurement lists of collected data are archived at Wageningen Marine Research 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, and maps with the sampling positions. After file corrections, the data are stored in one of the centralised databases (Frisbe).

Data storage

National database: after processing, and a standardised quality check on outliers, the information for is stored in the database WMR database FRISBE (Relational database). Permanent access for WMR personnel after signing a form with general use instructions.

Access to databases containing data collected DCF related data is described in the 'Protocol databases WMR' (in Dutch, available upon request). Different user access rights and restrictions apply for the databases. All databases below are relational databases. For data managers and database managers other access permissions apply, also described in the protocol. See [factsheet proc_databases \(wur.nl\)](https://www.wur.nl/en/factsheet-procedure-databases)

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

Quality checks and data validation documentation: During the import of the samples in the national database build-in validation rules check the structure, type and consistency of the data input. Additionally, cross-reference checks between various fields (for string variables) and range checks (for numeric variables) are performed. See section 'Quality check documentation' for description of data quality checks from data collection to storage in the database.

Sample storage

Storage description: NA. After processing on board, catch is returned to the fishing crew and no biological tissues/structures are stored.

Sample analysis: NA

Data processing

Evaluation of data accuracy (bias and precision): N.

The evaluation of potential sampling bias will be based on the recorded responses and non-responses.

Editing and imputation methods: Y. The editing methods followed during the data processing are described and documented in internal documents and scripts. Gaps in sampling strata are left (not imputed). The samples are not edited during the data processing. Possible data errors, inconsistencies and/or discrepancies are recorded in dedicated documents and the respective records usually follow the process of data storage after the corrections.

Quality document associated to a dataset: There is no publication digital object identifier associated to a dataset. However, quality checks of the final output are stored in internal documents.

Validation of the final dataset: See section 'Quality checks and data validation documentation'.

Sampling scheme identifier: PEL2

MS : NLD
Region: All regions
Sampling scheme identifier: PEL2
Sampling scheme type: Commercial fishing trip

Observation type: SelfAtSea				
Time period of validity: 2025-2027				
Short description (max 100 words): Sampling scheme aiming to collect length frequency and biological data from commercial catches of a selection of pelagic species on board pelagic freezer trawlers through self-sampling. The scheme covers European waters of the North-East Atlantic (including North Sea). Unsorted samples are collected by fishermen on board and analysed on shore by the research institute.				
Description of the population				
Population targeted: Vessels (pelagic freezer trawlers >40m) targeting specific pelagic species and operating in EU waters.				
Population sampled: An estimated 1/4 of the fleet is sampled, though coverage depends on fleet activity in EU waters (reference fleet). The selected vessels are expected to remain in EU waters thus considered to be representative for the EU activities. Since the fisheries are highly seasonal in general, all vessels are usually engaged in similar fisheries and the selected vessels are expected to be representative of the entire fleet engaged in the respective fishery at that same time.				
Stratification: Census approach for the vessels to cover each trip during the year. Samples are stratified by species*ICES division*week				
Sampling design and protocols				
Sampling design description: Vessels are selected for sampling based on presumed continued presence in EU waters. A vessel contracted for sampling must follow the guidelines of data collection as described by the research institute. At the beginning of the year the research institute provides a species list and trains the crew of each vessel. Throughout the trip the crew is obliged to collect samples of the species included in the species list every week*ICES division. A haul is selected, and individual fish are collected at the pre-sorting stage (unsorted) until the sample reaches 23kg. The samples are collected upon arrival at a port and analysed in the laboratory. All fish are length measured, stratified by length and 25 fish are randomly selected for collecting biological data (age, maturity, sex) from each sample.				
Is the sampling design compliant with the 4S principle?: N				
Regional coordination: Sampling design and protocols are not part of a regional or multi-lateral agreement. The RCG InterSessional SubGroup “Case study on freezer trawler fleet exploiting pelagic fisheries in the NEA”, of which NLD is participant is working towards a regional sampling plan for this fleet.				
Link to sampling design documentation: The table and text below provides insight on the sampling design of PEL2.				
Sampling unit	Sampling frame	Stratification	Selection method	Sampling effort
Vessel	Reference Fleet	-	FIXED, NPJS ¹⁾	All vessels
Trip	All trips in EU waters	-	Census	All trips
Haul	All hauls	Week* ICES division	NPCS	One haul
Sample	All individuals in a haul (from the species list)	-	NPCS	Box of ~23 kg
Fish ²⁾	All fish	-	Census	All fish

¹⁾ The selection method for vessels that are sampled continuously for multiple years is FIXED. When a new vessel is contracted for sampling the selection method is NPJS.

²⁾ All fish are length measured, length stratified and 25 fish are randomly selected (without replacement) to take the age measurements.

Design follows international recommendations: N

Link to sampling protocol documentation: Verver, S.W. 2023. Sampling pelagic fisheries through self-sampling (PEL2) [Factsheet PEL2 \(wur.nl\)](#)

Internal document 'Handboek marktbeemonstering zeevisserij (CVO_h_001)' CVO 23.016 (in Dutch).

Protocol follows international recommendations: N

Sampling implementation

Recording of refusal rate: NA, due to reference vessel list and census at the trip level.

Monitoring of sampling progress within the sampling year: Sampling progress is monitored throughout the year on species by species basis while accounting for the seasonality of the fisheries. Based on expert judgement; when an unexpected fishery for a certain species emerges, additional samples are taken. Should a risk of under sampling be identified, additional samples will be requested from the vessels already sampled or additional vessels will be asked. The additional vessels can also replace vessels usually sampled while in port for e.g. extended maintenance.

Data capture

Means of data capture: Standard traditional measuring boards, calibrated scales. Direct entry of data into in-house developed software (Billie Turf). On-site SmartDots for fish ageing based on images.

Species identification workshops for demersal and pelagic marine species as well as freshwater species are organised on an annual to triennial basis, and reported upon in internal reports (available upon request). All personnel at WMR is allowed to participate, for personnel directly contributing to the research surveys, frequent participation is mandatory to keep a view on species identification quality.

Data capture documentation: Verver, S.W. 2023. Sampling pelagic fisheries through self-sampling (PEL2) [Factsheet PEL2 \(wur.nl\)](#)

Quality checks documentation: Data from any field sampling (at sea, on shore), are entered using in-house developed software (Billie Turf). Data is noted down on specific measurement lists. Data is entered Billie Turf as soon as possible. Measurement lists of collected data are archived at Wageningen Marine Research 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, and maps with the sampling positions. After file corrections, the data are stored in one of the centralised databases (Frisbe).

Data storage

National database: after processing, and a standardised quality check on outliers, the information for is stored in the database WMR database FRISBE (Relational database). Permanent access for WMR personnel after signing a form with general use instructions.

Access to databases containing data collected DCF related data is described in the 'Protocol databases WMR' (in Dutch, available upon request). Different user access rights and restrictions apply for the databases. All databases below are relational databases. For data managers and database managers other access permissions apply, also described in the protocol. See [factsheet proc_databases \(wur.nl\)](#)

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

Quality checks and data validation documentation: During the import of the samples in the national database build-in validation rules check the structure, type and consistency of the data input. Additionally, cross-reference checks between various fields (for string variables) and range checks (for numeric variables) are performed. See section ‘Quality check documentation’ for description of data quality checks from data collection to storage in the database.

Sample storage

Storage description: Calcified structures like otoliths and scales are stored in a dedicated storage at the research institute without time limitation. Access can be requested through the age reading coordinator. Other than the Dutch DCF annual reports (<https://datacollection.jrc.ec.europa.eu/ars>) no specific overview of the quantities of samples by species/stock, geographic sub-area by year exist.

SmartDots images are stored in the local SmartDots data structure protected by access protocols and other safe guards concerning back-up, redundancy and version control.

Sample analysis: Age reading and maturity staging according to the species specific ICES protocols. Detailed documentation on otolith processing and age reading (in Dutch, available upon request): Ineke Pennock, Ralf van Hal, Ruben Hoek, Marcel de Vries, Thomas Pasterkamp, Erika Koelemij, Jan Beintema, Arnold Bakker, Tim Huijter, Norie van der Meeren, 2024. Handboek leeftijdsbepalingen (versie 4.0). CVO rapport: 24.019

Age reading based on images through on-site SmartDots application.
<https://www.ices.dk/data/tools/Pages/smartdots.aspx>

Data processing

Evaluation of data accuracy (bias and precision): N.

Editing and imputation methods: Y. The editing and imputation methods followed during the data processing are described and documented in internal documents and scripts.

Imputation: missing values are imputed first from averages, then from surveys, then from models.

Editing: The samples are not edited during the data processing. Possible data errors, inconsistencies and/or discrepancies are recorded in dedicated documents and the respective records usually follow the process of data storage after the corrections. If an error is found in the sample data the following mandatory fields need to be filled in the documentation template:

SampleID
 Species
 DateChecked
 ErrorDescription
 ActionsTaken (e.g. excluded, corrected)
 Reason
 DateProcessed
 Re-imported (Yes/No)
 Person

Quality document associated to a dataset: There is no publication digital object identifier associated to a dataset. However, after each estimation process an internal document is created. This document includes details of the estimation (assumptions, type of estimator, auxiliary variables used for ratio estimator etc.) as well as quality checks of the final output.

Validation of the final dataset: See section ‘Quality checks and data validation documentation’.

Sampling scheme identifier: DEMACT1

MS : NLD

Region: North Sea and Eastern Arctic

Sampling scheme identifier: DEMACT1
Sampling scheme type: Commercial fishing trip
Observation type: SciObsAtSea
Time period of validity: 2025-2027
Short description (max 100 words): Sampling scheme to collect: i) length frequency from commercial discards for all species listed in Table 1 of the EU MAP and age data from commercial discards for five species (<i>Pleuronectes platessa</i>, <i>Solea solea</i>, <i>Merlangius merlangus</i>, <i>Scophthalmus maximus</i>, <i>Scophthalmus rhombus</i>) ii) quantity data for rare, incidental bycatches for all species listed in Table 2 of the EU MAP iii) Quantity data for all discarded benthic species The sampling scheme covers the demersal active vessels operating in the North Sea.
Description of the population Population targeted: The demersal active fleet operating in the North Sea targets demersal species. A distinction is made between (i) vessels fishing in ICES area 27.4 with active demersal gear except flyshoot gear, and (ii) vessels fishing in ICES area 27.4 and ICES Division 27.7.d with flyshoot gear. For (i) we make use of a representative selection of 20-25 vessels (reference fleet) from the sampling population (i.e. all demersal trawlers fishing with active demersal gear except flyshoot gear), and for (ii) we make use of a list of vessels fishing with flyshoot gear made available through the VISSTAT database (national catch and effort registration database). Population sampled: Annually 10 trips of the reference fleet are sampled and 6 trips of the flyshoot fleet. Generally, demersal active vessels execute a fishing trip each week of the year. Stratification: Not applicable.
Sampling design and protocols Sampling design description: Every year 16 observer trips are carried out on board of demersal fishing vessels. A distinction is made between (i) vessels fishing with active demersal gear except flyshoot gear, and (ii) vessels fishing with flyshoot gear. For (i) 10 observer trips are carried out each year. A sampling schedule is produced at the beginning of the year through a random selection of the vessels that are participating in the demersal self-sampling programme (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. For (ii) 6 observer trips are carried out each year, with a sampling intensity of 1-2 trips per quarter. Vessels are contacted directly. 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 (length & quantity sampling) on haul level - collects age data from commercial discards for five species (<i>Pleuronectes platessa</i>, <i>Solea solea</i>, <i>Merlangius merlangus</i>, <i>Scophthalmus maximus</i>, <i>Scophthalmus rhombus</i>) - records rare, incidental bycatches and corresponding observation effort (expressed in the time observed of catch processing at the conveyer belt) on haul level. Furthermore, operational- and catch data (i.e. vessel position (at start and end); haul duration; depth; weather conditions; and the volume of catches) each time the fishing gear is deployed (each 'haul') is collected. No length measurements of the landed fraction are collected during the observer trips as the on-shore sampling programme sufficiently covers this fraction (see also AUCTION_DEM). Is the sampling design compliant with the 4S principle?: Y. Regional coordination: Sampling design and protocols are not part of a regional or multi-lateral agreement. Link to sampling design documentation: The table and text below provide insight on the sampling design of different data collection activities under sampling scheme DEMACT1.

Activity under sampling scheme	Sampling unit	Sampling frame	Stratification	Selection method	Sampling effort
Length & quantity sampling	Sampled trip ¹⁾	Vessel x week	-	Probabilistic (SRSWOR)	16 trips
	Hauls ²⁾	All hauls in sampled trip	Day, Night	Opportunistic	All hauls
	Discards sample ³⁾	Sampled haul	-	Systematic	Approx. 40 kg
	All species ⁴⁾	Discards sample	All species	Census when nr <50	All individuals
Monitoring rare, incidental bycatch	Rare, incidental bycatch ⁵⁾	Sampled haul	Protected sea birds, mammals, reptiles and fish species	Census	All individuals
Age sampling	Age sampled trip ⁶⁾	Sampled trip	-	Quota sampling	Reach quota age sampling
	Fish ⁷⁾	Age sample from discards sample	Sol, ple, whg, tur, bl	Quota sampling	5 indiv. per length class per sampled trip

¹⁾Annually 16 trips, evenly divided over the quarters, are randomly selected (SRSWOR) for Demact1.

²⁾The scientific observer is instructed to sample all hauls. However, in practice it often happens that some hauls are not sampled due to resting hours, weather conditions etc.

³⁾The discards sample is taken at regular intervals throughout processing of the entire haul at the end of the conveyer belt. A discards sample consists of 1 fish basket (approx. 40 kg).

⁴⁾From each discards sample all species are identified. Numbers at length (cm) are recorded for all fish species, Norway lobster and edible crab. Numbers without length measurements are recorded for all the remaining (benthos) species. For the abundant species a pseudo-random sub-sample of at least 50 individuals is taken.

⁵⁾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.

⁶⁾Age samples are taken according to a pre-defined quota for age sampling. ⁷⁾Age samples are taken for 5 fish species from the discards sample. Five individuals per cm length class are collected for age sampling for the selected sampled trips. Length (mm), weight (grams), sex and age reading are conducted for all individuals in an age sample.

Design follows international recommendations: No relevant expert or coordination groups exists. However, ICES WGCATCH discussions have guided WMR on how to develop probabilistic sampling in this fisheries. See section 'Link to sampling design documentation' for sampling design.

Link to sampling protocol documentation: Overzee, H.M.J. van 2023. Sampling demersal active fisheries through observer trips (DEMACT1) [factsheet demact1 \(wur.nl\)](https://www.wur.nl/en/publication/factsheet-demact1)

Internal document 'CVO Handboek Discardsbemonstering en Bijvangstregistratie CVO_h_002' CVO 22.026. The handbook is in Dutch and is for internal use only. The handbook is not considered suitable for publication in the public domain as it contains internal procedures and sensitive business information. Upon request, this handbook can be discussed.

See sections 'Sampling design description' and 'Link to sampling design documentation' for further details on sampling protocol.

Protocol follows international recommendations: No relevant expert or coordination groups exists. However, ICES WGCATCH discussions have guided WMR on how to develop probabilistic sampling in this fisheries. See section 'Link to sampling design documentation' for sampling design.
Sampling implementation
Recording of refusal rate: Y
Monitoring of sampling progress within the sampling year: Sampling progress is monitored throughout the year on trip by trip basis. If needed new vessels are recruited and added to the reference fleet ensuring a sufficient pool of vessels for sampling.
Data capture
Means of data capture: Length measurements are done using an analogue measuring board, of which the set-off is checked annually. Quantity measurements are done by counting individuals. Data is noted down on specific measurement lists. Data is entered in in-house developed software (Billie Turf) as soon as possible. Individual length measurements for fish used for biological data collection are done using an analogue measuring board, of which the set-off is checked annually. Individual wet weights are taken using electronic scales, to the gram. Scales are maintained annually and calibrated when used. Data is noted down on specific measurement lists. Data is entered in in-house developed software (Billie Turf) as soon as possible. After the fish selected for biological sampling has been treated following national animal welfare conditions, the otoliths are collected, and sex and maturity is registered by opening the body cavity. Species identification workshops for demersal and pelagic marine species as well as freshwater species are organised on an annual to triennial basis, and reported upon in internal reports (available upon request). All personnel at WMR is allowed to participate, for personnel directly contributing to the research surveys, frequent participation is mandatory to keep a view on species identification quality. Maturity staging follows international standards Report of the Workshop for Advancing Sexual Maturity Staging in Fish (WKASMSF) (ices.dk) Otoliths are embedded 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. Age readers are qualified based on international age reading exchange results. For species outside the international age reading exchanges (non-commercial species), a national age reading qualification procedure is in place. Data capture documentation: Overzee, H.M.J. van 2023. Sampling demersal active fisheries through observer trips (DEMACT1) factsheet demact1 (wur.nl) Internal document 'CVO Handboek Discardsbemonstering en Bijvangstregistratie CVO_h_002' CVO 22.026. The handbook is in Dutch and is for internal use only. The handbook is not considered suitable for publication in the public domain as it contains internal procedures and sensitive business information. Upon request, this handbook can be discussed. Quality checks documentation: Data from any field sampling (at sea, on shore), are entered using in-house developed software (Billie Turf). Data is noted down on specific measurement lists. Data is entered Billie Turf as soon as possible. Measurement lists of collected data are archived at Wageningen Marine Research 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, and maps with the sampling positions. After file corrections, the data are stored in one of the centralised databases (Frisbe).
Data storage

National database: after processing, and a standardised quality check on outliers, the information for is stored in the database WMR database FRISBE (relational database). Permanent access for WMR personnel after signing a form with general use instructions.

Access to databases containing data collected DCF related data is described in the ‘Protocol databases WMR’ (in Dutch, available upon request). Different user access rights and restrictions apply for the databases. All databases below are relational databases. For data managers and database managers other access permissions apply, also described in the protocol. See [factsheet proc_databases \(wur.nl\)](https://www.wur.nl/en/factsheet-procedure-databases)

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

Quality checks and data validation documentation: During the import of the samples in the national database build-in validation rules check the structure, type and consistency of the data input. Additionally, cross-reference checks between various fields (for string variables) and range checks (for numeric variables) are performed. See section ‘Quality check documentation’ for description of data quality checks from data collection to storage in the database.

Sample storage

Storage description: From each sampled haul, a representative subsample of the discards is taken from the conveyer belt by the scientific observer. For each discard sample numbers at length are recorded for all fish species, Norway lobster and edible crab and numbers are recorded for all remaining (benthos) species. In addition, fish are taken back to the lab for five fish species (i.e. sol, ple, whg, tur, bll) for ageing, and stored in the fridge until further processing. Otoliths are taken from the fish back at the lab. Calcified structures like otoliths are stored in a dedicated storage at the research institute without time limitation. Access can be requested through the age reading coordinator. Other than the Dutch DCF annual reports (<https://datacollection.jrc.ec.europa.eu/ars>) no specific overview of the quantities of samples by species/stock, geographic sub-area by year exist.

SmartDots images are stored in the local SmartDots data structure protected by access protocols and other safe guards concerning back-up, redundancy and version control.

After processing on board, the sample is discarded in sea. After processing in the lab, fish are collected by a rendering company and destructed accordingly.

Sample analysis: Age reading and maturity stageing according to the species specific ICES protocols. Detailed documentation on otolith processing and age reading (in Dutch,available upon request): Ineke Pennock, Ralf van Hal, Ruben Hoek, Marcel de Vries, Thomas Pasterkamp, Erika Koelemij, Jan Beintema, Arnold Bakker, Tim Huijter, Norie van der Meeren, 2024. Handboek leeftijdsbepalingen (versie 4.0). CVO rapport: 24.019

Age reading based on images through on-site SmartDots application.
<https://www.ices.dk/data/tools/Pages/smartdots.aspx>

Maturity staging follows international standards; Report of the Workshop for Advancing Sexual Maturity Staging in Fish (WKASMSF) ([ices.dk](https://www.ices.dk)).

Data processing

Evaluation of data accuracy (bias and precision): N.

The evaluation of potential sampling bias will be based on the recorded responses and non-responses.

Editing and imputation methods: Y.

The editing methods followed during the data processing are described and documented in internal documents and scripts. ALK missing values are imputed first from averages from DEMACT1 and DEMACT2, then from surveys, then from models. Gaps in sampling strata are left (not imputed).

The samples are not edited during the data processing. Possible data errors, inconsistencies and/or discrepancies are recorded in dedicated documents and the respective records usually follow the data storage process after the corrections.

Quality document associated to a dataset: There is no publication digital object identifier associated with a dataset. However, quality checks of the final output are stored in internal documents.

Validation of the final dataset: See section ‘Quality checks and data validation documentation’.

Sampling scheme identifier: DEMACT2

MS : NLD
Region: North Sea and Eastern Arctic
Sampling scheme identifier: DEMACT2
Sampling scheme type: Commercial fishing trip
Observation type: SelfAtSea
Time period of validity: 2025-2027
Short description (max 100 words): Sampling scheme to collect: i) length frequency from commercial discards for all species listed in Table 1 of the EU MAP and age data from commercial discards for five species (<i>Pleuronectes platessa</i>, <i>Solea solea</i>, <i>Merlangius merlangus</i>, <i>Scophthalmus maximus</i>, <i>Scophthalmus rhombus</i>) ii) Quantity data for all discarded benthic species The sampling scheme covers the Dutch demersal trawlers fishing with active gear except flyshoot gear in ICES area 27.4. Discards samples are collected by fishermen on board and analysed on shore by the research institute.
Description of the population
Population targeted: The demersal fleet fishing with active gear except flyshoot gear in ICES area 27.4. We make use of a representative selection of 20-25 vessels (reference fleet) from the sampling population (i.e. all demersal trawlers fishing with active demersal gear except flyshoot gear). Population sampled: Annually 180 trips are sampled by a representative selection of 20-25 vessels (reference fleet) from the sampling population (i.e. all demersal trawlers fishing with active gear except flyshoot gear in ICES area 27.4). Generally, demersal active trawlers execute a fishing trip each week of the year. Stratification: Due to practical reasons the selection of trips is stratified in a North and South division.
Sampling design and protocols
Sampling design description: The reference fleet collects discards samples (self-sampling) following a pre-defined annual sampling schedule produced at the beginning of the year through a random selection of 180 vessel*week combinations. According to this schedule a selected vessel takes a representative discard sample, for two hauls, during the selected week. The collected discard samples are landed by the vessel at port where they are collected by Wageningen Marine Research and returned back to the laboratory for analysis. Next to the collected discards samples fishermen record operational- and catch data (i.e. vessel position (at start and end); haul duration; depth; weather conditions; volume of catches and landings) each time the fishing gear is deployed (each ‘haul’) during the selected week. The vessel crew conducts this self-sampling after training by Wageningen Marine Research. To check for sampling bias, the self-sampling programme is validated by a separate discard programme by scientific observers at sea (see also DEMACT1). This programme is limited to 10 trips per year on board vessels of the reference fleet.

No length measurements of landings are collected during the self-sampling trips as this fraction is sufficiently covered by the on-shore sampling programme (see also AUCTION_DEM).

Is the sampling design compliant with the 4S principle?: Y.

Regional coordination: Sampling design and protocols are not part of a regional or multi-lateral agreement.

Link to sampling design documentation: The table and text below provide insight on the sampling design of different data collection activities under sampling scheme DEMACT2.

Activity under sampling scheme	Sampling unit	Sampling frame	Stratification	Selection method	Sampling effort
Length & quantity sampling	Sampled trip ¹⁾	Vessel x week	Region (North, South)	Probabilistic (SRSWOR)	South:50-70 trips North:90-140 trips
	Hauls ²⁾	All hauls in sampled trip	Day, Night	Opportunistic	Day: 1 haul Night: 1 haul
	Discards sample ³⁾	Sampled haul	-	Systematic	Approx. 80 kg
	All species ⁴⁾	Discards sample	All species	Census when nr <50	All individuals
Age sampling	Age sampled trip ⁵⁾	Sampled trip	-	Quota sampling	Reach quota age sampling
	Fish ⁶⁾	Age sample from discards sample	sol, ple, whg, tur, bl	Quota sampling	5 indiv. Per length class per sampled trip

¹⁾Annually 180 trips, evenly divided over the quarters, are randomly selected (SRSWOR) from the reference fleet for DEMACT2. Due to practical reasons the selection of trips is stratified in a North and South division.

²⁾The vessel crew is instructed to retain a discard sample of two hauls set on different days; 1 haul during the day and 1 haul during the night.

³⁾The discards sample is taken at regular intervals throughout processing of the entire haul at the end of the conveyer belt. A discards sample consists of two fish boxes of discards (one box equals approx. 40 kg).

⁴⁾From each discards sample all species are identified. Numbers at length (cm) are recorded for all fish species, Norway lobster and edible crab. Numbers without length measurements are recorded for all the remaining (benthos) species. For the abundant species a pseudo-random sub-sample of at least 50 individuals is taken.

⁵⁾Age samples are taken according to a pre-defined quota for age sampling. A number of trips are selected for age sampling.

⁶⁾Age samples are taken for 5 fish species from the discards sample. Five individuals per cm length class are collected for age sampling for the selected sampled trips. Length (mm), weight (grams), sex and age reading are conducted for all individuals in an age sample.

Design follows international recommendations: No relevant expert or coordination groups exists. However, ICES WGCATCH discussions have guided WMR on how to develop probabilistic sampling in this fisheries. See section 'Link to sampling design documentation' for sampling design.

Link to sampling protocol documentation: Overzee, H.M.J. van 2023. Sampling demersal active fisheries through self-sampling (DEMACT2) [factsheet demact2 \(wur.nl\)](#)

The annual data report for sampling scheme DEMACT2 broadly describes the methods used for data collection (most recent report: [Afranewaa et al., 2024](#)). See sections 'Sampling design description' and 'Link to sampling design documentation' for further details on sampling protocol.

Protocol follows international recommendations: No relevant expert or coordination groups exists. However, ICES WGCATCH discussions have guided WMR on how to develop probabilistic sampling in this fisheries. See section 'Link to sampling design documentation' for sampling design.
Sampling implementation
Recording of refusal rate: Y Monitoring of sampling progress within the sampling year: Sampling progress is monitored throughout the year on trip by trip basis. If needed new vessels are recruited and added to the reference fleet ensuring a sufficient pool of vessels for sampling.
Data capture Means of data capture: Length measurements are done using an analogue measuring board, of which the set-off is checked annually. Quantity measurements are done by counting individuals. Data is noted down on specific measurement lists. Data is entered in in-house developed software (Billie Turf) as soon as possible. Individual length measurements for fish used for biological data collection are done using an analogue measuring board, of which the set-off is checked annually. Individual wet weights are taken using electronic scales, to the gram. Scales are maintained annually and calibrated when used. Data is noted down on specific measurement lists. Data is entered in in-house developed software (Billie Turf) as soon as possible. After the fish selected for biological sampling has been treated following national animal welfare conditions, the otoliths are collected, and sex and maturity is registered by opening the body cavity. Species identification workshops for demersal and pelagic marine species as well as freshwater species are organised on an annual to triennial basis, and reported upon in internal reports (available upon request). All personnel at WMR is allowed to participate, for personnel directly contributing to the research surveys, frequent participation is mandatory to keep a view on species identification quality. Maturity staging follows international standards Report of the Workshop for Advancing Sexual Maturity Staging in Fish (WKASMSF) (ices.dk) Otoliths are embedded 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. Age readers are qualified based on international age reading exchange results. For species outside the international age reading exchanges (non-commercial species), a national age reading qualification procedure is in place. Data capture documentation: Overzee, H.M.J. van 2023. Sampling demersal active fisheries through self-sampling (DEMACT2) factsheet demact2 (wur.nl) Internal document 'CVO Handboek Discardsbemonstering en Bijvangstregistratie CVO_h_002' CVO 22.026. The handbook is in Dutch and is for internal use only. The handbook is not considered suitable for publication in the public domain as it contains internal procedures and sensitive business information. Upon request, this handbook can be discussed. Quality checks documentation: Data from any field sampling (at sea, on shore), are entered using in-house developed software (Billie Turf). Data is noted down on specific measurement lists. Data is entered Billie Turf as soon as possible. Measurement lists of collected data are archived at Wageningen Marine Research 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, and maps with the sampling positions. After file corrections, the data are stored in one of the centralised databases (Frisbe).
Data storage

National database: after processing, and a standardised quality check on outliers, the information for is stored in the database WMR database FRISBE (relational database). Permanent access for WMR personnel after signing a form with general use instructions.

Access to databases containing data collected DCF related data is described in the 'Protocol databases WMR' (in Dutch, available upon request). Different user access rights and restrictions apply for the databases. All databases below are relational databases. For data managers and database managers other access permissions apply, also described in the protocol. See [factsheet proc_databases \(wur.nl\)](https://wur.nl/factsheet-proc-databases)

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

Quality checks and data validation documentation: During the import of the samples in the national database build-in validation rules check the structure, type and consistency of the data input. Additionally, cross-reference checks between various fields (for string variables) and range checks (for numeric variables) are performed. See section 'Quality check documentation' for description of data quality checks from data collection to storage in the database.

Sample storage

Storage description:

The discard samples are collected in large plastic bags, which are sealed off using a cable tie, labelled and cool-stored until the vessel returns to port. Back at port, the discards samples are collected and returned back to the laboratory by staff from Wageningen Marine Research. At the laboratory the discard samples (of approx. 80 kg each) are either directly processed or cool-stored for a few days after which they are processed. For each discard sample, numbers at length are recorded for all fish species, Norway lobster and edible crab, and numbers are recorded for all remaining (benthos) species. In addition, for a number of sampled trips otoliths are taken for five fish species (i.e. sol, ple, whg, tur, blt) for ageing. Otoliths are taken from the fish back at the lab. Otoliths are stored in a dedicated storage at the research institute without time limitation. Access can be requested through the age reading coordinator. Other than the Dutch DCF annual reports (<https://datacollection.jrc.ec.europa.eu/ars>) no specific overview of the quantities of samples by species/stock, geographic sub-area by year exist.

SmartDots images are stored in the local SmartDots data structure protected by access protocols and other safe guards concerning back-up, redundancy and version control.

After processing the discards samples are collected by a rendering company and destructed accordingly.

Sample analysis: Age reading and maturity stageing according to the species specific ICES protocols. Detailed documentation on otolith processing and age reading (in Dutch, available upon request): Ineke Pennock, Ralf van Hal, Ruben Hoek, Marcel de Vries, Thomas Pasterkamp, Erika Koelemij, Jan Beintema, Arnold Bakker, Tim Huijter, Norie van der Meeren, 2024. Handboek leeftijdsbepalingen (versie 4.0). CVO rapport: 24.019

Age reading based on images through on-site SmartDots application. <https://www.ices.dk/data/tools/Pages/smartdots.aspx>

Maturity staging follows international standards; Report of the Workshop for Advancing Sexual Maturity Staging in Fish (WKASMSF) (ices.dk).

Data processing

Evaluation of data accuracy (bias and precision): N.

The evaluation of potential sampling bias will be based on the recorded responses and non-responses.

Editing and imputation methods: Y.

The editing methods followed during the data processing are described and documented in internal documents and scripts. ALK missing values are imputed first from averages from DEMACT1 and DEMACT2, then from surveys, then from models. Gaps in sampling strata are left (not imputed).

The samples are not edited during the data processing. Possible data errors, inconsistencies and/or discrepancies are recorded in dedicated documents and the respective records usually follow the data storage process after the corrections.

Quality document associated to a dataset: There is no publication digital object identifier associated with a dataset. However, quality checks of the final output are stored in internal documents.

Validation of the final dataset: See section ‘Quality checks and data validation documentation’.

Sampling scheme identifier: DEMPAS

MS : NLD
Region: North Sea and Eastern Arctic
Sampling scheme identifier: DEMPAS
Sampling scheme type: Commercial fishing trip
Observation type: SciObsAtSea
Time period of validity: 2025-2027
Short description (max 100 words): Sampling scheme to collect: - length frequency from commercial discards for all species listed in Table 1 of the EU MAP - quantity data for rare, incidental bycatches for all species listed in Table 2 of the EU MAP The sampling scheme covers the Dutch demersal fisheries fishing with passive gear in ICES area 27.4.
Description of the population
Population targeted: List of vessels fishing with demersal passive gear. The sampling population is defined through vessel lists made available through the VISSTAT data base (national catch and effort registration database).
Population sampled: Annually 20 trips of the demersal passive fishing fleet are sampled. Timing of the trips depends on the activity of the demersal passive fisheries which has a strong seasonal and weather dependent character.
Stratification: Not applicable.
Sampling design and protocols
Sampling design description: Every year 20 observer trips are carried out on board of vessels fishing with demersal passive gear. The 20 trips are divided over the different passive fisheries (i.e. gillnet, fyke and handline fisheries), with focus on the gillnet fishery.
A trial testing a probabilistic method to select vessels has indicated that such a selection method is not workable for the demersal passive fishing fleet as the activity of the vessels throughout the year is extremely unpredictable, and this fishery has a strong seasonal and weather-dependent character. Therefore, there is regular contact with a variety of vessels to discuss when they will go out fishing and if a scientific observer can board the vessel. Once a trip is selected, the scientific observer boards the vessel to: - collect samples of all discards (length & quantity sampling). Within the gillnet fisheries, it may occur in the case of high discards that a subsample of discards is taken by the scientific observer at the beginning, mid and end of the net. - record rare, incidental bycatches and corresponding observation effort (expressed in observed metres nets, number of fykes, number of fishing rods). Furthermore, operational- and catch data (e.g. position, depth, weather conditions, volume of landings) are collected.
Is the sampling design compliant with the 4S principle?: N.

Regional coordination: Sampling design and protocols are not part of a regional or multi-lateral agreement.

Link to sampling design documentation: The table and text below provide insight on the sampling design of different data collection activities under sampling scheme DEMPAS.

Activity under sampling scheme	Sampling unit	Sampling frame	Stratification	Selection method	Sampling effort
Length & quantity sampling	Sampled trip ¹⁾	Vessel x trip	-	Non-probabilistic (NPJS)	20 trips
	Net or location ²⁾	Nets or locations in sampled trip	-	Opportunistic	All nets or locations
	Discards ³⁾	Sampled net or location	-	Census	All discards
	All species ⁴⁾	All discards	All species	Census when nr <50	All individuals
Monitoring rare, incidental bycatch	Rare, incidental bycatch ⁵⁾	Sampled net or location	Protected sea birds, mammals, reptiles and fish species	Census	All individuals

¹⁾Annually 20 trips are executed onboard vessels fishing with demersal passive gear (gillnet, fyke and handline). As it has proven to be extremely difficult to implement random sampling since the activity of vessels within this sampling population is unpredictable and this fishery has a strong seasonal and weather dependent character, a non-probabilistic selection method is used for vessel selection.

²⁾The scientific observer is instructed to sample all nets (gillnet fisheries) or locations (fyke and handline fisheries). However, in practice it may happen that due to time constraint not all nets, locations are sampled.

³⁾Generally, all discards are sampled. Within the gillnet fisheries it may occur that in the case of high discards, a subsample of discards is taken at the beginning, mid and end of the net.

⁴⁾From discards all species are identified. Numbers at length (cm) are recorded for all fish species, Norway lobster and edible crab. Numbers without length measurements are recorded for all the remaining (benthos) species. For the abundant species a pseudo-random sub-sample of at least 50 individuals is taken.

⁵⁾Scientific observer records rare, incidental bycatches and corresponding observation effort (expressed in observed metres nets, number of fykes, number of fishing rods).

Design follows international recommendations: No relevant expert or coordination groups exists. However, ICES WGCATCH discussions have guided WMR on how to develop probabilistic sampling in this fisheries. See section 'Link to sampling design documentation' for sampling design.

Link to sampling protocol documentation: Overzee, H.M.J. van 2023. Sampling demersal passive fisheries through observer trips (DEMPAS) [factsheet dempas \(wur.nl\)](https://www.wur.nl/en/factsheet-dempas)

Internal document 'CVO Handboek Discardsbemonstering en Bijvangstregistratie CVO_h_002' CVO 22.026. The handbook is in Dutch and is for internal use only. The handbook is not considered suitable for publication in the public domain as it contains internal procedures and sensitive business information. Upon request, this handbook can be discussed.

See sections 'Sampling design description' and 'Link to sampling design documentation' for further details on sampling protocol.

Protocol follows international recommendations: No relevant expert or coordination groups exists. However, ICES WGCATCH discussions have guided WMR on how to develop probabilistic sampling in this fisheries. See section 'Link to sampling design documentation' for sampling design.

Sampling implementation
Recording of refusal rate: NA Monitoring of sampling progress within the sampling year: Sampling progress is monitored throughout the year on trip by trip basis. During the year efforts are made to get acquainted with ‘new’ vessels and recruiting them for sampling.
Data capture
Means of data capture: Length measurements are done using an analogue measuring board, of which the set-off is checked annually. Quantity measurements are done by counting individuals. Data is noted down on specific measurement lists. Data is entered in in-house developed software (Billie Turf) as soon as possible. Species identification workshops for demersal and pelagic marine species as well as freshwater species are organised on an annual to triennial basis, and reported upon in internal reports (available upon request). All personnel at WMR is allowed to participate, for personnel directly contributing to the research surveys, frequent participation is mandatory to keep a view on species identification quality. Data capture documentation: Overzee, H.M.J. van 2023. Sampling demersal passive fisheries through observer trips (DEMPAS) factsheet dempas (wur.nl) Internal document ‘CVO Handboek Discardsbemonstering en Bijvangstregistratie CVO_h_002’ CVO 22.026. The handbook is in Dutch and is for internal use only. The handbook is not considered suitable for publication in the public domain as it contains internal procedures and sensitive business information. Upon request, this handbook can be discussed. Quality checks documentation: Data from any field sampling (at sea, on shore), are entered using in-house developed software (Billie Turf). Data is noted down on specific measurement lists. Data is entered Billie Turf as soon as possible. Measurement lists of collected data are archived at Wageningen Marine Research 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, and maps with the sampling positions. After file corrections, the data are stored in one of the centralised databases (Frisbe).
Data storage
National database: after processing, and a standardised quality check on outliers, the information for is stored in the database WMR database FRISBE (relational database). Permanent access for WMR personnel after signing a form with general use instructions. Access to databases containing data collected DCF related data is described in the ‘Protocol databases WMR’ (in Dutch, available upon request). Different user access rights and restrictions apply for the databases. All databases below are relational databases. For data managers and database managers other access permissions apply, also described in the protocol. See factsheet proc databases (wur.nl) International database: ICES RDB(ES) https://www.ices.dk/data/data-portals/Pages/RDB-FishFrame.aspx Quality checks and data validation documentation: During the import of the samples in the national database build-in validation rules check the structure, type and consistency of the data input. Additionally, cross-reference checks between various fields (for string variables) and range checks (for numeric variables) are performed. See section ‘Quality check documentation’ for description of data quality checks from data collection to storage in the database.
Sample storage
Storage description: NA, After processing on board, discards are discarded in sea and no samples are stored. Sample analysis: No biological sampling is conducted, only length measurements onboard the vessel.

Data processing
Evaluation of data accuracy (bias and precision): N. The evaluation of precision will be based on the variance of the estimated catch weight. As this concerns a non-probabilistic sampling scheme, logbook information will be analysed in determining potential sampling bias. Editing and imputation methods: Y. The editing methods followed during the data processing are described and documented in internal documents and scripts. Gaps in sampling strata are left (not imputed). The samples are not edited during the data processing. Possible data errors, inconsistencies and/or discrepancies are recorded in dedicated documents and the respective records usually follow the process of data storage after the corrections. Quality document associated to a dataset: There is no publication digital object identifier associated with a dataset. However, quality checks of the final output are stored in internal documents. Validation of the final dataset: See section ‘Quality checks and data validation documentation’.

Sampling scheme identifier: AUCTION_DEM

MS : NLD
Region: North Sea and Eastern Arctic
Sampling scheme identifier: AUCTION_DEM
Sampling scheme type: Commercial fishing trip
Observation type: SciObsOnShore
Time period of validity: 2025-2027
Short description (max 100 words): Auction sampling scheme aiming at the on-shore collection of length samples and samples for biological variables for a selection of demersal species based on table 2.1 from the North Sea region. This scheme covers both Dutch and foreign vessels landing into the Netherlands at various auctions.
Description of the population
Population targeted: Annual landings sold at major Dutch auctions (>80% of annual landings) of demersal fleet vessels (>12 m) using active gears and targeting specific demersal species. Population sampled: In NLD, landings in auctions are predominantly from demersal vessels. Pelagic landings are not sold through auctions. Major auctions (covering >80% of demersal landings) are included in the sampling population. Minor auctions are excluded from the auction list as these auctions may have limited operation during some parts of the year. Dedicated auctions for Crangon crangon are excluded as well as these form the sampling population of sampling scheme AUCTION_SHRIMP. Stratification: The sampling scheme follows a quarterly stratification at the auction X days sampling unit. In each stratum (quarter) a predetermined number of auction days is selected. The sample collected is further stratified by the size categories of the respective species.
Sampling design and protocols
Sampling design description: This sampling scheme is onshore sampling where the PSU is auction X time (days) stratified by quarter and the SSU the vessels. A species list is created based on the DCF guidelines indicating the species that will be targeted for sampling. The sampling effort is allocated in each quarter based on expert knowledge regarding the fleets and the expected landings of the species of interest covering the primary auctions. When a day and an auction is selected, the observer visits the auction and selects a fraction of the vessels that contain the landings of the species in the species list. The vessel non-responses are recorded at this stage. A sample is then collected from the sorted by size category landings contained in boxes. The observer records the total weight of the boxes, the weight of each size category, the length frequency, and biological data (the type of sample collected depends on the species). The otoliths are then delivered to the lab for age determination. In few cases, when it's not logistically feasible for the observer to visit the auction (distance from the research institute, time constraints) an external person is

contracted and instructed based on the sampling protocol to collect samples for the research institute for the selected auction day and vessel. These samples are then sent to the laboratory and processed there. Work is in progress to optimise the selection strategy using probabilistic selection methods.

Is the sampling design compliant with the 4S principle?:

Y, though not yet fully implemented at the start of the NWP period.

Regional coordination: N

Link to sampling design documentation:

Verver, S.W. 2023. Auction sampling on demersal fish (AUCTION_DEM) [factsheet auction_dem \(wur.nl\)](https://www.wur.nl/en/publications/factsheet-auction-dem)

Internal document ‘Handboek marktbeemonstering zeevisserij (CVO_h_001)’ CVO 23.016 (in Dutch).

Sampling unit	Sampling frame	Stratification	Selection method	Sampling effort
Auction*time	Auction days of major Dutch auctions	Quarter	SRSWOR/UPS WOR ¹⁾	18 auction days (average per quarter) ⁴⁾
Vessel	Vessels > 12m landing at the auction	-	SRSWOR	5 vessels (average per auction day) ⁵⁾
Landings	All landings of the species included in the species list		NPJS	Landings of selected species from the species list
Sample	All boxes	Size category	SRSWOR ²⁾	1 box per size category
Fish ³⁾	All fish in the box		SRSWOR	10-15 fish (species dependent)

¹⁾ Dependent on the feasibility of the practical implementation.

²⁾ The selection method depends on the number of boxes available for each size category

³⁾ Length and age samples.

^{4,5)} Indicative.

Design follows international recommendations: N. However, the practical implementation of the upcoming probabilistic design is based on ICES guidelines (WKPRECISE, WKPCIS1, WKPICS2, WKPICS3 and WGCATCH).

Link to sampling protocol documentation: Verver, S.W. 2023. Auction sampling on demersal fish (AUCTION_DEM) [factsheet auction_dem \(wur.nl\)](https://www.wur.nl/en/publications/factsheet-auction-dem)

Internal document ‘Handboek marktbeemonstering zeevisserij (CVO_h_001)’ CVO 23.016 (in Dutch). The handbook is in Dutch and is for internal use only. The handbook is not considered suitable for publication in the public domain as it contains internal procedures and sensitive business information. Upon request, this handbook can be discussed.

See sections ‘Sampling design description’ and ‘Link to sampling design documentation’ for further details on sampling protocol.

Protocol follows international recommendations: N. However, the practical implementation of the upcoming probabilistic design is based on ICES guidelines (e.g. stemming from WKPRECISE, WKPCIS1, WKPICS2, WKPICS3 and WGCATCH).

Sampling implementation

Recording of refusal rate: Y (vessel).

Monitoring of sampling progress within the sampling year: Sampling progress and performance is monitored throughout the year on a species-by-species basis while accounting for the seasonality of the fisheries. The sampling scheme is evaluated quarterly, considering the non-response rates (vessel) and thoroughly documenting the characteristics of the sampling units. Furthermore, the observers record other possible sources of bias when possible and measures to minimize it are put in place. Should a risk of under sampling be identified, additional auction visits will be carried out to ensure the sampling intensity is optimized. In exceptional cases, specific fisheries may be closed or limited by the authorities, hence access to sampling material is limited or even impossible. Deviations from the sampling protocols/scheme are documented on a quarterly, annual or ad-hoc basis (when an exceptional event takes place, e.g., a pandemic) and stored internally. Lastly, the out-of-frame sampling units (minor auctions) are recorded each year.

Data capture

Means of data capture: Length measurements are done using an analogue measuring board, of which the set-off is checked annually. Weight is recorded by using calibrated scales. Data is entered directly into in-house developed software (Billie Turf). On-site SmartDots for fish ageing based on images.

Data capture documentation: Verver, S.W. 2023. Auction sampling on demersal fish (AUCTION_DEM) [factsheet auction_dem \(wur.nl\)](https://www.wur.nl/en/factsheet-auction-dem)

Internal document 'Handboek marktbemonstering zeevisserij (CVO_h_001)' CVO 23.016 (in Dutch). The handbook is in Dutch and is for internal use only. The handbook is not considered suitable for publication in the public domain as it contains internal procedures and sensitive business information. Upon request, this handbook can be discussed.

Quality checks documentation: Y

Data are entered using in-house developed software (Billie Turf). If data are entered directly during sampling, prints are made to keep a hard copy, at least until backup has taken place. Data are stored as plain text files at a centralised location for which a daily back-up routine is put in place. When a batch of samples has been completely processed and entered in the files ('batch' may be a fishing trip, a quarter), checks for outliers take place. The checks are conducted using standardised scripts (R, SAS, PL/SQL) and involve outlier checks for numerical values, consistency checks for text variables, and relational checks such as length-weight, length-age relationships, and maps with the sampling positions. After file corrections, the data are stored in one of the centralised databases (Frisbe). Checks are not yet publicly available.

The above mentioned internal document 'Handboek marktbemonstering zeevisserij (CVO_h_001)' CVO 23.016 (in Dutch) contains the specific quality checks for this sampling scheme.

Data storage

National database: after processing, and a standardised quality check on outliers, the information for is stored in the database WMR database FRISBE (relational database). Permanent access for WMR personnel after signing a form with general use instructions.

Access to databases containing data collected DCF related data is described in the 'Protocol databases WMR' (in Dutch, available upon request). Different user access rights and restrictions apply for the databases. All databases below are relational databases. For data managers and database managers other access permissions apply, also described in the protocol. See [factsheet proc_databases \(wur.nl\)](https://www.wur.nl/en/factsheet-proc-databases)

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

Quality checks and data validation documentation: During the import of the samples in the national database build-in validation rules check the structure, type and consistency of the data input. Additionally, cross-reference checks between various fields (for string variables) and range checks (for numeric variables) are performed. See

section 'Quality check documentation' for description of data quality checks from data collection to storage in the database.

Sample storage

Storage description: Calcified structures like otoliths and scales are stored in a dedicated storage at the research institute without time limitation. Access can be requested through the age reading coordinator. Other than the Dutch DCF annual reports (<https://datacollection.jrc.ec.europa.eu/ars>) no specific overview of the quantities of samples by species/stock, geographic sub-area by year exist.

SmartDots images are stored in the local SmartDots data structure protected by access protocols and other safe guards concerning back-up, redundancy and version control.

Sample analysis: Age reading and maturity stageing according to the species specific ICES protocols. Detailed documentation on otolith processing and age reading (in Dutch,available upon request): Ineke Pennock, Ralf van Hal, Ruben Hoek, Marcel de Vries, Thomas Pasterkamp, Erika Koelemij, Jan Beintema, Arnold Bakker, Tim Huijter, Norie van der Meeren, 2024. Handboek leeftijdsbepalingen (versie 4.0). CVO rapport: 24.019

Age reading based on images through on-site SmartDots application.
<https://www.ices.dk/data/tools/Pages/smartdots.aspx>

Maturity staging follows international standards; Report of the Workshop for Advancing Sexual Maturity Staging in Fish (WKASMSF) ([ices.dk](https://www.ices.dk)).

Data processing

Evaluation of data accuracy (bias and precision): N.

Y, though pending full implantation of applied method

Editing and imputation methods: Y

The editing and imputation methods followed during the data processing are described and documented in internal documents and scripts.

Imputation: missing values are imputed first from averages, then from surveys, then from models.

Editing: The samples are not edited during the data processing. Possible data errors, inconsistencies and/or discrepancies are recorded in dedicated documents and the respective records usually follow the process of data storage after the corrections. If an error is found in the sample data the following mandatory fields need to be filled in in the documentation template:

- SampleID
- Species
- DateChecked
- ErrorDescription
- ActionsTaken (e.g. excluded, corrected)
- Reason
- DateProcessed
- Re-imported (Yes/No)
- Person

Quality document associated to a dataset: There is no publication digital object identifier associated with a dataset. However, quality checks of the final output are stored in internal documents. This document includes details of the estimation (assumptions, type of estimator, auxiliary variables used for ratio estimator etc.) as well as quality checks of the final output.

Validation of the final dataset: During the import of the samples in the national database build-in validation rules check the structure, type and consistency of the data input. Additionally, cross-reference checks between

various fields (for string variables) and range checks (for numeric variables) are performed prior to submission to end users.

Sampling scheme identifier: AUCTION_SHRIMP

MS : NLD															
Region: North Sea and Eastern Arctic															
Sampling scheme identifier: AUCTION_SHRIMP															
Sampling scheme type: Commercial fishing trip															
Observation type: SciObsOnShore															
Time period of validity: 2025-2027															
Short description (max 100 words): Auction sampling scheme aiming at the on-shore collection of length and biological samples of <i>Crangon crangon</i> (brown shrimp, CSH) from the North Sea region. This scheme covers both Dutch and foreign specialised vessels fishing for brown shrimp and landing into the Netherlands at dedicated auctions. Samples are bought directly from the vessels while the shrimp is being processed at the auction. The auction ensures that samples can be collected.															
Description of the population															
Population targeted: Annual landings of <i>Crangon crangon</i> sold at major Dutch auctions specialized in processing shrimp (>80% of annual landings) of demersal fleet vessels (>12 m, fishing with 16-32mm shrimp trawl) . Population sampled: In NLD, shrimp landings in auctions are originating from specialised vessels fishing with a dedicated gear. Major shrimp auctions (covering>80% of shrimp landings) are included in the sampling population. Minor auctions are excluded from the auction list as these auctions may have limited operation during some parts of the year. Dedicated fish auctions are excluded as well as these form the sampling population of sampling scheme AUCTION_DEM and these auctions don't have the facilities to process brown shrimp. Stratification: The sampling scheme follows a quarterly stratification at the auction X days sampling unit. In each stratum (quarter) a predetermined number of auction days is selected. The sample collected is further stratified by the size categories.															
Sampling design and protocols															
Sampling design description: The sampling scheme is onshore sampling where the PSU is auction*time (days) stratified by quarter and the SSU the vessels. The intention is for the PSU and SSU to be selected using probabilistic selection methods. Is the sampling design compliant with the 4S principle?: Y Regional coordination: N Link to sampling design documentation: Verver, S.W. 2023. Auction sampling shrimp (AUCTION_SHRIMP) factsheet auction_shrimp (wur.nl) Internal document 'Handboek marktbeemonstering zeevisserij (CVO_h_001)' CVO 23.016 (in Dutch).															
<table border="1"> <thead> <tr> <th>Sampling unit</th> <th>Sampling frame</th> <th>Stratification</th> <th>Selection method</th> <th>Sampling effort</th> </tr> </thead> <tbody> <tr> <td>Auction*time</td> <td>Auction days of major shrimp Dutch auctions</td> <td>Quarter</td> <td>SRSWOR/U PSWOR¹⁾</td> <td>18 auction days (average per quarter)⁴⁾</td> </tr> <tr> <td>Vessel</td> <td>Vessels > 12m landing at the auction</td> <td>-</td> <td>SRSWOR</td> <td>1-2 vessels (average per auction day)⁵⁾</td> </tr> </tbody> </table>	Sampling unit	Sampling frame	Stratification	Selection method	Sampling effort	Auction*time	Auction days of major shrimp Dutch auctions	Quarter	SRSWOR/U PSWOR ¹⁾	18 auction days (average per quarter) ⁴⁾	Vessel	Vessels > 12m landing at the auction	-	SRSWOR	1-2 vessels (average per auction day) ⁵⁾
Sampling unit	Sampling frame	Stratification	Selection method	Sampling effort											
Auction*time	Auction days of major shrimp Dutch auctions	Quarter	SRSWOR/U PSWOR ¹⁾	18 auction days (average per quarter) ⁴⁾											
Vessel	Vessels > 12m landing at the auction	-	SRSWOR	1-2 vessels (average per auction day) ⁵⁾											

Landings	All landings of Crangon crangon		NPJS	Fraction of landings of Crangon crangon
Sample	All boxes	Size category	SRSWOR ²⁾	1 bag (~500gr) per size category
Individuals ³⁾	All individuals in the box		SRSWOR	100 individuals

¹⁾ Dependent on the feasibility of the practical implementation.

²⁾ The selection method depends on the number of boxes available for each size category

³⁾ Length samples.

^{4,5)} Indicative

Design follows international recommendations: N. However, the practical implementation of the upcoming probabilistic design is based on ICES guidelines (WKPRECISE, WKPCIS1, WKPCS2, WKPCS3 and WGCATCH).

Link to sampling protocol documentation: Verver, S.W. 2023. Auction sampling shrimp (AUCTION_SHRIMP) [factsheet auction shrimp \(wur.nl\)](#)

Internal document ‘Handboek marktbemonstering zeevisserij (CVO_h_001)’ CVO 23.016 (in Dutch). The handbook is in Dutch and is for internal use only. The handbook is not considered suitable for publication in the public domain at it contains internal procedures and sensitive business information. Upon request, this handbook can be discussed.

Protocol follows international recommendations: N. However, the practical implementation of the upcoming probabilistic design is based on ICES guidelines (WKPRECISE, WKPCIS1, WKPCS2, WKPCS3 and WGCATCH).

Sampling implementation

Recording of refusal rate: N. No added value to record refusals as these do not occur for this sampling due to the limited amount of shrimp needed to complete a sample and the samples are taken by the auctions while processing the shrimp.

Monitoring of sampling progress within the sampling year: Sampling progress and performance is monitored throughout the year while accounting for the seasonality of the fisheries. Possible sources of bias are recorded by the observers when possible and measures to minimize it are put in place. Should a risk of under sampling be identified, additional auction visits will be carried out to ensure the collection of sufficient samples the sampling intensity is optimized. Deviations from the sampling protocols/scheme are documented on a quarterly, annual or ad-hoc basis (when an exceptional event takes place e.g., pandemic) and stored internally. Lastly, the out-of-frame sampling units (minor auctions) are recorded each year.

Data capture

Means of data capture: Length measurements are done using an analogue measuring board, of which the set-off is checked annually. Weight is recorded by using calibrated scales. Data is entered directly into in-house developed software (Billie Turf). On-site SmartDots for fish ageing based on images.

Data capture documentation: Verver, S.W. 2023. Auction sampling shrimp (AUCTION_SHRIMP) [factsheet auction shrimp \(wur.nl\)](#)

Internal document ‘Handboek marktbemonstering zeevisserij (CVO_h_001)’ CVO 23.016 (in Dutch). The handbook is in Dutch and is for internal use only. The handbook is not considered suitable for publication in the public domain at it contains internal procedures and sensitive business information. Upon request, this handbook can be discussed.

Quality checks documentation: Y

Data are entered using software developed in-house (Billie Turf). If data are entered directly during sampling, prints are made to keep a hard copy, at least until backup has taken place. Data are stored as plain text files at a centralised location, where a daily backup routine is put in place. When a batch of samples has been completely processed and entered in the files ('batch' may be a fishing trip, a quarter), checks for outliers take place. The checks are conducted using standardised scripts (R, SAS, PL/SQL) and involve outlier checks for numerical values, consistency checks for text variables, and relational checks such as length-weight, length-age relationships, and maps with the sampling positions. After file corrections, the data are stored in one of the centralised databases (Frisbe). Checks are not yet publicly available.

The above mentioned internal document 'Handboek marktbemonstering zeevisserij (CVO_h_001)' CVO 23.016 (in Dutch) contains the specific quality checks for this sampling scheme.

Data storage

National database: after processing, and a standardised quality check on outliers, the information for is stored in the database WMR database FRISBE (relational database). Permanent access for WMR personnel after signing a form with general use instructions.

Access to databases containing data collected DCF related data is described in the 'Protocol databases WMR' (in Dutch, available upon request). Different user access rights and restrictions apply for the databases. All databases below are relational databases. For data managers and database managers other access permissions apply, also described in the protocol. See [factsheet proc_databases \(wur.nl\)](#)

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

Quality checks and data validation documentation: During the import of the samples in the national database build-in validation rules check the structure, type and consistency of the data input. Additionally, cross-reference checks between various fields (for string variables) and range checks (for numeric variables) are performed. See section 'Quality check documentation' for description of data quality checks from data collection to storage in the database.

Sample storage

Storage description: Not relevant for this sampling scheme as no biological material is collected and stored.

Sample analysis: Samples are collected according to the procedures as described in the relevant Handbook (see data capture documentation). Sample analysis is straightforward as this is only based on length measurements (to mm below) by maturity stage. No international documentation exists.

Data processing

Evaluation of data accuracy (bias and precision): .

Y, though pending full implantation of applied method

Editing and imputation methods: Y

The editing and imputation methods followed during the data processing are described and documented in internal documents and scripts.

Imputation: missing values are imputed first from averages, then from surveys, then from models.

Editing: The samples are not edited during the data processing. Possible data errors, inconsistencies and/or discrepancies are recorded in dedicated documents and the respective records usually follow the process of data storage after the corrections. If an error is found in the sample data the following mandatory fields need to be filled in in the documentation template:

- SampleID
- Species
- DateChecked
- ErrorDescription
- ActionsTaken (e.g. excluded, corrected)
- Reason
- DateProcessed
- Re-imported (Yes/No)

Person
Quality document associated to a dataset: There is no publication digital object identifier associated with a dataset. However, quality checks of the final output are stored in internal documents. This document includes details of the estimation (assumptions, type of estimator, auxiliary variables used for ratio estimator etc.) as well as quality checks of the final output. Validation of the final dataset: During the import of the samples in the national database build-in validation rules check the structure, type and consistency of the data input. Additionally, cross-reference checks between various fields (for string variables) and range checks (for numeric variables) are performed prior to submission to end users.

Sampling scheme identifier: CECAF at sea sampling

MS : NLD (under multilateral agreement)
Region: CECAF
Sampling scheme identifier: CECAF at sea sampling
Sampling scheme type: Commercial Fishing trip
Observation type: SciObsAtSea
Time period of validity: 2025-2027
Short description (max 100 words): Under the EU Data Collection Framework, based on the activity of the commercial fishing vessels, the long distance fishery targeting small pelagic species in the CECAF area were selected for sampling. According to the multi-lateral agreement 2025-2027, the Netherlands coordinates the execution of biological data collection from the EU fisheries for small pelagics by freezer trawlers in the CECAF area. The Netherlands also ensures data validation, processing, and delivery to the relevant end-users. The routine observation of the presence of PETS is included in the sampling scheme. The current agreement is valid until the end of 2027 with an option for further extension. Once uploaded, the agreement can be found at the Repository Multilateral and Bilateral agreements: https://www.fisheries-rcg.eu/agreements/
Description of the population
Population targeted: The EU fishery in the CECAF area is targeting small pelagic species. This fishery is conducted by EU pelagic trawlers flying different flags. Under the multi-lateral agreement, the Netherlands coordinates data collection from the EU fishing fleet targeting small pelagic species in the CECAF area. The PSU is vessel-trip. Population sampled: EU Pelagic freezer trawlers operating in the CECAF Stratification: EU pelagic freezer trawler operating in main CECAF fishing areas (34.1.3 and 34.3.1) by quarter
Sampling design and protocols
Sampling design description: At-sea biological sampling is not randomised but based on the availability of space for observers on board the vessels. Two observer trips per quarter and per fishing area are planned. Is the sampling design compliant with the 4S principle?: N Regional coordination: Y Multilateral agreement on CECAF sampling. Once uploaded, the agreement can be found at the Repository Multilateral and Bilateral agreements: https://www.fisheries-rcg.eu/agreements/ Link to sampling design documentation:

Pending the transition to a central repository the documentation can be found at: https://dcf.mir.gdynia.pl/wp-content/uploads/2018/05/Manual-for-scientific-observers-on-EU-pelagic-trawlers-in-CECAF.pdf Compliance with international recommendations: Y Link to sampling design documentation: Pending the transition to a central repository the documentation can be found at: https://dcf.mir.gdynia.pl/wp-content/uploads/2018/05/Manual-for-scientific-observers-on-EU-pelagic-trawlers-in-CECAF.pdf Design follows international recommendations: Y Link to sampling protocol documentation: Pending the transition to a central repository the documentation can be found at: https://dcf.mir.gdynia.pl/wp-content/uploads/2018/05/Manual-for-scientific-observers-on-EU-pelagic-trawlers-in-CECAF.pdf Protocol follows international recommendations: Y
Sampling implementation
Recording of refusal rate: NA
Monitoring of sampling progress within the sampling year: NA
Data capture
Means of data capture: Measuring boards, scales, dissection equipment, tubs & buckets, different sampling protocols. Data capture documentation: Pending the transition to a central repository the documentation can be found at: https://dcf.mir.gdynia.pl/wp-content/uploads/2018/05/Manual-for-scientific-observers-on-EU-pelagic-trawlers-in-CECAF.pdf Quality checks documentation: Collected data are validated during recording in a dedicated desktop application called Billie, provided by NLD. No shareable documentation available.
Data storage
National database: The data files from the desktop application Billie are stored in the internal files repository and quality checked. Data collected in CECAF are transferred to NLD database for storage, further quality checks and transmission to CECAF WG. After processing, and a standardised quality check on outliers, the information for is stored in the database WMR database FRISBE (relational database). Permanent access for WMR personnel after signing a form with general use instructions. Access to databases containing data collected DCF related data is described in the ‘Protocol databases WMR’ (in Dutch, available upon request). Different user access rights and restrictions apply for the databases. All databases below are relational databases. For data managers and database managers other access permissions apply, also described in the protocol. See factsheet proc_databases (wur.nl) International database: NA Quality checks and data validation documentation: Data collected in CECAF areas are recorded in a dedicated desktop application called Billie. The application performs basic validation of the input data. Advanced data checks are applied after the data is transferred to the database, where data quality check report is produced.
Sample storage
Storage description: Where applicable otoliths are stored at WMR, IJmuiden, the Netherlands.

Sample analysis: Where applicable age reading and maturity staging occurs according to the species specific ICES protocols. Detailed documentation on otolith processing and age reading (in Dutch, available upon request): Ineke Pennock, Ralf van Hal, Ruben Hoek, Marcel de Vries, Thomas Pasterkamp, Erika Koelemij, Jan Beintema, Arnold Bakker, Tim Huijter, Norie van der Meeren, 2024. Handboek leeftijdsbepalingen (versie 4.0). CVO rapport: 24.019

Age reading based on images through on-site SmartDots application.
<https://www.ices.dk/data/tools/Pages/smartdots.aspx>

Maturity staging follows international standards; Report of the Workshop for Advancing Sexual Maturity Staging in Fish (WKASMSF) (ices.dk).

Data processing

Evaluation of data accuracy (bias and precision): N, Data collected in CECAF are transferred to NLD database for processing, further quality checks and transmission to CECAF WG.

Editing and imputation methods: N

Quality document associated to a dataset: N

Validation of the final dataset: Data collected in CECAF are transferred to NLD database for processing, further quality checks, validation and transmission to CECAF WG.

Sampling scheme identifier: SPRFMO at sea sampling

MS : NLD (under multilateral agreement)
Region: SPRFMO
Sampling scheme identifier: SPRFMO at sea sampling
Sampling scheme type: Commercial Fishing trip
Observation type: SciObsAtSea
Time period of validity: 2025-2027
Short description (max 100 words): Based on a multilateral agreement between Germany, Lithuania, Netherlands and Poland, the Netherlands coordinates a joint sampling programme for the collection of biological data from pelagic fisheries in SPRFMO waters. Sampling is carried out on EU vessels active in pelagic fisheries in the South Pacific. Scientific observers from the national institutions collect data from catch sampling, length distribution and biological parameters of fish following the requirements of SPRFMO. The observation of the presence of PETS is included in the sampling scheme. The current multi-lateral agreement is valid until the end of 2027 with an option for further extension. Once uploaded, the agreement can be found at the Repository Multilateral and Bilateral agreements: https://www.fisheries-rcg.eu/agreements/
Description of the population
Population targeted: EU vessels which conduct pelagic fisheries in the South Pacific. The PSU is vessel-trip. Population sampled: EU Pelagic freezer trawlers operating in the SPRFMO area. Stratification: EU Pelagic freezer trawlers operating in the SPRFMO area.
Sampling design and protocols
Sampling design description: At-sea biological sampling is not randomised but based on the availability of space for observers on board the vessels. According to the SPRFMO requirements ("CMM 01-2021; Conservation and Management Measure for Trachurus Murphyi" – updated annually), a minimum of 10% of all fishing trips shall be observed/sampled (https://www.sprfmo.int/measures/)

Data are collected and transmitted to the SPRFMO according to the SPRFMO “CMM 02-2021; Conservation and Management Measure on Standards for the Collection, Reporting, Verification and Exchange of Data” – updated annually (<https://www.sprfmo.int/measures/>)

Is the sampling design compliant with the 4S principle?: N

Regional coordination: Y

Once uploaded, the agreement can be found at the Repository Multilateral and Bilateral agreements:

<https://www.fisheries-rcg.eu/agreements/>

Member states: DEU - LTU - NLD – POL

Link to sampling design documentation:

Pending the transition to a central repository the documentation can be found at: <https://dcf.mir.gdynia.pl/wp-content/uploads/2016/10/CMR-2015-01-Observer-manual-Pacific-v6.pdf>

Design follows international recommendations: Y

Link to sampling protocol documentation: Pending the transition to a central repository the documentation can be found at: <https://dcf.mir.gdynia.pl/wp-content/uploads/2016/10/CMR-2015-01-Observer-manual-Pacific-v6.pdf>

Protocol follows international recommendations: Y

Sampling implementation

Recording of refusal rate: NA

Monitoring of sampling progress within the sampling year: NA

Data capture

Means of data capture: Measuring boards, scales, dissection equipment, tubs & buckets, different sampling protocols.

Data capture documentation:

<https://dcf.mir.gdynia.pl/wp-content/uploads/2016/10/CMR-2015-01-Observer-manual-Pacific-v6.pdf>

Quality checks documentation:

https://dcf.mir.gdynia.pl/wp-content/uploads/2021/05/SPRFMO_data_quality_assurance.pdf

Data storage

National database: After processing, and a standardised quality check on outliers, the information is stored in the database WMR database FRISBE (relational database). Permanent access for WMR personnel after signing a form with general use instructions.

Access to databases containing data collected DCF related data is described in the ‘Protocol databases WMR’ (in Dutch, available upon request). Different user access rights and restrictions apply to the databases. All databases below are relational databases. For data managers and database managers other access permissions apply, also described in the protocol. See [factsheet proc_databases \(wur.nl\)](#)

International database: Internal SPRFMO database, not publicly accessible.

Quality checks and data validation documentation:

https://dcf.mir.gdynia.pl/wp-content/uploads/2021/05/SPRFMO_data_quality_assurance.pdf.

Sample storage

Storage description: Where applicable otoliths are stored at WMR, IJmuiden, the Netherlands.

Sample analysis: Where applicable age reading and maturity staging occurs according to the species specific ICES protocols. Detailed documentation on otolith processing and age reading (in Dutch, available upon request): Ineke Pennock, Ralf van Hal, Ruben Hoek, Marcel de Vries, Thomas Pasterkamp, Erika Koelemij, Jan Beintema, Arnold Bakker, Tim Huijter, Norie van der Meeren, 2024. Handboek leeftijdsbepalingen (versie 4.0). CVO rapport: 24.019

Age reading based on images through on-site SmartDots application.
<https://www.ices.dk/data/tools/Pages/smartdots.aspx>

Maturity staging follows international standards; Report of the Workshop for Advancing Sexual Maturity Staging in Fish (WKASMSF) (ices.dk).

Data processing

Evaluation of data accuracy (bias and precision): Y

https://dcf.mir.gdynia.pl/wp-content/uploads/2021/05/SPRFMO_data_quality_assurance.pdf

Editing and imputation methods: N - In case of any gaps, imputation is not performed at national level but at Stock Data Coordination level in the SPRFMO. Data are provided to end user "as-is" (as collected, validated and recorded in national database). In case of gaps in ALK or WLK, average values are used if available.

Quality document associated to a dataset: N

Validation of the final dataset:

https://dcf.mir.gdynia.pl/wp-content/uploads/2021/05/SPRFMO_data_quality_assurance.pdf

Sampling scheme identifier: NPFC at sea sampling

MS : NLD (under multilateral agreement)

Region: NPFC

Sampling scheme identifier: NPFC at sea sampling

Sampling scheme type: Commercial Fishing trip

Observation type: SciObsAtSea

Time period of validity: 2025-2027

Short description (max 100 words):

From 2022 onwards, the EU is a member of the NPFC and fishing rights for EU vessels developed since. The current EU-MAP doesn't list NPFC as a region, yet RCG LDF identified the need to sample the fisheries in line with the anticipated end-user needs. Supported by a multilateral agreement similar to the agreement for sampling in the SPRFMO area, the Netherlands coordinates a joint sampling programme for collecting biological data from pelagic fisheries in NPFC waters. Sampling is carried out on EU vessels active in pelagic fisheries. Scientific observers from the national institutions collect data from catch sampling, length distribution and fish biological parameters following the SPRFMO requirements. The observation of the presence of PETS is included in the sampling scheme. The current multi-lateral agreement is valid until the end of 2027 with an option for further extension. Once uploaded, the agreement can be found at the Repository Multilateral and Bilateral agreements: <https://www.fisheries-rcg.eu/agreements/>

Description of the population

Population targeted: EU vessels which conduct pelagic fisheries in the North Pacific. The PSU is vessel-trip.

Population sampled: EU Pelagic freezer trawlers operating in the North Pacific

Stratification: EU Pelagic freezer trawlers operating in the North Pacific

Sampling design and protocols

Sampling design description: At-sea biological sampling is not randomised but based on space availability for observers on board the vessels. The full sampling design needs to be finalised in cooperation with the end-user as

no clear guidance is currently available. Based on experiences with similar fisheries, an interim protocol will be applied, including the monitoring of PETS.

Is the sampling design compliant with the 4S principle?: N

Regional coordination: Y

Multilateral agreement on NPFC sampling

Member states: DEU - LTU - NLD - POL

Link to sampling design documentation:

Not available yet, but once completed the documentation can be found at the central repository of the RCG secretariat.

Design follows international recommendations: Y

Link to sampling protocol documentation:

Not available yet, but once completed the documentation can be found at the central repository of the RCG secretariat.

Protocol follows international recommendations: Y

Sampling implementation

Recording of refusal rate:

NA

Monitoring of sampling progress within the sampling year:

NA

Data capture

Means of data capture:

Measuring boards, scales, dissection equipment, tubs & buckets, different sampling protocols.

Data capture documentation:

Not available yet, but once completed the documentation can be found at the central repository of the RCG secretariat.

Quality checks documentation:

Collected data are validated during recording in a dedicated desktop application called Billie, provided by NLD. No shareable documentation available.

Data storage

National database: After processing and a standardised quality check on outliers, the information is stored in the database WMR database FRISBE (relational database). Permanent access for WMR personnel after signing a form with general use instructions. Access to databases containing data collected DCF related data is described in the 'Protocol databases WMR' (in Dutch, available upon request). Different user access rights and restrictions apply to the databases. All databases below are relational databases. For data managers and database managers other access permissions apply, also described in the protocol. See factsheet proc_databases (wur.nl)

International database: NPFC data storage

Quality checks and data validation documentation:

Data collected in NPFC areas are recorded in a dedicated desktop application called Billie, provided by NLD. The application performs basic validation of the input data. Advanced data checks are applied after the data is transferred to the database in NLD, where a data quality check report is produced. For now, checks are similar to those referred to under SPRFMO sampling.

Sample storage

Where applicable, otoliths are stored at WMR, IJmuiden, the Netherlands.

Data processing
Evaluation of data accuracy (bias and precision): Y, pending detailed documentation for NPFC, methodology is similar to the method reported under SPRFMO. Editing and imputation methods: N, Data collected in the area are transferred to NLD for processing, further quality checks and transmission to NPFC while the exact procedures are still under development as the connection with NPFC is just in an early phase. Quality document associated to a dataset: N Validation of the final dataset: Data collected in NPFC are transferred to NLD for processing, further quality checks and transmission to NPFC.

Related to Table 2.6 [and Text Box 2.6] (commercial fisheries data collection)

Sampling scheme identifier: IBWSS, NHAS

MS : NLD
Region: North Sea & Eastern Arctic; North-East Atlantic
Sampling scheme identifier: IBWSS, NHAS
Sampling scheme type: Research survey at sea
Observation type: acoustic profiles
Time period of validity: 2025-2027
Short description (max 100 words): acoustic measurements during IBWSS and NHAS surveys, see RWP NANSEA 2025-2027
Description of the population
Population targeted: See survey-specific issues RWP NANSEA 2025-2027 Population sampled: The target species vary per survey, RWP NANSEA 2025-2027 Stratification: Survey stratification is defined in the survey-specific protocols: IBWSS: ICES Manual for International Pelagic Surveys (IPS) chapter 2.1.1 NHAS: ICES Manual for International Pelagic Surveys (IPS) chapter 2.1.5
Sampling design and protocols
Sampling design description: Sampling design is available in survey-specific protocols: IBWSS: ICES Manual for International Pelagic Surveys (IPS) chapter 2.1.1 NHAS: ICES Manual for International Pelagic Surveys (IPS) chapter 2.1.5 Is the sampling design compliant with the 4S principle?: NA Regional coordination: RWP NANSEA 2025-2027 Link to sampling design documentation: See above Design follows international recommendations: Y Link to sampling protocol documentation: Sampling protocols are available in survey-specific protocols: IBWSS: ICES Manual for International Pelagic Surveys (IPS) chapter 2.1.1 NHAS: ICES Manual for International Pelagic Surveys (IPS) chapter 2.1.5

Boois, I.J. de & A.S. Couperus 2023. Research surveys acoustic Atlantic (Survey_acou_Atlantic) factsheet survey_acou_atlantic (wur.nl) Boois, I.J. de & A.S. Couperus 2023. Research surveys acoustic North Sea (Survey_acou_NorthSea) factsheet survey_acou_northsea (wur.nl)
Protocol follows international recommendations: Y
Sampling implementation
Recording of refusal rate: NA
Monitoring of sampling progress within the sampling year: sampling progress is internationally monitored, under responsibility of the coordinating ICES survey working group. In case of delays of one of the countries, the sampling may be readjusted.
Data capture
Means of data capture: data capture and settings for acoustic instruments are described in ICES Manual for International Pelagic Surveys (IPS) chapter 3 Data capture documentation: See above. Quality checks documentation: Y. Acoustic profiles are scrutinised by the post-cruise group, meeting soon after the survey. The scrutinisation process is described in ICES Manual for International Pelagic Surveys (IPS) chapter 6.
Data storage
National database: There is no national database for acoustic data. On board the vessel there is a NAS drive staying permanently, powered through UPS (uninterrupted power supply). Additionally there is a portable NAS drive that synchronises itself to the ship's NAS. After the survey the portable NAS is taken back to the institute, where the data is also copied to a local NAS at the institute. This local NAS also contains final postprocessed files (i.e. LSSS). Ultimately, the data is stored at a storage server that has a back-up scheme. The ultimate outputs are stored in the ICES database. There is a copy of the data uploaded to the international database at the institute's network drive. International database: The processed acoustic data is transferred to the ICES data portal https://www.ices.dk/data/data-portals/Pages/acoustic.aspx Quality checks and data validation documentation: acoustic profiles are scrutinised and processed by the post-cruise group, meeting soon after the survey. The scrutinisation process is described in ICES Manual for International Pelagic Surveys (IPS) chapter 6. The post-cruise meetings report to ICES Working Group of International Pelagic Surveys (WGIPS), and the reports are part of the WGIPS report as Annexes, e.g. in https://doi.org/10.17895/ices.pub.8055
Sample storage
Storage description: not applicable
Sample analysis: not applicable
Data processing
Acoustic profiles are scrutinised and processed by the post-cruise group, meeting soon after the survey. The post-processing procedures are described in ICES Manual for International Pelagic Surveys (IPS) chapter 6. The post-cruise meetings report to ICES Working Group of International Pelagic Surveys (WGIPS), and the reports (survey summary table) are part of the WGIPS report as Annexes, e.g. in https://doi.org/10.17895/ices.pub.8055. The report also includes error evaluations and measures of uncertainty (CV). The survey summary table also allows for feedback by the end-user, as it contains the following questions to be answered by the assessment group:

Were any concerns raised during the meeting regarding the fitness of the survey for use in the assessment either for the whole times series or for individual years?

Did the Survey Summary Table contain adequate information to allow for evaluation of the quality of the survey for use in assessment? Please identify shortfalls

Sampling scheme identifier: BTS, IBTS_Q1, IBWSS, NHAS

MS : NLD
Region: North Sea & Eastern Arctic; North-East Atlantic
Sampling scheme identifier: BTS, IBTS_Q1, IBWSS, NHAS
Sampling scheme type: Research survey at sea
Observation type: hydrography (downcast)
Time period of validity: 2025-2027
Short description (max 100 words): hydrographic measurements during BTS, IBTS_Q1, IBWSS, NHAS surveys, see RWP NANSEA 2025-2027
Description of the population
Population targeted: NA
Population sampled: NA
Stratification: NA
Sampling design and protocols
Sampling design description: For the acoustic surveys (IBWSS, NHAS) the sampling locations are pre-defined, for the fish surveys (BTS, IBTS_Q1) the vertical downcasts are taken at the starting or end position of a fish trawl.
Is the sampling design compliant with the 4S principle?: NA
Regional coordination: sampling protocols follow international standards, e.g. defined in https://www.ices.dk/sites/pub/Publication%20Reports/Data%20Guidelines/Data_Guidelines_CTD_%20v7_revised_2006.pdf
Link to sampling design documentation:
BTS: ICES Survey Protocols – Offshore Beam Trawl Surveys, Coordinated by Working group on Beam Trawl Surveys (WGBEAM) (figshare.com)
IBTS_Q1: Manual for the International Bottom Trawl Surveys Revision IX chapter 5
IBWSS: ICES Manual for International Pelagic Surveys (IPS) chapter 5.1
NHAS: ICES Manual for International Pelagic Surveys (IPS) chapter 5.1
Design follows international recommendations: Y
Link to sampling protocol documentation:
Boois, I.J. de, D. Burggraaf, T. Pasterkamp 2023. Hydrographic data from research surveys (Survey_CTD) Factsheet: Hydrographic data from research surveys (Survey_CTD)
Apart from the protocols mentioned above, a Dutch protocol is available describing the exact way to collect hydrography data with the Seabird CTD. Dutch detailed documentation (available upon request, updated annually): Damme C.J.G. van, Blom E., Boois I. de, Burggraaf D., Couperus B., Hal R. van, Pasterkamp T. & Vrooman, J. 2024. CVO Handboek en protocollen voor bestandsopnamen en routinematige bemonsteringen op zee en in estuaria. Versie 18, februari 2024. CVO report: 24.003 (CVO_h003).
Protocol follows international recommendations: Y
Sampling implementation
Recording of refusal rate: NA

Monitoring of sampling progress within the sampling year: NA
Data capture
Means of data capture: data is automatically captured by the instrument while moving through the water column. Data is stored on board on a computer, powered through UPS (uninterrupted power supply), and a back-up of the files is made frequently during the survey. Files are taken to the institute for further processing.
Data capture documentation: Y https://www.seabird.com/sbe-911plus-ctd/product-downloads?id=60761421595
Quality checks documentation: Y https://www.ices.dk/sites/pub/Publication%20Reports/Data%20Guidelines/Data_Guidelines_CTD_%20v7_revised_2006.pdf
Data storage
National database: after processing, and a standardised quality check on outliers, the CTD downcast information is stored in the database WMR database FRISBE (Oracle relational database). Permanent access for WMR personnel after signing a form with general use instructions. Access to databases containing data collected DCF related data is described in the 'Protocol databases WMR' (in Dutch, available upon request). Different user access rights and restrictions apply for the databases. For data managers and database managers other access permissions apply, also described in the protocol. See factsheet proc_databases (wur.nl)
International database: the vertical profiles are stored in https://www.ices.dk/data/data-portals/Pages/ocean.aspx
For BTS and IBTS_Q1 surface and bottom temperature and surface and bottom salinity are stored in the haul information in the international database https://www.ices.dk/data/data-portals/Pages/DATRAS.aspx .
Quality checks and data validation documentation: https://www.ices.dk/data/data-portals/Pages/ocean.aspx
Sample storage
Storage description: NA
Sample analysis: NA
Data processing
Evaluation of data accuracy (bias and precision): NA
Editing and imputation methods: NA
Quality document associated to a dataset: NA
Validation of the final dataset: CTD downcast data are evaluated upon processing at the institute, before entry into the national database FRISBE, and by the end-user before acceptance in the international database.

Sampling scheme identifier: DYFS, IBTS_Q1, IHLS, IHLS-DRS, MEGS, SNS_NLD

MS : NLD
Region: North Sea & Eastern Arctic
Sampling scheme identifier: DYFS, IBTS_Q1, IHLS, IHLS-DRS, MEGS, SNS_NLD
Sampling scheme type: Research survey at sea
Observation type: hydrography (attached to net)
Time period of validity: 2025-2027

Short description (max 100 words): hydrographic measurements during DYFS, IBTS_Q1, IHLS, IHLS-DRS, MEGS, SNS_NLD surveys, by means of an instrument attached to the fishing gear (continuous measurements during haul)
Description of the population
Population targeted: NA
Population sampled: NA
Stratification: NA
Sampling design and protocols
Sampling design description: The instrument is attached to the net and provides temperature and salinity information at the depths of the fishing gear.
Is the sampling design compliant with the 4S principle?: NA
Regional coordination: there is no regional coordination on CTD sampling with instruments attached to the net. The sampling however follows directly the survey sampling design, as the data recording takes place during the plankton hauls or trawl hauls (see respective sampling design references).
Link to sampling design documentation: DYFS: ICES Survey Protocols – Manual for Inshore Beam Trawl Surveys, Coordinated by Working Group on Beam Trawl Surveys (WGBEAM) (figshare.com) SNS: ICES Survey Protocols – Manual for Inshore Beam Trawl Surveys, Coordinated by Working Group on Beam Trawl Surveys (WGBEAM) (figshare.com)
Design follows international recommendations: NA, no recommendations for continuous hydrographic measurements available
Link to sampling protocol documentation: Boois, I.J. de, D. Burggraaf, T. Pasterkamp 2023. Hydrographic data from research surveys (Survey_CTD) Factsheet: Hydrographic data from research surveys (Survey_CTD) A Dutch protocol (available upon request) is available describing the exact way to collect hydrography data with instruments attached to the net. Damme C.J.G. van, Blom E., Boois I. de, Burggraaf D., Couperus B., Hal R. van, Pasterkamp T. & Vrooman, J. 2024. CVO Handboek en protocollen voor bestandsopnamen en routinematige bemonsteringen op zee en in estuaria. Versie 18, februari 2024. CVO report: 24.003 (CVO_h003).
Protocol follows international recommendations: NA, no recommendations for continuous hydrographic measurements available
Sampling implementation
Recording of refusal rate: NA
Monitoring of sampling progress within the sampling year: NA
Data capture
Means of data capture: data is automatically captured by the instrument while moving through the water column. Data is stored on board on a computer, powered through UPS (uninterrupted power supply), and a back-up of the files is made frequently during the survey. Files are taken to the institute for further processing.
Data capture documentation: Y https://www.seabird.com/sbe-911plus-ctd/product-downloads?id=60761421595, https://www.ott.com/en-uk/products/water-quality-2/hydrolab-ds5-multiparameter-data-sonde-56/, https://www.valeport.co.uk/products/minictd-profiler/

Quality checks documentation: Y. Quality checks are conducted upon processing at the institute, and before entry into the national database FRISBE. Standardised SAS scripts are used for the data quality checks (available upon request).

DYFS: [ICES Survey Protocols – Manual for Inshore Beam Trawl Surveys, Coordinated by Working Group on Beam Trawl Surveys \(WGBEAM\) \(figshare.com\)](#)

SNS_NLD: [ICES Survey Protocols – Manual for Inshore Beam Trawl Surveys, Coordinated by Working Group on Beam Trawl Surveys \(WGBEAM\) \(figshare.com\)](#)

Dutch detailed documentation (available upon request, updated annually): Damme C.J.G. van, Blom E., Boois I. de, Burggraaf D., Couperus B., Hal R. van, Pasterkamp T. & Vrooman, J. 2024. CVO Handboek en protocollen voor bestandsopnamen en routinematige bemonsteringen op zee en in estuaria. Versie 18, februari 2024. CVO report: 24.003 (CVO_h003).

Data storage

National database: after processing, and a standardised quality check on outliers, the CTD information is stored in the database WMR database FRISBE (Oracle relational database). Permanent access for WMR personnel after signing a form with general use instructions.

Access to databases containing data collected DCF related data is described in the 'Protocol databases WMR' (in Dutch, available upon request). Different user access rights and restrictions apply for the databases. For data managers and database managers other access permissions apply, also described in the protocol. See [factsheet proc_databases \(wur.nl\)](#)

International database: surface and bottom temperature and surface and bottom salinity are stored in the haul information in the international databases <https://www.ices.dk/data/data-portals/Pages/Eggs-and-larvae.aspx> (IBTS_Q1, IHLS, IHLS-DRS, MEGS) and <https://www.ices.dk/data/data-portals/Pages/DATRAS.aspx> (DYFS, SNS_NLD). Storage in the Oceanographic database is not allowed, as the methodology does not comply with accepted hydrographic methodologies.

Quality checks and data validation documentation:

Dutch detailed documentation (available upon request, updated annually): Damme C.J.G. van, Blom E., Boois I. de, Burggraaf D., Couperus B., Hal R. van, Pasterkamp T. & Vrooman, J. 2024. CVO Handboek en protocollen voor bestandsopnamen en routinematige bemonsteringen op zee en in estuaria. Versie 18, februari 2024. CVO report: 24.003 (CVO_h003).

Sample storage

Storage description: NA

Sample analysis: NA

Data processing

Evaluation of data accuracy (bias and precision): NA

Editing and imputation methods: NA

Quality document associated to a dataset: NA

Validation of the final dataset: CTD data are evaluated upon processing at the institute, before entry into the national database FRISBE.

Sampling scheme identifier: BTS, DYFS, FYMA, IBTS_Q1, IBWSS, MEGS, NHAS, SNS_NLD

MS : NLD

Region: North Sea & Eastern Arctic; North-East Atlantic

Sampling scheme identifier: BTS, DYFS, FYMA, IBTS_Q1, IBWSS, MEGS, NHAS, SNS_NLD

Sampling scheme type: Research survey at sea

Observation type: trawl hauls
Time period of validity: 2025-2027
Short description (max 100 words): trawl hauls conducted during BTS, DYFS, FYMA, IBTS_Q1, IBWSS, MEGS, NHAS, SNS_NLD all follow similar protocols within WMR
Description of the population
Population targeted: Target population follows the survey design, see RWP NANSEA 2025-2027, and Text box 2.6 (FYMA). BTS: ICES Survey Protocols – Offshore Beam Trawl Surveys, Coordinated by Working group on Beam Trawl Surveys (WGBEAM) (figshare.com) DYFS: ICES Survey Protocols – Manual for Inshore Beam Trawl Surveys, Coordinated by Working Group on Beam Trawl Surveys (WGBEAM) (figshare.com) FYMA: https://doi.org/10.18174/633142 (in Dutch) IBTS_Q1: Manual for the International Bottom Trawl Surveys Revision IX IBWSS: ICES Manual for International Pelagic Surveys (IPS) MEGS: WGMEGS Manual for the AEPM and DEPM estimation of fecundity in mackerel and horse mackerel version 11.0, chapter 3 NHAS: ICES Manual for International Pelagic Surveys (IPS) SNS_NLD: ICES Survey Protocols – Manual for Inshore Beam Trawl Surveys, Coordinated by Working Group on Beam Trawl Surveys (WGBEAM) (figshare.com) Population sampled: BTS, DYFS, IBTS_Q1, SNS_NLD sample demersal marine species, see RWP NANSEA 2025-2027; IBWSS samples pelagic marine species, primarily focussing on <i>Micromesistius poutassou</i>, see RWP NANSEA 2025-2027, but sorting and measuring is done for all species from the trawl catches, including deep sea species; MEGS samples <i>Scomber scombrus</i> and <i>Trachurus trachurus</i>, trawl hauls only are done to collect biological data; NHAS samples pelagic marine species, primarily focussing on clupeid (<i>Clupea harengus</i>, <i>Sprattus sprattus</i>) species, see RWP NANSEA 2025-2027, and also taking into account gadoid (<i>Trisopterus minutus</i>, <i>Melanogrammus aeglefinus</i>) species visible at the acoustic profiles. From trawl catches all species are sorted and measured; FYMA samples demersal freshwater species, see Text box 2.6. Stratification: Stratification follows the (inter)national survey protocols, see RWP NANSEA 2025-2027, and Text box 2.6.
Sampling design and protocols
Sampling design description: Sampling design is described in the (inter)national survey protocols, RWP NANSEA 2025-2027, and for FYMA in text box 2.6 bullet 2. Is the sampling design compliant with the 4S principle?: NA Regional coordination: RWP NANSEA 2025-2027, and for FYMA in text box 2.6 Link to sampling design documentation: RWP NANSEA 2025-2027, and for FYMA in text box 2.6 Design follows international recommendations: Y Link to sampling protocol documentation: RWP NANSEA 2025-2027, and for FYMA in text box 2.6 General procedure: After the haul comes on board, the catch is sorted. Species are identified to the lowest taxonomic level possible or relevant for the survey. Detailed identification is sometimes time-consuming, and there needs to be a balance between added value of the more detailed identification and the time (i.e. costs) needed more detailed

identification. In general, species are identified to the species level. Length measurements are done for all fish species (finfish and elasmobranchs), Cephalopods, *Cancer pagurus*, *Nephrops norvegicus*, *Homarus gammarus*; measurement accuracy in line with (inter)national standards. During DYFS also length measurements of *Crangon crangon* are taken. Other species (e.g. decapods, bivalves, gastropods) are counted and, depending on the personnel available, weighed. If subsampling takes place, the minimum subsample size for length measurements is 50 specimens if measured to the cm or 0.5 cm below, and 100 if measured to the mm below.

For a selection of species biological information is collected. Elasmobranchs, *Cancer pagurus*, *Nephrops norvegicus*, *Homarus gammarus* are measured by sex. Individual length, weight, sex and sexual maturity information is collected and otoliths are taken from species listed in the (inter)national protocols (see text box 2.6 for the respective surveys).

Protocol follows international recommendations: Y

Sampling implementation

Recording of refusal rate: NA

Monitoring of sampling progress within the sampling year: Normally, the survey time should fit to the number of samples planned. If, due to weather conditions or other unforeseen circumstances the planned schedule cannot be carried out, the scientist in charge contacts the responsible person at the institute to decide upon a change of schedule. If needed, the international survey coordination group is contacted. For acoustic surveys (IBWSS, NHAS), MEGS and IBTS_Q1 frequent international feedback on the progress takes place, and international planning is re-arranged when needed.

Data capture

Means of data capture: length measurements are done using an analogue measuring board, of which the set-off is checked before the start of the survey. Wet weights are taken using electronic scales, to the gram or 5 grammes (depending on the sample size). Scales are maintained annually and calibrated at least daily. Data is mostly entered in the computer directly, using a head-set if the distance is too far to directly speak to each other. Software used for data entry is in-house developed: Billie Turf. If data cannot be entered directly (FYMA), measurements are written down on specific measurement lists, and data is entered as soon as possible (FYMA: at least on the same day). For all surveys the majority of the trawl information (date, time, position, haul duration) is registered automatically, using an external GPS or the vessel's system information. This information is transformed by in-house developed software (TRIHIP/IHIP) to the exchange format needed by Billie Turf, so redundancy in data entry is minimised.

Individual length measurements for fish used for biological data collection are done using an analogue measuring board, of which the set-off is checked before the start of the survey. Individual wet weights are taken using electronic scales, to the gram. Scales are maintained annually and calibrated at least daily. Data is noted down on paper and entered in the computer directly after processing the fish. After the fish selected for biological sampling has been treated following national animal welfare conditions, the otoliths are collected, and sex and -if relevant- maturity is registered by opening the body cavity.

Species identification workshops for demersal and pelagic marine species as well as freshwater species are organised on an annual to triennial basis, and reported upon in internal reports (available upon request). All personnel at WMR is allowed to participate, for personnel directly contributing to the research surveys, frequent participation is mandatory to keep a view on species identification quality.

Maturity staging follows international standards [Report of the Workshop for Advancing Sexual Maturity Staging in Fish \(WKASMSF\) \(ices.dk\)](#)

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](#). Age readers are qualified based on international age reading exchange results. For species outside the international age reading exchanges (non-commercial species), a national age reading qualification procedure is in place.

Gonad samples for histology (MEGS only) are stored on 3.6% buffered formaldehyde and processed upon arrival ashore, following the international protocol: [WGMEGS Manual for the AEPM and DEPM estimation of fecundity in mackerel and horse mackerel \(ices.dk\)](#).

Data capture documentation:

Boois, I.J. de & A.S. Couperus 2023. Research surveys acoustic Atlantic (Survey_acou_Atlantic) [factsheet survey_acou_atlantic \(wur.nl\)](#)

Boois, I.J. de & A.S. Couperus 2023. Research surveys acoustic North Sea (Survey_acou_NorthSea) [factsheet survey_acou_northsea \(wur.nl\)](#)

Boois, I.J. & C.J.G. van Damme 2023. Research surveys ichthyoplankton North Sea (Survey_plankton_Atlantic) [FACTSHEET survey_plankton_atlantic \(wur.nl\)](#)

Boois, I.J. de, R. van Hal, J. Vrooman 2023. Research surveys demersal trawl North Sea (Survey_dem) [factsheet survey_dem \(wur.nl\)](#)

Dutch detailed documentation on survey protocols BTS, DYFS, IBTS_Q1, IBWSS, MEGS, NHAS, SNS_NLD (available upon request, updated annually): Damme C.J.G. van, Blom E., Boois I. de, Burggraaf D., Couperus B., Hal R. van, Pasterkamp T. & Vrooman, J. 2024. CVO Handboek en protocollen voor bestandsopnamen en routinematige bemonsteringen op zee en in estuaria. Versie 18, februari 2024. CVO report: 24.003 (CVO_h003). Dutch detailed documentation on survey protocols FYMA: <https://doi.org/10.18174/633142>

Dutch detailed documentation on otolith processing and age reading (available upon request): Pennock I., Hal R. van, Hoek R., Vries M. de, Pasterkamp Th., Koelemij E., Beintema J., Bakker A., Huijter T., Meeren N. van der (2024), Handboek leeftijdsbepalingen (versie 4.0), CVO rapport: 24.019

International documentation on histological data capture (MEGS only): [WGMEGS Manual for the AEPM and DEPM estimation of fecundity in mackerel and horse mackerel \(ices.dk\)](#).

Quality checks documentation: Y

Quality checks are conducted upon processing at the institute, and before entry into the national database FRISBE. Standardised SAS scripts are used for the data quality checks (available upon request). Essentially, the trawl haul data are checked for outliers on numerical values (either by plotting or by providing minimum, mean, and maximum values), consistency in text variables (e.g. station coding, crew members), and a visual check of the species list by the scientist in charge.

Dutch detailed documentation on quality checks BTS, DYFS, IBTS_Q1, IBWSS, MEGS, NHAS, SNS_NLD (available upon request, updated annually): Damme C.J.G. van, Blom E., Boois I. de, Burggraaf D., Couperus B., Hal R. van, Pasterkamp T. & Vrooman, J. 2024. CVO Handboek en protocollen voor bestandsopnamen en routinematige bemonsteringen op zee en in estuaria. Versie 18, februari 2024. CVO report: 24.003 (CVO_h003).

Data storage

National database: after processing, and a standardised quality check on outliers, the trawl haul information for all surveys is stored in the database WMR database FRISBE (Oracle relational database). Permanent access for WMR personnel after signing a form with general use instructions.

Access to databases containing data collected DCF related data is described in the 'Protocol databases WMR' (in Dutch, available upon request). Different user access rights and restrictions apply for the databases. For data managers and database managers other access permissions apply, also described in the protocol. See [factsheet proc_databases \(wur.nl\)](#)

Histological data is stored on network drives as .csv files, as it is not yet possible to store the information in one of the WMR databases.

International database:

BTS, DYFS, IBTS_Q1, SNS trawl haul (trawl, catch and biological information) data are stored in https://www.ices.dk/data/data-portals/Pages/DATRAS.aspx IBWSS and NHAS trawl haul data are stored in https://www.ices.dk/data/data-portals/Pages/acoustic.aspx Quality checks and data validation documentation: the database Frisbe also conducts data validation checks during the import. Documentation of those checks is available upon request.
Sample storage Storage description: Otoliths are archived at Wageningen Marine Research without time limitation. SmartDots images are stored in the local SmartDots data structure. Access can be requested through the age reading coordinator. Other than the Dutch DCF annual reports (https://datacollection.jrc.ec.europa.eu/ars) no specific overview of the quantities of samples by species/stock, geographic sub-area by year exist. SmartDots images are stored in the local SmartDots data structure protected by access protocols and other safe guards concerning back-up, redundancy and version control. Gonad samples for histological analysis are stored at Wageningen Marine Research, in a container suitable for formaldehyde sample storage. Samples are stored for at least five years. If specimens are brought to the institute for species identification, then those are stored in the freezer. Other than the Dutch DCF annual reports (https://datacollection.jrc.ec.europa.eu/ars) no specific overview of the quantities of (otolith or gonad) samples by species/stock, geographic sub-area by year exist. Sample analysis: Otoliths are embedded in resin and sliced. Images are taken from the otolith coupes. Age reading takes place from those pictures using the institute's (in-house further developed) version of SmartDots. Age readers are qualified based on international age reading exchange results. For species outside the international age reading exchanges (non-commercial species), a national age reading qualification is in place. MEGS: Gonad samples for histology are stored on 3.6% buffered formaldehyde and processed upon arrival ashore, following the international protocol: WGMEGS Manual for the AEPM and DEPM estimation of fecundity in mackerel and horse mackerel (ices.dk). Fecundity images are stored on a network drive protected by access protocols and other safe guards concerning back-up.
Data processing Evaluation of data accuracy (bias and precision): Y For IBWSS and NHAS data evaluation takes place in the post-cruise meetings (report in the WGIPS report) N/Y For BTS, DYFS, IBTS_Q1, MEGS, SNS there is no direct evaluation of data accuracy of the trawl hauls. Coordinating survey groups conduct some analyses for the international data set, not only on e.g. the year classes, but also on species identification consistency. The assessment groups evaluate the survey series as a whole. Editing and imputation methods: Y For IBWSS and NHAS editing and imputation may be done during or as a result of the post-cruise meetings (report in the WGIPS report) N For BTS, DYFS, IBTS_Q1, MEGS, SNS editing and imputation only takes place when odd values are encountered. Corrections then are done in the institute's data and a new dataset is submitted to the international database, mentioning the corrections done. Quality document associated to a dataset: N Validation of the final dataset: The international data portals conduct consistency checks on the trawl data, next to the national checks before entry in the national database. The coordinating survey groups analyse last year's

survey data before the stock assessments take place. However, as soon as the dataset has been submitted to the international database, the information is available to everyone.

Sampling scheme identifier: IBTS_Q1, IHLS, IHLS_DRS, MEGS

MS : NLD
Region: North Sea & Eastern Arctic; North-East Atlantic
Sampling scheme identifier: IBTS_Q1, IHLS, IHLS_DRS, MEGS
Sampling scheme type: Research survey at sea
Observation type: plankton hauls
Time period of validity: 2025-2027
Short description (max 100 words): plankton hauls conducted during IBTS_Q1, IHLS, IHLS_DRS, MEGS all follow similar protocols within WMR
Description of the population
Population targeted: Target population follows the survey design. For IBTS_Q1, IHLS and IHLS_DRS target population is primarily Clupeid larvae, for MEGS primary focus is <i>Scomber scombrus</i> and <i>Trachurus trachurus</i> eggs. Despite the focus on a selection of species, samples from plankton hauls contain the complete catch and may be sorted to get information on early life stages of other species in the sample area. Population sampled: the early life stages are sampled in or near spawning regions. Stratification: Stratification follows the (inter)national survey protocols, see RWP NANSEA 2025-2027, and Text box 2.6 (IHLS-DRS).
Sampling design and protocols
Sampling design description: Sampling design is described in the (inter)national survey protocols, see RWP NANSEA 2025-2027, and Text box 2.6 (IHLS-DRS). Is the sampling design compliant with the 4S principle?: NA Regional coordination: see RWP NANSEA 2025-2027, and Text box 2.6 (IHLS-DRS). Link to sampling design documentation: see RWP NANSEA 2025-2027, and Text box 2.6 (IHLS-DRS). Design follows international recommendations: Y Link to sampling protocol documentation see RWP NANSEA 2025-2027, and Text box 2.6 (IHLS-DRS). Protocol follows international recommendations: Y
Sampling implementation
Recording of refusal rate: NA Monitoring of sampling progress within the sampling year: Normally, the survey time should fit to the number of samples planned. If, due to weather conditions or other unforeseen circumstances the planned schedule cannot be carried out, the scientist in charge contacts the responsible person at the institute to decide upon a change of schedule. If needed, the international survey coordination group is contacted. For MEGS and IBTS_Q1 frequent international feedback on the progress takes place, and international planning is re-arranged when needed.
Data capture
Means of data capture: The majority of the trawl information (date, time, position, haul duration) is registered automatically, using the vessel's system information. This information is transformed by in-house developed software (TRIHIP/Gulf) to the exchange format needed by Billie Turf, so redundancy in data entry is minimised.

After the plankton haul comes on board, the sample is sieved over a fine mesh (size depends on component targeted), and stored in jars with 4% buffered formaldehyde.

IBTS_Q1, IHLS, IHLS_DRS: Upon arrival ashore, the samples are processed in the lab. All fish larvae are sorted from the sample, Clupeid larvae are identified to the species and per species the sample, or a representative subsample of a pre-defined minimum size (50 for samples with > 100 larvae, 25 for samples with 50-100 larvae) is measured to the mm below using an analogue measuring board.

MEGS: after 12-24 fixation all eggs are sorted from the sample, using the spray method (Eltink, 2007). The leftover is checked visually on remaining eggs. All eggs are photographed, measured digitally in ObjectJ/ImageJ, identified to the species and development stage. A minimum of 100 mackerel and horse mackerel have to be identified. If a sample contains more than 200 eggs of the species, then a subsample can be taken using a 'Folsom splitter' (Griffiths *et al.* 1984). Upon arrival ashore the samples are again checked visually for remaining eggs.

Data capture documentation:

Boois, I.J. & C.J.G. van Damme 2023. Research surveys ichthyoplankton North Sea (Survey_plankton _Atlantic) [FACTSHEET survey_plankton_atlantic \(wur.nl\)](#)

Boois, I.J. & C.J.G. van Damme 2023. Research surveys ichthyoplankton North Sea (Survey_plankton _NorthSea) [factsheet survey_plankton_northsea \(wur.nl\)](#)

Dutch detailed documentation on survey protocols (available upon request, updated annually): Damme C.J.G. van, Blom E., Boois I. de, Burggraaf D., Couperus B., Hal R. van, Pasterkamp T. & Vrooman, J. 2024. CVO Handboek en protocollen voor bestandsopnamen en routinematige bemonsteringen op zee en in estuaria. Versie 18, februari 2024. CVO report: 24.003 (CVO_h003).

Detailed information on spray method: Eltink, A.T.G.W. 2007. The spray technique: A new method for an efficient separation of fish eggs from plankton. Journal of Plankton Research 29(10): 871-880. <https://doi.org/10.1093/plankt/fbm065>.

Documentation on folsom splitter: Griffiths, F. B., Brown, G. H., Reid, D. D., and Parker, R. R. 1984. Estimation of sample zooplankton abundance from Folsom splitter sub-samples. Journal of Plankton Research 6(5): 721-731.

Quality checks documentation: Y

Quality checks are conducted upon processing at the institute, and before entry into the national database FRISBE. Standardised SAS scripts are used for the data quality checks (available upon request). Essentially, the trawl haul data are checked for outliers on numerical values (either by plotting or by providing minimum, mean, and maximum values), consistency in text variables (e.g. station coding, crew members), and a visual check of the species list by the scientist in charge.

Dutch detailed documentation on quality checks (available upon request, updated annually): Dutch detailed documentation on survey protocols BTS, DYFS, IBTS_Q1, IBWSS, MEGS, NHAS, SNS_NLD (available upon request, updated annually): Damme C.J.G. van, Blom E., Boois I. de, Burggraaf D., Couperus B., Hal R. van, Pasterkamp T. & Vrooman, J. 2024. CVO Handboek en protocollen voor bestandsopnamen en routinematige bemonsteringen op zee en in estuaria. Versie 18, februari 2024. CVO report: 24.003 (CVO_h003).

Data storage

National database: after processing, and a standardised quality check on outliers, the trawl haul information for all surveys is stored in the database WMR database FRISBE (Oracle relational database). Permanent access for WMR personnel after signing a form with general use instructions. Access to databases containing data collected DCF related data is described in the 'Protocol databases WMR' (in Dutch, available upon request). Different user access rights and restrictions apply for the databases. For data managers and database managers other access permissions apply, also described in the protocol. See [factsheet proc_databases \(wur.nl\)](#)

International database: Plankton haul data are stored in https://www.ices.dk/data/data-portals/Pages/Eggs-and-larvae.aspx Quality checks and data validation documentation: Y. The database Frisbe also conducts data validation checks during the import. Documentation of those checks is available upon request.
Sample storage Storage description: plankton samples are stored at Wageningen Marine Research, in a container suitable for formaldehyde sample storage. Samples are stored for at least five years. Other than the Dutch DCF annual reports (https://datacollection.jrc.ec.europa.eu/ars) where the number of plankton samples is registered, no specific overview of the quantities of (otolith or gonad) samples by species/stock, geographic sub-area by year exist. Sample analysis: IBTS_Q1, IHLS, IHLS_DRS: Upon arrival ashore, the samples are processed in the lab. All fish larvae are sorted from the sample, Clupeid larvae are identified to the species and per species the sample, or a representative subsample of a pre-defined minimum size (50 for samples with > 100 larvae, 25 for samples with 50-100 larvae) is measured to the mm below using an analogue measuring board. MEGS: after 12-24 fixation all eggs are sorted from the sample, using the spray method (Eltink, 2007). The leftover is checked visually on remaining eggs. All eggs are photographed, measured digitally in ObjectJ/ImageJ, identified to the species and development stage. A minimum of 100 mackerel and horse mackerel have to be identified. If a sample contains more than 200 eggs of the species, then a subsample can be taken using a 'Folsom splitter' (Griffiths <i>et al.</i> 1984). Upon arrival ashore the samples are again checked visually for remaining eggs. National calibration workshops for sample sorting and species identification are organised and reported upon in internal reports (available upon request) annually for Clupeid larvae, and for egg identification related to the survey year. Participation is mandatory for personnel sorting and identifying ichthyoplankton.
Data processing Evaluation of data accuracy (bias and precision): Coordinating survey groups conduct some analyses for the international data set. The assessment groups evaluate the survey series as a whole. Editing and imputation methods: editing and imputation only takes place when odd values are encountered. Corrections then are done in the institute's data and a new dataset is submitted to the international database, mentioning the corrections done. Quality document associated to a dataset: N Validation of the final dataset: The international data portal conducts consistency checks on the trawl data, next to the national checks before entry in the national database. The coordinating survey groups analyse last year's survey data before the stock assessments take place. However, as soon as the dataset has been submitted to the international database, the information is available to everyone.

Sampling scheme identifier: IBTS_Q1, BTS

MS : NLD
Region: North Sea & Eastern Arctic; North-East Atlantic
Sampling scheme identifier: IBTS_Q1, BTS
Sampling scheme type: Research survey at sea
Observation type: litter hauls
Time period of validity: 2025-2027
Short description (max 100 words): the litter hauls are processed in a similar manner: after the haul comes on board, the catch is sorted and litter is taken out. Litter items are identified, counted, weighed, size category is

defined. For each litter item is registered if and, if yes, what species are attached to the item. Detailed identification of attached species is sometimes time-consuming, and there needs to be a balance between added value of the more detailed identification and the time (i.e. costs) needed more detailed identification. In general, species are identified to the species level.
Description of the population
Population targeted: NA
Population sampled: NA
Sampling design and protocols
Sampling design description: Sampling design is described in the (inter)national survey protocols, RWP NANSEA 2025-2027
Is the sampling design compliant with the 4S principle?: NA
Regional coordination: RWP NANSEA 2025-2027
Link to sampling design documentation: RWP NANSEA 2025-2027
Design follows international recommendations: Y
Link to sampling protocol documentation: The data collection procedure is in line with the at that time actual guidelines described by the ICES working group on Marine Litter (WGML; ICES Techniques in Marine Environmental Sciences Vol. 67. 16 pp. https://doi.org/10.17895/ices.pub.21435771 . Sampling takes place according to the updated manual.)
Protocol follows international recommendations: Y
Sampling implementation
Recording of refusal rate: NA
Monitoring of sampling progress within the sampling year: follows trawl survey sampling progress (see Type of activities: 'Trawl hauls').
Data capture
Means of data capture: Wet weights are taken using electronic scales, to the gram. Scales are maintained annually and calibrated at least daily. Data is directly entered in the computer in an Excel sheet.
Data capture documentation: Boois, I.J. de 2023. Seafloor litter sampling from demersal, trawl surveys (Survey_litter) factsheet survey_litter (wur.nl) Dutch detailed documentation on survey protocols BTS, IBTS_Q1 (available upon request, updated annually): Damme C.J.G. van, Blom E., Boois I. de, Burggraaf D., Couperus B., Hal R. van, Pasterkamp T. & Vrooman, J. 2024. CVO Handboek en protocollen voor bestandsopnamen en routinematige bemonsteringen op zee en in estuaria. Versie 18, februari 2024. CVO report: 24.003 (CVO_h003).
Quality checks documentation: N
Data storage
National database: litter data is entered in Excel sheets which are transposed to the exchange format for storage in the database WMR database FRISBE (Oracle relational database). Permanent access for WMR personnel after signing a form with general use instructions. Access to databases containing data collected DCF related data is described in the 'Protocol databases WMR' (in Dutch, available upon request). Different user access rights and restrictions apply for the databases. For data managers and database managers other access permissions apply, also described in the protocol. See factsheet proc_databases (wur.nl)

International database: Litter data is stored in https://www.ices.dk/data/data-portals/Pages/DATRAS.aspx
Quality checks and data validation documentation: NA
Sample storage
Storage description: NA
Sample analysis: Litter items are identified, counted, weighed, size category is defined. For each litter item is registered if and, if yes, what species are attached to the item.
Data processing
Evaluation of data accuracy (bias and precision): Unknown
Editing and imputation methods: Unknown
Quality document associated to a dataset: NA
Validation of the final dataset: Unknown

Related to Table 4.1 (stomach sampling)

Sampling scheme identifier: IBTS_Q1

MS : NLD
Region: North Sea & Eastern Arctic; North-East Atlantic
Sampling scheme identifier: IBTS_Q1
Sampling scheme type: Research survey at sea
Observation type: stomach content
Time period of validity: 2025-2027
Short description (max 100 words): For processing trawl hauls: see Type of sampling activity ‘Trawl hauls’. After the fish selected for stomach sampling has been treated following national animal welfare conditions, the stomach is collected and stored following the international protocol in Annex 5 of https://www.ices.dk/sites/pub/CM%20Documents/CM-2010/SSGSUE/wgsam10.pdf RWP NANSEA 2025-2027 describes the stomach sampling planning. No international decision has yet been taken on the stomach samples processing. The Netherlands however only collects stomachs sampled during the IBTS Q1 as the Netherlands is not participating to IBTS Q3. See also factsheet stomach (wur.nl)
Description of the population
Population targeted: RWP NANSEA 2025-2027
Population sampled: RWP NANSEA 2025-2027
Sampling design and protocols
Sampling design description: RWP NANSEA 2025-2027 MS comment: the history of the numbers to be collected for the minor species (often < 1) is unclear. Stomach collection of minor species depends on its availability and numbers cannot be planned beforehand.
Is the sampling design compliant with the 4S principle?: NA
Regional coordination: by RCG ISSG on stomach sampling under the RCG NANSEABAL.

Link to sampling design documentation: RWP NANSEA 2025-2027 https://www.fisheries-rcg.eu/rcg-nansea/
Design follows international recommendations: Y
Link to sampling protocol documentation: Annex 5 in Report of the Working Group on Multispecies Assessment Methods (WGSAM) (ices.dk)
Protocol follows international recommendations: Y
Sampling implementation
Recording of refusal rate: NA
Monitoring of sampling progress within the sampling year: follows IBTS_Q1 trawl survey sampling progress (see Type of activities: trawl hauls).
Data capture
Means of data capture: individual length measurements are done using an analogue measuring board, of which the set-off is checked before the start of the survey. Individual wet weights are taken using electronic scales, to the gram. Scales are maintained annually and calibrated at least daily. Data is noted down on paper and entered in the computer directly after processing the fish. Species identification workshops for demersal and pelagic marine species are organised on an annual to triennial basis, and reported upon in internal reports (available upon request). All personnel at WMR is allowed to participate, for personnel directly contributing to the research surveys, frequent participation is mandatory to keep a view on species identification quality. Data capture documentation: Boois, I.J. de 2023. Fish stomach sampling from demersal research trawl surveys (Stomach) factsheet stomach (wur.nl) Dutch detailed documentation on survey protocols BTS, DYFS, IBTS_Q1, IBWSS, MEGS, NHAS, SNS_NLD (available upon request, updated annually): Damme C.J.G. van, Blom E., Boois I. de, Burggraaf D., Couperus B., Hal R. van, Pasterkamp T. & Vrooman, J. 2024. CVO Handboek en protocollen voor bestandsopnamen en routinematige bemonsteringen op zee en in estuaria. Versie 18, februari 2024. CVO report: 24.003 (CVO_h003).
Quality checks documentation: Y Quality checks on the individual fish follow the same route as described in Type of sampling activities 'Trawl hauls'.
Data storage
National database: after processing, and a standardised quality check on outliers, the individual fish information for is stored in the WMR database FRISBE (in line with Type of sampling activities 'Trawl hauls'). Permanent access for WMR personnel after signing a form with general use instructions. Access to databases containing data collected DCF related data is described in the 'Protocol databases WMR' (in Dutch, available upon request). Different user access rights and restrictions apply for the databases. All databases below are relational Oracle databases. For data managers and database managers other access permissions apply, also described in the protocol. See factsheet proc_databases (wur.nl) International database: Individual fish data is stored in https://www.ices.dk/data/data-portals/Pages/DATRAS.aspx International storage of stomach content data will follow international recommendations. Quality checks and data validation documentation: the database Frisbe also conducts data validation checks during the import. Documentation of those checks is available upon request.
Sample storage

Storage description: Stomachs are stored in a labelled box in one of the freezers (-20°C) at Wageningen Marine Research.

Sample analysis: to be decided upon

Data processing

Evaluation of data accuracy (bias and precision): Unknown, will become available when further international decisions on stomach analyses and data processing have been taken.

Editing and imputation methods: Unknown, will become available when further international decisions on stomach analyses and data processing have been taken.

Quality document associated to a dataset: NA

Validation of the final dataset: Unknown, will become available when further international decisions on stomach analyses and data processing have been taken.

ANNEX 1.2 - QUALITY REPORT FOR SOCIOECONOMIC DATA SAMPLING SCHEME

The quality report fulfils Article 6 (3) (d) of the Regulation (EU) 2017/1004. This document is intended to specify data to be collected under chapter II, points 3, 5, 6, and 7 of the Delegated Decision annex: Socioeconomic data on fisheries, aquaculture and any complementary data collection of fishing activity and fish processing.

Sampling scheme identifier: RWP_ECON

Survey Specifications
<i>'Sector name' refers to socio economic data on fisheries, aquaculture and any complementary data collection of fishing activity and processing as given in the EU MAP Delegated Decision annex.</i> <i>'Sampling scheme' refers to survey technique: by census, by sampling, random or non-random, other (with explanation). If sampling, then outline sampling design.</i> <i>'Variables' refer to Tables 7, 9 and 10 of the EU MAP Delegated Decision annex.</i> <i>'Supra region' refers to Table 2 of the EU MAP Implementing Decision annex. If the sampling scheme is the same in all supra regions put 'All supra regions'.</i>
Sector name(s): RWP ECON 2025-2027
Sampling scheme:
Variables:
Supra region(s):
Survey planning
Survey design and strategy
1. Data sources: 2. Sample sizes: 3. Survey methods: 4. Additional information used in the survey strategy:
Estimation design
1. Calculation method for population estimate: 2. Calculation method for derived data:. 3. Nonresponse handling:
Error checks
Data storage and documentation
1. Data storage:. 2. Documentation:
Revision

Confidentiality	
1.	Are procedures for confidential data handling in place and documented?
2.	Are protocols to enforce confidentiality between DCF partners in place and documented?
3.	Are protocols to enforce confidentiality with external users in place and documented?
4.	Are there any issues with publication of data due to confidentiality reasons? Provide an explanation.

Sampling scheme identifier: Complementary dataActivityC

Survey Specifications
<i>'Sector name' refers to socio economic data on fisheries, aquaculture and any complementary data collection of fishing activity and processing as given in the EU MAP Delegated Decision annex.</i> <i>'Sampling scheme' refers to survey technique: by census, by sampling, random or non-random, other (with explanation). If sampling, then outline sampling design.</i> <i>'Variables' refer to Tables 7, 9 and 10 of the EU MAP Delegated Decision annex.</i> <i>'Supra region' refers to Table 2 of the EU MAP Implementing Decision annex. If the sampling scheme is the same in all supra regions put 'All supra regions'.</i>
Sector name(s): RWP ECON 2025-2027 Dredgers and Large pelagic trawlers
Sampling scheme: census
Variables: Fish Average prices per species, Value of landings total and per commercial species
Supra region(s): All supra regions
Survey planning
The population for this sampling scheme consists of 6 vessels of the segment Pelagic trawlers 40 m or larger and 7 Dredgers.
Survey design and strategy
Data on value of landings and fish prices from the large pelagic trawlers are retrieved from the accounts of all vessels in this segment, together with the economic information from the FisheriesCTrawlers survey. Survey design and strategy is the same as for this survey. Data on value of landings and fish prices from the dredgers are retrieved by means of questionnaires from the vessels in this segment, together with the economic information from the FisheriesCOtherCoastal survey. Survey design and strategy is the same as for this survey.
Estimation design
Estimation design for the data from the pelagic trawlers is the same as for the FisheriesCTrawlers survey.

Estimation design for the data from the dredgers is the same as for the FisheriesCOtherCoastal survey.
Error checks
Error checks for the data from the pelagic trawlers are the same as for the FisheriesCTrawlers survey. Error checks for the data from the dredgers is the same as for the FisheriesCOtherCoastal survey.
Data storage and documentation
1. Data storage: Data storage for the data from the pelagic trawlers are the same as for the FisheriesCTrawlers survey. Data storage for the data from the dredgers is the same as for the FisheriesCOtherCoastal survey. 2. Documentation: https://edepot.wur.nl/570634
Revision
The data processing procedures have been evaluated in 2021.
Confidentiality
1. Are procedures for confidential data handling in place and documented? Yes. Data are stored in secure databases (two factor authentication) which are only accessible by the persons who work with the data and have signed a nondisclosure agreement. 2. Are protocols to enforce confidentiality between DCF partners in place and documented? Yes, a processing agreement has been signed for the use of auxiliary information 3. Are protocols to enforce confidentiality with external users in place and documented? Privacy sensitive data is not exchanged with external users. All panel members have signed an authorization to use their data. 4. Are there any issues with publication of data due to confidentiality reasons? No

Sampling scheme identifier: FisheriesPSSCutters

Survey Specifications
<i>'Sector name' refers to socio economic data on fisheries, aquaculture and any complementary data collection of fishing activity and processing as given in the EU MAP Delegated Decision annex.</i> <i>'Sampling scheme' refers to survey technique: by census, by sampling, random or non-random, other (with explanation). If sampling, then outline sampling design.</i> <i>'Variables' refer to Tables 7, 9 and 10 of the EU MAP Delegated Decision annex.</i> <i>'Supra region' refers to Table 2 of the EU MAP Implementing Decision annex. If the sampling scheme is the same in all supra regions put 'All supra regions'.</i>
Sector name(s): RWP ECON 2025-2027 Cutter sector
Sampling scheme: stratified random sampling
Variables: All economic variables
Supra region(s): All Supra regions

Survey planning

The population for this sampling scheme consists of vessels using active gears (beam trawls and other trawls and seines) with a length of 12 meter or more, which are included in the following segments:

- Beam trawlers 12-< 18 m
- Beam trawlers 18-< 24 m
- Beam trawlers 24-< 40 m
- Beam trawlers 40 m or larger
- Demersal trawlers and/or demersal seiners 18-< 24 m
- Demersal trawlers and/or demersal seiners 24-< 40

Survey design and strategy

Data are retrieved directly from the ledger and fiscal annual reports of a panel of 75 vessels. The data collection takes place either on site (accountants office of fishermen's home) or at the office. Auxiliary information on technical characteristics of the fleet and logbook data is available via access to the official data bases.

In order to prevent long-term bias in the panel around 5%-10% of the panel members are renewed annually.

Detailed data on costs and earnings is obtained from the company accounts at the lowest level of detail. For cost items such as crew costs or fuel costs the level of data collection is the fishing trip. In combination with the independent data from logbooks on fishing activities of all vessels, this enables the estimation of the cost structure for each of the main fishing techniques in this part of the fleet (see also estimation design). In order to do so, sampling rates for each of the fishing techniques should be sufficiently high.

Sample size was determined based on an overall sampling proportion of 30% of the population in order to allow for high quality estimates of the economic performance of the sector and all subsectors and fishing methods. In addition to the EU stratification, the cutters in the Dutch national program are also stratified according to the engine power classes. For these vessels using active gears, this stratification is more meaningful as the fishing opportunities (e.g., possibility to fish in the 12-mile zone) is managed according to engine power. Within the fleet 5 engine power classes are distinguished:

- 0-260 hp (small shrimp vessels): sampling rate 20%
- 261-300 hp (euro cutters using various fishing techniques): sampling rate 25%
- 301-800 hp (cutters with intermediate engine powers using various fishing techniques): sampling rate 50%
- 801-1500 hp (cutters with intermediate engine powers using various fishing techniques): sampling rate 58%
- 1500-2000 hp (cutters with large engine power using predominantly various beam trawls): sampling rate 40%

Especially in case of vessel of 24=<40 m, this stratification results in much more homogeneous strata than the EU stratification in which vessels of 24 m, having an engine power of 300 hp are combined with engines of 40 m and an engine power of almost 2000 hp.

The sampling proportion for each of the segments is adjusted based on the characteristics of the fleet segment using the following rules of thumb:

- Contribution to the total fleet economics (based on landings value). Fleet segments with vessels that contribute more to total landings value are sampled more intensely (Sampling with probability proportional to size).
- Diversity of the fishing activities (based on logbook information), to ensure sufficient coverage of all fishing techniques
- Size of the fleet segment (minimum number of vessels in order to prevent the risk of too low sampling rate in case one of the panel members drops out).

This allocation of sampling units resembles multivariate allocation.

Based on the overlap of the hp-classes with the EU segments the resulting sampling rates of the fleet segments are:

- Beam trawlers 12-< 18 m: 40%
- Beam trawlers 18-< 24 m: 25%
- Beam trawlers 24-< 40 m: 25%
- Beam trawlers 40 m-<: 45%
- Demersal trawlers and/or demersal seiners 18-< 24 m: 25%
- Demersal trawlers and/or demersal seiners 24-< 40 m: 50%.

As the total costs are estimated using various methods among which regression analyses (see section on estimation design), for each of the segments sampling units cover the range of independent variables (e.g., effort) is within each of the segments

Logbook data and data from annual tax accounts are used to cross reference the accounts data.

Estimation design

4. Calculation method for population estimate:

Based on the detail of the data collection and the availability of auxiliary information from all population units in the cutter sector (data on fishing activities, landing value and volume and technical characteristics of the vessels) the population estimates are calculated using different methods. The national stratification is used as the basis for the estimation procedure as the segmentation in Hp- classes results in more homogeneous groups than the segmentation in length classes (see above). Based on the estimation procedure the costs and earnings are estimated for each vessel in the population, after which the totals can be added up for each of the EU strata.

The table below gives an overview of the cost items underlying the EU costs and the applied methodology for estimation of the values for each of the vessels in the stratum.

EU cost item	Basic variable	Method/independ	Aggregation Level
Consumption of fixed capital	DepreciationHullCost	PIM method	Vessel
Consumption of fixed capital	DepreciationEngineCost	PIM method	Vessel
Days at sea	DaysAtSea	calculation	Fishing method
Energy consumption	GasoilAmount	Hpday	Fishing method
Energy consumption	GasoilAmountBoilingShrimp	landings volume	Fishing method
Energy costs	GasoilCost	Hpday	Fishing method
Energy costs	GasoilCostBoilingShrimp	landings volume	Fishing method
Full-time Equivalent (FTE), unpaid labour, paid labour	CrewDaysSea	calculation	Fishing method
Full-time Equivalent (FTE), unpaid labour, paid labour	CrewDaysAshore	GrTday	Vessel
Gross debt	Gross debt	average	Vessel
Income from leasing out quota or other fishing rights	LeaseQuotumRevenue	average	Vessel
Investments in tangible assets (net purchase of assets)	Investments in tangible assets (ne	average	Vessel
Lease/rental payments for quota or other fishing rights	LeaseQuotumCost	average	Vessel
Other income	OtherRevenue	average	Vessel
Other non-variable costs	GeneralCost	average	Vessel
Other non-variable costs	InsuranceCost	average	Vessel
Other non-variable costs	NavigationCost	average	Vessel
Other variable costs	TravelExpenseCost	average	Vessel
Other variable costs	FactorCost	GrT	Vessel
Other variable costs	FreightCost	GrT	Vessel
Other variable costs	DeckNeedsCost	GrTday	Vessel
Other variable costs	FishingGearCost	GrTday	Fishing method
Other variable costs	ProcessingShrimpCost	GrTday	Fishing method
Other variable costs	ArrangementWithdrawCost	landings volume	Vessel
Other variable costs	SaltPackageCost	landings volume	Fishing method
Other variable costs	ProvisionCost	man days	Vessel
Other variable costs	AuctionClaimsCost	landings value	Fishing type
Other variable costs	CommodityBoardCost	landings value	Vessel
Other variable costs	SortLandingCost	landings volume	Vessel
Personnel costs	WagesCrewExtraWorkCost	average	Vessel
Personnel costs	SocialSecurityCost	crew	Vessel
Personnel costs	WagesCrewCost	landings value	Vessel
Repair and maintenance costs	MaintenanceEngineCost	GrT	Vessel
Repair and maintenance costs	MaintenanceHullCost	GrT	Vessel
Repair and maintenance costs	IceCoolingCost	GrTday	Vessel
Repair and maintenance costs	LubricatingOilCost	Hpday	Vessel
Total value of assets	Total value of assets	average	Vessel
Value of physical capital	ReplacementValueHullEngine	age	Vessel
Value of unpaid labour	WagesSailedOwnerExtraWorkCos	average	Vessel
Value of unpaid labour	WagesSailedOwnerCost	landings value	Vessel

Some items such as days at sea can be calculated based on logbook information. Other items which are not related to auxiliary information, (e.g.) other income, general costs of travel expenses) are based on Horvitz-Thompson (HT) estimations. For items that are related to auxiliary information (e.g. the effort expressed as GrTdays), linear fixed-effects regression models are used for the estimation. The choice of the auxiliary variable that is used is based on expert knowledge and regression analyses. For some variables costs items, the costs may vary by fishing technique (e.g. energy costs, fishing gear costs). For these cost items the regression estimation procedure is based on the effort in the specific fishing technique.

5. Calculation method for derived data:

Value of unpaid labour is imputed on a trip basis based on information whether the owner(s) have joined the vessel and the highest wage paid for that trip.

The value of quota and other fishing rights is based on market information on prices of fishing rights and information on the amount of quota per species obtained from the authorities. In case of transactions of ITQ's are observed in the accounts both the amount and the total value of the ITQs are registered. Average price estimates of the value/kg are estimated based for all species based on weighted averages of all known transactions. Only transferable rights are taken into account in the data collection.

Consumption of fixed capital is based on the PIM method implemented both for the hull (including main equipment) and the engine of the vessel.

6. Nonresponse handling:

Because of the fact that the data are derived directly from the accounts there are no issues with nonresponse.

Error checks

During the process of data collection and data processing various errors might be introduced. The most important errors for this survey are data entry errors and data processing errors.

The economic data is stored in an object-oriented database which includes a large number of internal consistency checks for the data of each vessel and cross-checks with auxiliary information (e.g. logbooks). The resulting costs data for each vessel are checked internally with data from comparable other vessels (benchmark) and historical data and all panel members get a participant report, which serves also as an extra check on the data. Moreover, outliers of individual cost items per vessel are identified in the estimation process by comparison with other vessels and these values are checked with the basic data. During the data processing and estimation phase, outcomes of estimates are tested for internal consistency and consistency with auxiliary information. Many of these checks have been automated and incorporated in the standard process.

Data storage and documentation

3. Data storage:

Data is stored in an object-oriented database system at Wageningen Economic Research. Data processing and estimation is done using standardised scripts in SPSS.

Additional information on the sampling method will become available in 2021 in a Wageningen Economic Research publication.

4. Documentation: <https://edepot.wur.nl/570634>

Revision

The Dutch cutter survey is evaluated annually, and the panel is adjusted to changes in the population. The aggregation procedures have been evaluated in 2021.

Confidentiality

5. Are procedures for confidential data handling in place and documented? Yes. Data are stored in secure databases (two factor authentication) which are only accessible by the persons who work with the data and have signed a nondisclosure agreement.

6. Are protocols to enforce confidentiality between DCF partners in place and documented? Yes, a processing agreement has been signed for the use of auxiliary information

7. Are protocols to enforce confidentiality with external users in place and documented? Privacy sensitive data is not exchanged with external users. All panel members have signed an authorization to use their data.

8. Are there any issues with publication of data due to confidentiality reasons? No.

Sampling scheme identifier: FisheriesCTrawlers

Survey Specifications

'Sector name' refers to socio economic data on fisheries, aquaculture and any complementary data collection of fishing activity and processing as given in the EU MAP Delegated Decision annex.

'Sampling scheme' refers to survey technique: by census, by sampling, random or non-random, other (with

explanation). If sampling, then outline sampling design. 'Variables' refer to Tables 7, 9 and 10 of the EU MAP Delegated Decision annex. 'Supra region' refers to Table 2 of the EU MAP Implementing Decision annex. If the sampling scheme is the same in all supra regions put 'All supra regions'.
Sector name(s): RWP ECON 2025-2027 Large pelagic trawlers
Sampling scheme: census
Variables: All economic variables
Supra region(s): All supra regions
Survey planning
The population for this sampling scheme consists of 6 vessels of the segment Pelagic trawlers 40 m or larger These large vessels are owned by four internationally operating companies.
Survey design and strategy
Data are retrieved from the accounts of all vessels in the segment. For some companies the data collector has direct on-site access to the ledger, for other companies the accountant fills in the predefined excel format that is send by e-mail. Because of the small number of vessels and companies, all vessels are included in the survey (census). Logbook data and data are used to cross reference the accounts data
Estimation design
Most of the cost items from the economic data collection are taken directly from the accounts. Consumption of fixed capital is based the accounts value as it is impossible to gain insight in the value of these large fishing vessels. The value of quota and other fishing rights is based on market information on prices of fishing rights and information on the amount of quota per species obtained from the authorities. (see also description of the cutter survey) Only for demersal species ITQs have been traded in recent years. Segment totals are calculated from the total values for all vessels. Because the data are derived directly from the accounts there are no issues with nonresponse. In case one of the companies fails to deliver economic data on time the costs structure of the vessels concerned will be estimated based on the costs structure of the previous year and the changes in fishing activities obtained from auxiliary information (logbooks). Financial information (Gross debt, Investments in tangible assets (net purchase of assets) and Total value of assets) are not available because of privacy reasons.
Error checks
During the process of data collection and data processing various errors might be introduced. The most important errors for this survey are data entry errors and data processing errors. The economic data is stored in a series of excel datasheets which includes several internal consistency checks for the data of each vessel and cross-checks with auxiliary information (e.g., logbooks). The resulting costs data for each vessel are checked internally. Moreover, outliers of individual cost items per vessel are identified in the aggregation process by comparison with other vessels and historical values and these values are checked with the basic data. During the data processing and estimation phase, outcomes of estimates are tested for internal consistency and consistency with auxiliary

information.
Data storage and documentation
3. Data storage: Data is stored in a series of excel datasheets at Wageningen Economic Research. Data processing and estimation is done using standardised scripts in SPSS. For each of the procedures (data entry, data checking and data estimation) internal protocols are available.
4. Documentation: https://edepot.wur.nl/570634
Revision
The data processing procedures have been evaluated in 2021.
Confidentiality
5. Are procedures for confidential data handling in place and documented? Yes. Data are stored in secure databases (two factor authentication) which are only accessible by the persons who work with the data and have signed a nondisclosure agreement.
6. Are protocols to enforce confidentiality between DCF partners in place and documented? Yes, a processing agreement has been signed for the use of auxiliary information
7. Are protocols to enforce confidentiality with external users in place and documented? Privacy sensitive data is not exchanged with external users. All panel members have signed an authorization to use their data.
8. Are there any issues with publication of data due to confidentiality reasons? Yes, as stated above the group of vessels and companies is very small (4 companies) and financial information is not provided for privacy reasons.

Sampling scheme identifier: FisheriesCOtherCoastal

Survey Specifications
<i>'Sector name' refers to socio economic data on fisheries, aquaculture and any complementary data collection of fishing activity and processing as given in the EU MAP Delegated Decision annex.</i> <i>'Sampling scheme' refers to survey technique: by census, by sampling, random or non-random, other (with explanation). If sampling, then outline sampling design.</i> <i>'Variables' refer to Tables 7, 9 and 10 of the EU MAP Delegated Decision annex.</i> <i>'Supra region' refers to Table 2 of the EU MAP Implementing Decision annex. If the sampling scheme is the same in all supra regions put 'All supra regions'.</i>
Sector name(s): Other coastal fisheries
Sampling scheme: census
Variables: All economic and social variables
Supra region(s): All Supra regions
Survey planning
The population for this sampling scheme consists of all vessels that are not taken into account in the other surveys (cutter and trawler economics). As a result, the population for this survey consists of the following segments:

- Beam trawlers 0-< 10 m
- Demersal trawlers and/or demersal seiners 0-< 10 m
- Demersal trawlers and/or demersal seiners 10-< 12 m
- Dredgers 24-< 40 m
- Dredgers 40 m or larger
- Drift and/or fixed netters 12-< 18 m
- Drift and/or fixed netters 18-< 24 m
- Pelagic trawlers 12-< 18 m
- Vessels using active and passive gears 0-< 10 m
- Vessels using hooks 12-< 18 m
- Vessels using polyvalent passive gears only 12-< 18 m
- Vessels using Pots and/or traps 12-< 18 m
- Vessels using Pots and/or traps 18-< 24 m
- Vessels using Pots and/or traps 24-< 40 m
- Vessels using passive gears only for vessels < 12m 0-< 10 m
- Vessels using passive gears only for vessels < 12m 10-< 12 m
- Inactive vessels 0-< 10 m
- Inactive vessels 10-< 12 m
- Inactive vessels 12-< 18 m
- Inactive vessels 18-< 24 m
- Inactive vessels 24-< 40 m
- Inactive vessels 40 m or larger

Survey design and strategy

Data is collected by two surveys:

- Telephone interviews on
- Questionnaire (by both mail and e-mail) on the other economic variables

As it is known that the overall response rates to questionnaires is low (<30%), all vessel owners are contacted to provide data on their fishing activities and economic performance. Based on an extensive internet search telephone numbers of most owners are obtained. All owners are called (maximum three times) to ask for the level of activity and main fishing method, and in case of inactive vessels, the capital value and costs. Besides the respondents are asked whether they would like to receive a paper questionnaire or an email with the questionnaire. After this telephone survey a paper/email questionnaire is send out to all fishermen that:

- Could not be reached during the telephone survey.
- Have stated that they would like to receive the survey on economics (either by mail/e-mail)

Besides returning the mail or paper survey the survey can also be filled in by the fishermen themselves through an internet survey. All three surveys ask for all economic variables in the EU map and additional information on fishing gear, fishing activities and landings. After some weeks a reminder of the questionnaire is send to those owners which have not responded yet.

Logbooks are used to cross-reference the questionnaire data.

Estimation design

Most of the cost items from the economic data collection are taken directly from the questionnaires, and estimation to totals per cluster are based on Horvitz-Thompson (HT) estimations. For some specific costs items the numbers are inferred from other information from the questionnaire:

- Value of unpaid labour: In small fishing operations the value of unpaid labour is often unknown. In the

questionnaire, information is obtained on the labour that the owner does, the number of crew members and their wages. In case the owner joins fishing operations and one or more crewmembers are paid, the value of unpaid labour is estimated from the total wages divided by the number of crew. In case no crew members are joining fishing operations the value of unpaid labour is estimated based on the average proportion of the wage of the crew over the total revenue in the cluster and the revenue of the vessel concerned. • Due to the large variety of the vessels and their values, an assessment of the average value per ton would result in highly uncertain values which may not be applicable to a large proportion of these small fisheries. Therefore, the value of the vessel (value of physical capital) is taken from the insurance value requested from the questionnaires. • The number of FTE, paid labour and unpaid labour is derived from information about the fishing time (number of trips and trip time), the number of fishers on board the vessel and whether the owner joins fishing operations or not. • Gross debt is calculated from the proportion of own capital, and the value of the vessel as requested in the questionnaire. • The value of quota and other fishing rights is based on market information on prices of fishing rights and information on the amount of quota per species obtained from the authorities. (see also description of the cutter survey) The questionnaire also includes questions about social variables in the years in which they are collected. This information is used to estimate the proportion of fishers with various characteristics, and together with the information about total labour and FTE, it forms the basis for the social indicators. If information is missing or unclear, the respondent is contacted by telephone to discuss the provided information. If this is not feasible, the questionnaire is ignored in the estimation process.
Error checks
Various errors might be introduced during data collection and processing. The most important errors for this survey are data entry errors and data processing errors. The economic data is stored in an access database that includes several internal consistency checks to prevent inconsistent data entry (e.g., negative values for costs and income, value of landings per species, and totals). During data processing, extra inconsistency checks (both internally and with auxiliary logbook information) are carried out, and improbable data are flagged. Moreover, outliers of individual cost items per vessel are identified in the aggregation process by comparison with other vessels. These values are checked with the basic data (questionnaires) and with the respondent in case basic data seem to be incorrect. The outcomes of estimation process are tested for internal consistency, historic consistency and consistency with auxiliary information,
Data storage and documentation
Data is stored in access databases and SPSS datasets at Wageningen Social and Economic Research. Data processing and estimation are done using standardised SPSS scripts and procedures. Internal protocols are available for each procedure (data entry, data checking, and data estimation). Documentation: https://edepot.wur.nl/570634
Revision
The data processing procedures have been evaluated in 2021.
Confidentiality
1. Are procedures for confidential data handling in place and documented? Yes. Data are stored on a secure data server (two factor authentication) which are only accessible by the persons who work with the data and have signed a nondisclosure agreement.

2. Are protocols to enforce confidentiality between DCF partners in place and documented? Yes, a processing agreement has been signed for the use of auxiliary information.
3. Are protocols to enforce confidentiality with external users in place and documented? Yes, privacy sensitive data is not exchanged with external users. In the accompanying letter of the questionnaire, the confidentiality policy is explained.
4. Are there any issues with publication of data due to confidentiality reasons? No, because of the clustering of segments with less than 10 vessels, none of the resulting estimates have issues with confidentiality.

Sampling scheme identifier: AquaculturePSSMussel

Survey Specifications
<i>'Sector name' refers to socio economic data on fisheries, aquaculture and any complementary data collection of fishing activity and processing as given in the EU MAP Delegated Decision annex.</i> <i>'Sampling scheme' refers to survey technique: by census, by sampling, random or non-random, other (with explanation). If sampling, then outline sampling design.</i> <i>'Variables' refer to Tables 7, 9 and 10 of the EU MAP Delegated Decision annex.</i> <i>'Supra region' refers to Table 2 of the EU MAP Implementing Decision annex. If the sampling scheme is the same in all supra regions put 'All supra regions'.</i>
Sector name(s): Mussel
Sampling scheme: stratified random sampling
Variables: All economic
Supra region(s): All Supra regions
Survey planning
The population for this sampling scheme consists of all companies active in mussel cultivation. Most of these companies are only involved in mussel culture, but an increasing part of the population combines mussel culture and processing.
Survey design and strategy
Economic data are retrieved directly from the fiscal annual reports of a rotating panel of companies. Auxiliary information on fleet technical characteristics and production data is available through access to the official fleet vessels register and sales data of the mussel auction in Yerseke. The sample size was determined based on an overall sampling proportion of 25% of the population (number of companies) to allow for high-quality estimates of the sector's economic performance. Because of the difference in company size, the sampling units are based on PSS (methodology handbook section 3.5). Production data from the mussel auction is used to cross reference the collected data.
Estimation design
Most of the cost items from the economic data collection are taken directly from the fiscal annual reports. For some specific costs items the numbers are inferred from additional information:

• Livestock used: inferred from livestock costs and average price of seed mussels. • Fish feed used and Raw material: feed costs: As feed is not used in mussel farming this information is not collected • Operational subsidies and subsidies on investments: subsidies are taken from national official databases on subsidies. • Weight of sales: taken from national statistical office (based on auction statistics). The totals of most variables are based on Horvitz-Thompson (HT) estimations. In case variables are clearly related to production capacity, regression estimation will be used to further enhance the quality of estimations. In case of missing/unclear information the respondent is contacted by telephone to discuss the provided information. As fiscal annual reports only become available one year after the closed book year, economic data from the mussel sector lags one year behind the normal data collection, and economic data are collected from year N—2. Provisional estimates of the costs of the year N—1 are estimated based on the developments in production, mussel price, number of vessels, and oil price.
Error checks
Various errors might be introduced during data collection and processing. The most important errors for this survey are data entry errors and data processing errors. The economic data is stored in an object-oriented database which includes a large number of internal consistency checks for the data of each company and cross-checks with auxiliary information on production. The resulting cost data are checked internally with data from comparable other vessels (benchmark) and historical data, and all panel members get a participant report, which also serves as an extra check on the data. Moreover, outliers of individual cost items per vessel are identified in the estimation process by comparison with other vessels and these values are checked with the basic data. During the data processing and estimation phase, outcomes of estimates are tested for internal consistency and consistency with auxiliary information. Many of these checks have been automated and incorporated in the standard process.
Data storage and documentation
Data is stored in an object-oriented database system at Wageningen Social and Economic Research. Data processing and estimation is done using standardised scripts in SPSS. For each of the procedures (data entry, data checking and data estimation) internal protocols are available. Documentation: https://edepot.wur.nl/570634
Revision
The sampling design and data processing procedures were evaluated in 2020, and the sampling plan will be evaluated annually.
Confidentiality
1. Are procedures for confidential data handling in place and documented? Yes. Data are stored on a secure data server (two-factor authentication) that is only accessible by the persons who work with the data and have signed a nondisclosure agreement. 2. Are protocols to enforce confidentiality between DCF partners in place and documented? Yes, a processing agreement has been signed to use auxiliary information. 3. Are protocols to enforce confidentiality with external users in place and documented? Yes, privacy-sensitive data is not exchanged with external users. The confidentiality policy is explained in the accompanying letter of the questionnaire. 4. Are there any issues with publication of data due to confidentiality reasons? No.

Sampling scheme identifier: AquaculturePSSOyster and Eel

Survey Specifications
<i>'Sector name' refers to socio economic data on fisheries, aquaculture and any complementary data collection of fishing activity and processing as given in the EU MAP Delegated Decision annex.</i> <i>'Sampling scheme' refers to survey technique: by census, by sampling, random or non-random, other (with explanation). If sampling, then outline sampling design.</i> <i>'Variables' refer to Tables 7, 9 and 10 of the EU MAP Delegated Decision annex.</i> <i>'Supra region' refers to Table 2 of the EU MAP Implementing Decision annex. If the sampling scheme is the same in all supra regions put 'All supra regions'.</i>
Sector name(s): Oyster and Eel sector
Sampling scheme: census
Variables: All economic and social variables
Supra region(s): All Supra regions
Survey planning
The population for this sampling scheme consists of all companies that have oyster culture and eel culture as their main activity (resp. 38 and 6 companies).
Survey design and strategy
Economic are retrieved by means of a questionnaire that is send to all company owners and follow up of non-response will be done by telephone calls. Auxiliary information on production is available through access to the official production statistics by the Dutch statistical office. Because of the small group sized in both sectors and the assumed low response rates, the questionnaire will be send out to all companies.
Estimation design
The questionnaire will include all variables requested in the EU-map. Totals of most variables are based on Horvitz-Thompson (HT) estimations. In case variables are clearly related to production capacity, regression estimation will be used in order to further enhance the quality of estimations. In case of missing/unclear information, the respondent is contacted by telephone to discuss the information provided.
Error checks
Various errors might be introduced during data collection and processing. The most important errors for this survey are data entry errors and data processing errors. The economic data is stored in an access database which includes internal consistency checks for each company's data. The resulting data are checked internally with data from comparable other companies (benchmark) and historical data. During the data processing and estimation phase, outcomes of estimates are tested for internal consistency and consistency with auxiliary information. Many of these checks are automated and incorporated in the standard process.
Data storage and documentation

Data is stored in access databases and SPSS datasets at Wageningen Economic Research. Data processing and estimation are done using standardised SPSS scripts and procedures. Internal protocols are available for each procedure (data entry, data checking, and data estimation). Documentation: https://edepot.wur.nl/570634
Revision
The data processing procedures have been evaluated in 2021.
Confidentiality
1. Are procedures for confidential data handling in place and documented? Yes. Data are stored on a secure data server (two factor authentication) which are only accessible by the persons who work with the data and have signed a nondisclosure agreement. 2. Are protocols to enforce confidentiality between DCF partners in place and documented? Yes, a processing agreement has been signed for the use of auxiliary information. 3. Are protocols to enforce confidentiality with external users in place and documented? Yes, privacy sensitive data is not exchanged with external users. In the accompanying letter of the questionnaire, the confidentiality policy is explained. 4. Are there any issues with publication of data due to confidentiality reasons? Yes, because of the small size of the Eel sector all companies must agree for the economic information to be published.

Sampling scheme identifier: FisheriesCSocial

Survey Specifications
<i>'Sector name' refers to socio economic data on fisheries, aquaculture and any complementary data collection of fishing activity and processing as given in the EU MAP Delegated Decision annex.</i> <i>'Sampling scheme' refers to survey technique: by census, by sampling, random or non-random, other (with explanation). If sampling, then outline sampling design.</i> <i>'Variables' refer to Tables 7, 9 and 10 of the EU MAP Delegated Decision annex.</i> <i>'Supra region' refers to Table 2 of the EU MAP Implementing Decision annex. If the sampling scheme is the same in all supra regions put 'All supra regions'.</i>
Sector name(s): Fisheries segments of the cutter sector and trawler sector (see also textbox 5.2 clustering)
Sampling scheme: census
Variables: All social variables
Supra region(s): All Supra regions
Survey planning
The population for this sampling scheme consists of all fisheries companies.
Survey design and strategy
Social data are collected by means of a questionnaire (paper or by e-mail) that are send to all companies. Follow up reminder will be by mail/e-mail. Auxiliary information on total employment is available through the economic sampling programs in each of the sectors.

Estimation design
The questionnaire will include all variables requested in the EU-map. Totals of variables per sector (small scale fisheries, large scale fisheries, trawlers, mussel, oyster and eel sector) are based on Horvitz-Thompson (HT) estimations. In combination with total employment in each of these sectors (from the economic surveys), the employment per category (e.g., age, sex) is estimated. In case of missing/unclear information the respondent is contacted to discuss the provided information. In case this is not possible results will be ignored in the aggregation procedure.
Error checks
Various errors might be introduced during data collection and processing. The most important errors for this survey are data entry errors and data processing errors. Social data is stored in an access database that includes internal consistency checks. The resulting data are checked internally with economic data from the companies and historical data. During the data processing and estimation phase, data will be cross-checked with trends in the number of companies/vessels. Many of these checks are automated and incorporated into the standard process.
Data storage and documentation
Data is stored in access databases and SPSS datasets at Wageningen Economic Research. Data processing and estimation is done using standardised SPSS scripts and procedures. For each of the procedures (data entry, data checking and data estimation) internal protocols are available. Documentation: https://edepot.wur.nl/570634
Revision
The data processing procedures will be evaluated every three years.
Confidentiality
1. Are procedures for confidential data handling in place and documented? Yes. Data are stored on a secure data server (two-factor authentication) that is only accessible by the persons who work with the data and have signed a nondisclosure agreement. 2. Are protocols to enforce confidentiality between DCF partners in place and documented? Yes, a processing agreement has been signed to use auxiliary information. 3. Are protocols to enforce confidentiality with external users in place and documented? Yes, privacy-sensitive data is not exchanged with external users. The confidentiality policy is explained in the accompanying letter of the questionnaire. 4. Are there any issues with publication of data due to confidentiality reasons? No.

Sampling scheme identifier: AquacultureCSocial

Survey Specifications
<i>'Sector name' refers to socio economic data on fisheries, aquaculture and any complementary data collection of fishing activity and processing as given in the EU MAP Delegated Decision annex.</i> <i>'Sampling scheme' refers to survey technique: by census, by sampling, random or non-random, other (with explanation). If sampling, then outline sampling design.</i> <i>'Variables' refer to Tables 7, 9 and 10 of the EU MAP Delegated Decision annex.</i>

<i>'Supra region' refers to Table 2 of the EU MAP Implementing Decision annex. If the sampling scheme is the same in all supra regions put 'All supra regions'.</i>
Sector name(s): Aquaculture sector
Sampling scheme: census
Variables: All social variables
Supra region(s): All Supra regions
Survey planning
The population for this sampling scheme consists of all aquaculture companies in the segments above the threshold.
Survey design and strategy
Social data are collected by means of a questionnaire (paper or by e-mail) that are send to all companies. Follow up reminder will be by mail/e-mail. Auxiliary information on total employment is available through the economic sampling programs in each of the sectors.
Estimation design
The questionnaire will include all variables requested in the EU-map. Totals of variables per sector (small scale fisheries, large scale fisheries, trawlers, mussel, oyster and eel sector) are based on Horvitz-Thompson (HT) estimations. In combination with total employment in each of these sectors (from the economic surveys), the employment per category (e.g., age, sex) is estimated. In case of missing/unclear information the respondent is contacted to discuss the provided information. In case this is not possible results will be ignored in the aggregation procedure.
Error checks
Various errors might be introduced during data collection and processing. The most important errors for this survey are data entry errors and data processing errors. Social data is stored in an access database that includes internal consistency checks. The resulting data are checked internally with economic data from the companies and historical data. During the data processing and estimation phase, data will be cross-checked with trends in the number of companies/vessels. Many of these checks are automated and incorporated into the standard process.
Data storage and documentation
Data is stored in access databases and SPSS datasets at Wageningen Economic Research. Data processing and estimation is done using standardised SPSS scripts and procedures. For each of the procedures (data entry, data checking and data estimation) internal protocols are available. Documentation: https://edepot.wur.nl/570634
Revision
The data processing procedures will be evaluated every three years.
Confidentiality

1. Are procedures for confidential data handling in place and documented? Yes. Data are stored on a secure data server (two-factor authentication) that is only accessible by the persons who work with the data and have signed a nondisclosure agreement.
2. Are protocols to enforce confidentiality between DCF partners in place and documented? Yes, a processing agreement has been signed to use auxiliary information.
3. Are protocols to enforce confidentiality with external users in place and documented? Yes, privacy-sensitive data is not exchanged with external users. The confidentiality policy is explained in the accompanying letter of the questionnaire.
4. Are there any issues with publication of data due to confidentiality reasons? No.