

Ministry of the Environment, Republic of Estonia

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

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

**Commission Implementing Decision (EU) 2019/909 of 18 February
2019** establishing the list of mandatory research surveys and thresholds for the purposes of the
multiannual Union programme for the collection and management of data in the fisheries and
aquaculture sectors

Commission Delegated Decision (EU) 2019/910 of 13 March 2019
establishing the multiannual Union programme for the collection and management of biological,
environmental, technical and socioeconomic data in the fisheries and aquaculture sectors

Commission Implementing Decision (EU) 2016/1701 of 19 August 2016
laying down rules on the format for the submission of work plans for data collection in the
fisheries and aquaculture sectors.

Commission Implementing Decision (EU) 2018/1283 of 24 August 2018
laying down rules on the format and timetables for the submission of annual data collection
reports in the fisheries and aquaculture sectors.

**ESTONIAN Annual Report for data
collection in the fisheries and aquaculture
sectors
2020**

Version 1

Tallinn, May 2021

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SECTION 1: BIOLOGICAL DATA

Text Box 1C: Sampling intensity for biological variables

General comment: This box fulfils paragraph 2 point (a)(i)(ii)(iii) of Chapter III, of the Annex of the Delegated Decision (EU) 2019/910 and Chapter I of the Implementing Decision (EU) 2019/909 on the multiannual Union programme; and Article 2, Article 4 paragraph 1 and Article 8 of the Implementing Decision (EU) 2016/1701 on the format of the WP. This box is applicable to the Annual Report.

RFMO: Baltic sea (ICES areas III b-d)

1. Evidence of data quality assurance

Sampling protocols for commercial sampling are available in our national DCF homepage (<https://www.envir.ee/et/eesmargid-tegevused/kalandus/kalanduse-riiklik-andmekogumise-programm-akp>). Data were recorded, analysed and transferred according to the established protocol.

For international surveys corresponding ICES manuals (Manual for the Baltic International Trawl Surveys (BITS), March 2014, ICES Baltic International Fish Survey Working Group; SISP MANUAL OF INTERNATIONAL BALTIC ACOUSTIC SURVEYS (IBAS) Version 1.02 28-03-2014, ICES 2014) are followed in detail. Methods for coastal fish analyses are accredited nationally by the accreditation certificate No L179 (2017) of the Tartu University, Estonian Marine Institute: Assessment of biodiversity, abundance and biomass of fish assemblages; KJ I/20; based on EVSEN 14757; Helcom, 2015 (Coastal Fish Guidelines) and Assessment of species composition and abundance of salmonids in riverine habitat, KJ I/21; based on Bohlin et al., 1989 and ICES, 2014. Laboratory of the Estonian Marine Institute is accredited against the requirements of standard EVS-EN ISO/IEC 17025:2006 (https://mereinstituut.ut.ee/sites/default/files/mereinstituut/akrediteerimisulatus_2020.pdf).

Sampling from surveys were conducted according to the established protocol.

2. Deviations from the Work Plan

Main reason for undersampled stocks was decline in landings. Oversampling reasons were stock assessment requirements and changes in effort and catches. See Table 1C, AR comments.

3. Actions to avoid deviations.

Undersampling will remain a problem due to fluctuating stocks and quotas. Oversampling, if staff is available, is not a big problem and usually comes from sampling protocol.

RFMO: Eastern Arctic (ICES areas I and II)

1. Evidence of data quality assurance

Sampling protocols for commercial sampling are available in our national DCF homepage (<https://www.envir.ee/et/eesmargid-tegevused/kalandus/kalanduse-riiklik-andmekogumise-programm-akp>).

Data were recorded, analysed and transferred according to the established protocol. Data is collected by observers on board following international requirements and protocols elaborated by Estonian Marine Institute (EMI). The sampling design and protocols follow the outcomes of sampling expert groups.

Common standard criteria agreed with other research groups from other countries are used.

2. Deviations from the working plan

There were no deviation from the workplan in 2020.

3. Actions to avoid deviations.

Over- and undersampling could be a problem due to fluctuating catches (quotas). No good solution.

RFMO: NAFO (FAO area 21)

1. Evidence of data quality assurance

Sampling protocols for commercial sampling are available in our national DCF homepage (<https://www.envir.ee/et/eesmargid-tegevused/kalandus/kalanduse-riiklik-andmekogumise-programm-akp>).

Data were recorded, analysed and transferred according to the established protocol. For NAFO, data is collected by observers on board following requirements of NAFO Conservation and Enforcement Measures and protocols elaborated by Estonian Marine Institute (EMI). The sampling design and protocols follow the outcomes of sampling expert groups, especially NAFO Scientific Council.

Common standard criteria agreed with other research groups from other countries are used.

2. Deviations from the working plan

Sampling intensity within NAFO area depends on the movements of the fleet between NAFO 3M, 3L, 3 N and 3O and is associated with quotas available. As observers are on board of vessels during the whole trip, they are collecting samples independently by subareas. Commercial samples are missing only for the *Sebastes* spp. stock in NAFO 3O area, where collected data and samples were lost because of the onboard fire accident during the single fishing trip to the area. See Table 1C, AR comments for explanations of some undersampling and exceeding of minimal planned numbers. Age samples for NAFO stocks, which were not included to the National WP, but were sampled during the trips, have been added to Table 1C (extra rows).

3. Actions to avoid deviations.

Over- and undersampling will remain a problem due to fluctuating catches (quotas) and movements of fishing vessels within NAFO area. No good solution.

SECTION 1: BIOLOGICAL DATA

Text Box 1D - Recreational fisheries

General comment: This box fulfills paragraph 2 point (a) (iv) of Chapter III of the Annex of the Delegated Decision (EU) 2019/910 on the multiannual Union programme; and Article 2, Article 3 and Article 4 paragraph 1 of the Implementing Decision (EU) 2016/1701 on the format of the WP. This box is applicable to the Annual Report. This box is intended to provide information on the design, implementation and analysis of all components of sampling schemes/ surveys that are listed in Table 1D.

1. Description of the target population

Recreational fishery in Estonia consists of 3 major parts:

- 1) Recreational fishermen using commercial gear (gill nets, trap nets, longlines) have an obligation to report the catches to the Ministry of the Environment.
- 2) Recreational fishermen need a licence to fish salmon and sea trout in rivers and are obliged to report the catches to the Ministry of the Environment.
- 3) Anglers and rod fishermen fishing in sea are not covered with compulsory catch reports. Their catches are estimated during phone survey every second year.

The main target species in the recreational fishery are perch, pike-perch, flounder, whitefish, sea trout and salmon (among species listed in the Data Regulation), comprising 60% of the total recreational catch (66t out

of 109 t in 2020) according to catch reports sent to TEHA (Science and Recreational Fisheries database, held by Ministry of Environment).

2. Type of survey

Recreational fishermen that use commercial gear or are fishing on “salmonid”-rivers (part 1 and part 2) are obliged to report the catches (census survey) to the Ministry of the Environment (entered into TEHA database). Amount of catches made by recreational fishermen that do not fall into before mentioned groups (anglers and rod fishermen fishing in the sea, part 3) are based on regular recreational fishery phone survey questionnaire. Phone survey report about catches in 2020 is available at: https://www.envir.ee/sites/default/files/harkal20_aruanne_0.pdf

3. Data Quality

Information about non-responses can be derived from database, as the number of licences and permits purchased with the reports received could be compared. As you cannot buy new fishing license if any report from previous year is undelivered, the response rate is adequate.

Refusals in phone survey questionnaire are documented.

4. Data Analysis and processing

For recreational fishermen groups 1 and 2 (licensed catch), we get the total real catch from the database TEHA (Science and Recreational Fisheries database).

For recreational fishermen group 3, the catch volume and the confidence limits are calculated and documented from phone survey results.

SECTION 1: BIOLOGICAL DATA

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

General comment: This box fulfils paragraph 4 of Chapter II of the Annex of the Implementing Decision (EU) 2019/909 on the multiannual Union programme and Article 2 and Article 4 paragraph (3) point (a) of the Implementing Decision (EU) 2016/1701 on the format of the WP.

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

No pilot study, information is collected on regular bases.

SECTION 1: BIOLOGICAL DATA

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

General comment: This box fulfills paragraph 2 points (b) and (c) of Chapter III of the Annex of the Delegated Decision (EU) 2019/910 on the multiannual Union programme; and Article 2 of the Implementing Decision (EU) 2016/1701 on the format of the WP.

General comment: This box is applicable to the Annual Report.

Salmon and sea trout.

The principal way of monitoring salmonid populations in rivers is electrofishing. Permanent monitoring sites, located in important parr rearing areas, are fished annually. The sites are fished twice to calculate fishing efficiency and parr densities are presented as individuals per 100 m². The results of this method are comparable to all neighbouring countries.

Atlantic salmon and sea trout smolt abundancy estimate in river Pirita is done by capture-mark-recapture method. Smolts are caught by trap-net at the river mouth throughout the migration season. Captured smolts are tagged by VIE (visible implant elastomer) and released 2 km upstream from the trap. Some of the tagged smolts will be recaptured during their descent towards the sea. This enables to estimate the overall smolt run size.

Ascending Atlantic salmon and sea trout spawners are counted in river Pirita throughout the migration season. A fish fence (type: resistance board weir) covering the entire width of the river guides fish through an opening that has a fish counter. Vaki Riverwatcher with a camera tunnel is used.

All caught fish will be measured and released after analyses.

Eel

Fyke nets (mouth opening <3m, mesh size >38mm in the cod end) for eel fresh water scientific survey are used. Survey lasts usually from May until October, depending on water temperature. Fyke nets are controlled in every 3 days. Length (TL=mm), weight (g), age (from otolith), silvering stage (length of the pectoral fins and eye diameter) and infestation with parasites are recorded.

List of trusted fishermen are used for collecting information from commercial catches. Total length, weight and silvering stage are recorded for the individuals sampled from commercial catches.

Annual data of eel restocking is collected with average weight (g) and total number of restocked individuals recorded.

2. Were the planned number achieved? Yes/ No

Yes.

Number 30 in Table 1E (cell M15) as a planned nos of rivers, where smolt trapping of sea trout takes place was mistake. The correct number should be 1. The trout smolts are counted parallelly with salmon smolts in river Pirita. The textbox 1E in WP gives correct explanation that smolt trapping takes place only in River Pirita.

There is no commercial fishery for salmon and sea trout in fresh waters.

Commercial fishery for eel exists only in four lakes and is based on stocked eels. Sufficient amount of silver eels were unavailable for sampling due to low number of silver eels in commercial catch.

(max 500 words per Area)

SECTION 1: BIOLOGICAL DATA

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

General Comment: This box fulfils paragraph 3 point (a) of Chapter III of the Annex of the Delegated Decision (EU) 2019/910, on the multiannual Union programme; and Article 2 of the Implementing Decision (EU) 2016/1701 on the format of the WP. This box is applicable to the Annual Report. This box is applicable only for those sections where Member States have reported that they have been carrying out regular sampling. Results and deviations for Pilot studies should be reported under Pilot Study 2.

1. Results

Registering by-catch is mandatory by the law and data are included in the Estonian Fisheries Information System. In 2020 by-catch was registered in coastal fishery but not in trawl fishery. In the coastal fishery (46725 fishing trips) by-catch was registered in 27 cases: mammals in 11 cases - altogether 11 seals, 1 Eurasian beaver (*Castor fiber*) and 1 Eurasian otter (*Lutra lutra*) and birds in 16 cases (in total 30 specimens: unidentified ducks 22, 1 long-tailed duck (*Clangula hyemalis*), 1 brent goose (*Branta bernicla*), 2 tufted ducks (*Aythya fuligula*) and 4 great cormorants (*Phalacrocorax carbo*)). Seal damage to fishing gear or catch was registered in 497 cases. During recreational fishery with commercial gear 6 bird bycatch incidents were recorded.

Checked PSU numbers for trawls in Table 1F covers trips checked by the staff of the Estonian Marine Institute in ports during the direct questioning the crew. No by-catch was registered.

No by-catch was registered during our trawl surveys. However, by-catch is registered during the coastal survey (see 1G.7).

2. Deviations from Work Plan

No

3. Data quality

- Does the onboard observer protocol contain a check for rare specimens in the catch at opening of the codend? If YES is the observer instructed to indicate if the codend was NOT checked in a haul?

Yes and if the codend was not checked in a haul, observers should indicate it in the report. Observer is instructed to report all bycatch in haul, not only mammals or birds.

- In gill nets - and hook-and-line fisheries: No special instruction as the Estonian fleet uses only small boats (below 12 m) in gill net fishery and hook-and-line fisheries is seldom used nowadays as main species fished by this technique was eel. As for large incidental catches alive specimens (seals, sturgeons, etc) should be released.

-Does the onboard observer protocol instruct to report on the use of mitigation (i.e. Escape Devices or Acoustic Deterrent Devices)? Yes

- Does the sampling design and protocol follow the recommendations from relevant expert groups? No, although ICES WGBYC reports are monitored.

- Are data quality issues taken into account? Data of the Estonian Fisheries Information Systems indicate that fishermen are usually not able to identify bycatch species (especially in case of birds); special guide for fishermen to identify bycatch bird and mammal was published and distributed to fishermen free of charge in 2020.

- How are data (and samples) stored: in the Estonian Fisheries Information System.

(max 900 words)

SECTION 1: BIOLOGICAL DATA

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

General comment: This Box fulfills paragraph 3 point (c) of Chapter III of the Annex of the Delegated Decision (EU) 2019/910 on the multiannual Union programme; and Article 2 and Article 4 paragraph (3) point (b) of the Implementing Decision (EU) 2016/1701 on the format of the WP.

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

As there are no active bottom trawlers now (2016-19), we do not study fishery's impact to the sea floor. During coastal fish survey we study by-catch, monitor different fish species stock fluctuations and study the diet of predatory fish to understand the food web functioning.

For period 2020-2021 a separate bird and seal by-catch survey is planned

1. Aim of pilot study

To evaluate the number of seal and bird species perishing in passive fishing gears in different coastal areas (subdivisions 28-29 and 32) and assess the impact of incidental by-catch to involved by-catch species.

2. Duration of pilot study

2020-2021

3. Methodology and expected outcomes of pilot study

Fishermen often ignore the duty to register the by-catch species in fisherman log-books and are not able to identify the birds and seals to species level. For the study a network of motivated fishermen will register, preserve or take the photo of by-catch species together with all relevant catch data. The by-caught bird and seal species are identified to species level using preserved specimens and/or photos. The data from involved fishermen will be extrapolated to the whole coastal area to evaluate the impact of coastal fishery using small boats (< 12 m) and passive gears to the bird and mammal populations. The results of the study will be compared with the results of the 2007-2009 LIFE project ("Baltic MPAs - Marine Protected Areas in the Eastern Baltic Sea" LIFE05 NAT/LV/000100). Selective construction of fishing gears, closed seasons and other solutions how to minimize the unwanted incidental by-catch will be suggested depending on the results of the project.

(max 900 words)

4. Brief description of the results obtained (including deviations from planned and justifications as to why if this was not the case).

In total there was 75 by-catch incidents recorded and studied in 2020. Seven motivated fishermen from different coastal areas took part in the study and soaking time for passive gear used by these fishermen was 22764 gear/days. Ten different bird species were recorded, the most common of them was great cormorant (*Phalacrocorax carbo*). In total 34 bird specimens were caught and 13 of them were released alive.

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

Part of the recruited fishermen did not provide photos of caught birds and mammals or dead by-caught specimens. In 2021 we increased the number of motivated fishermen taking part in the study to have bigger sample size and more reliable results.

6. Incorporation of results from pilot study into regular sampling by the MS

Will be decided after the completion of the pilot study in 2022.

SECTION 1: BIOLOGICAL DATA

Text Box 1G: List of research surveys at sea

General comment: This box fulfills Chapter I of the Annex of the Implementing Decision (EU) 2019/909, on the list of mandatory surveys and thresholds, of the multiannual Union programme; and Article 2 and Article 7 paragraph (3) of the Decision (EU) 2016/1701 on the format of the WP. It is intended to specify which research surveys at sea set out in the multiannual Union programme will be carried out. Member States shall specify whether the research survey is included in Chapter I of the Annex of the implementing decision of the multiannual Union programme or whether it is an additional survey.

General comment: This box is applicable to the Annual Report. This box should provide complementary information on the performance of the surveys, the results and their main use.

1G.1 Baltic International Trawl Survey (BITS Q 4)

1. Objectives of the survey.

The main aim of the BITS ground-trawl survey is monitoring the spatial distribution and abundance of cod and flounder recruiting year-classes, and other fish species spatial distribution in a bottom zone of particular ICES Subdivisions, taking into consideration the principal hydrological parameters vertical and horizontal variations. Moreover, the survey is focused on evaluation of the fishing efficiency and abundance of different species (Catch Per Unit of Effort), analysis of the Baltic ichthyofauna biodiversity and collects materials for the main species principal biological parameters. The results are primarily used by the ICES Baltic Fisheries Assessment Working Group (WGBFAS).

2. Description of the methods used in the survey. For mandatory surveys, link to the manuals. Include a graphical representation (map).

Estonia follows the methods agreed for the BITS by the ICES Baltic International Fish Survey Working Group (WGBIFS) described in the Manual for the Baltic International Trawl Surveys (BITS).

<http://www.ices.dk/sites/pub/Publication%20Reports/ICES%20Survey%20Protocols%20%28SISP%29/SISP%207%20-%20Manual%20for%20the%20Baltic%20International%20Trawl%20Surveys%20%28BITS%29.pdf>

Map (Figure 1.) describes the approximate location of sampling sites allocated for Estonia.

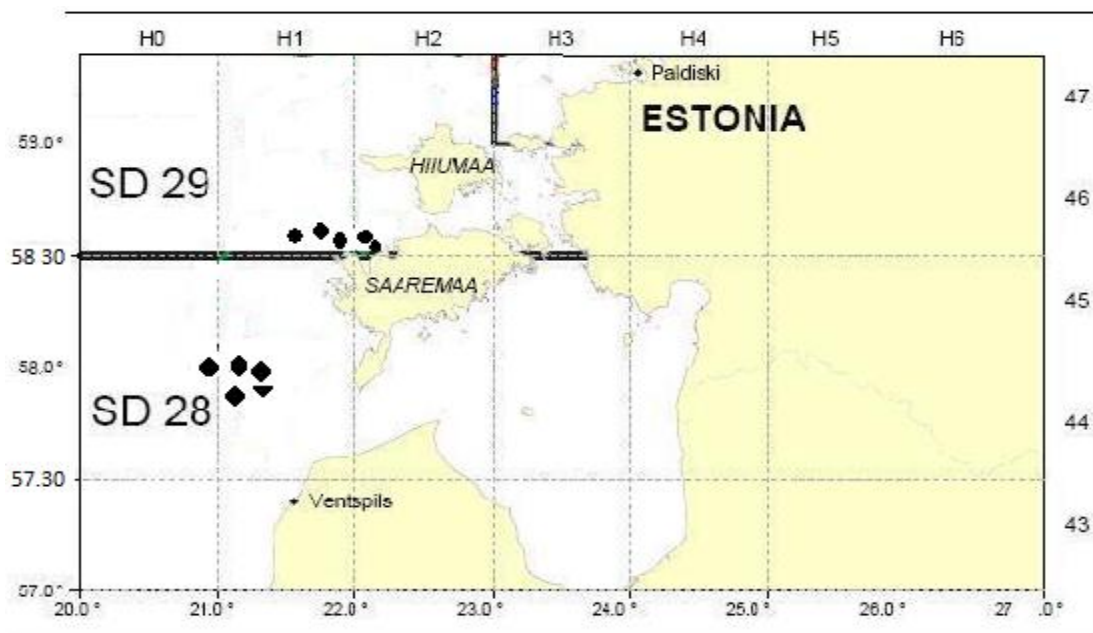


Figure 1. Approximate location of trawl stations in Sub-divisions 28.2. and 29.

3. For internationally coordinated surveys, describe the participating Member States/vessels and the relevant international group in charge of planning the survey

National parts of the international coordinated fish surveys should be carried out in the first quarter between 15 February and 31 March (spring survey) and in the fourth quarter between 1 and 30 November (autumn survey). The total distribution area of cod should be covered by the BITS trawl survey. It was agreed by the responsible ICES WGBIFS that the ICES Subdivisions 22–28 should be covered with fish control-hauls during the trawl surveys. The surveys are coordinated and the results are annually discussed by the ICES WGBIFS.

The participating countries use their research vessel or chartered fishing vessel and the standard gear. Estonia is participating in the 4th quarter (autumn) survey using the chartered Estonian fishing vessel and TV2-520 trawl.

4. Where applicable, describe the international task sharing (physical and/or financial) and the cost sharing agreement used.

Each MS performs the survey in its EEZ according to the pre-defined sampling stations. These are randomly chosen and assigned internationally from the Clear Tow Database.

5. Explain where thresholds apply

NA

6. Graphical representation (map) showing the positions (locations) of the realized samples.

Member State shall provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

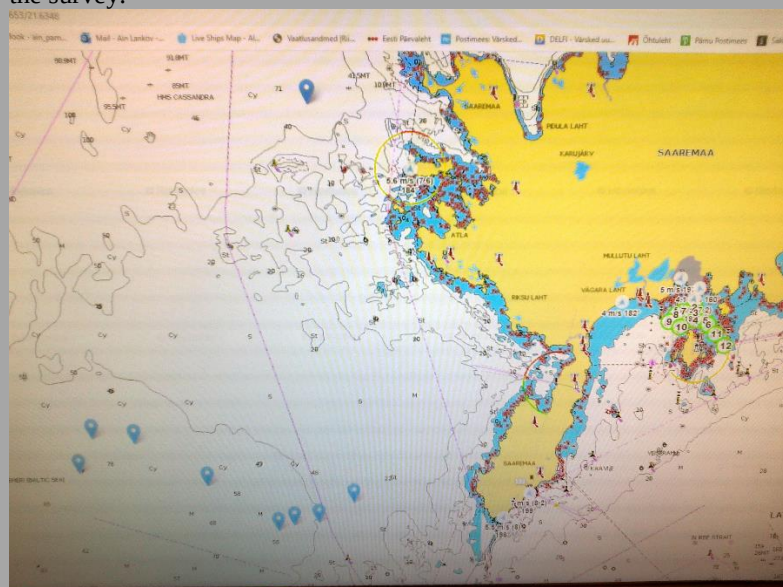


Figure 1G.1. BITS IV QRT survey in October 2020. Blue marks indicate the location of Estonian trawl hauls.

7. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. ICES WGBIFS and the Baltic RCG are in charge in coordinating the survey. (<https://www.ices.dk/sites/pub/Publication%20Reports/Forms/DispForm.aspx?ID=37344>)

8. List the main use of the results of the survey (e.g. indices, abundance estimates, environmental indicators). The results are used by the ICES WGBFAS for assessment of the Baltic cod and flounder stocks on routinely basis.

9. Extended comments (Tables 1G and 1H)

Eight countries have been participating in realization of the BITS surveys: Denmark, Germany, Latvia, Poland, Sweden, Estonia, Lithuania and Russia.

Estonia performed its part of the survey on 25 of October 2020. 9 planned trawl hauls were performed in the ICES Sub-division 28 (Fig. 1G.1).

(max 450 words per survey)

General comment: This box fulfills Chapter I of the Annex of the Implementing Decision (EU) 2019/909, on the list of mandatory surveys and thresholds, of the multiannual Union programme; and Article 2 and Article 7 paragraph (3) of the Decision (EU) 2016/1701 on the format of the WP. It is intended to specify which research surveys at sea set out in the multiannual Union programme will be carried out. Member States shall specify whether the research survey is included in Chapter I of the Annex of the implementing decision of the multiannual Union programme or whether it is an additional survey.

General comment: This box is applicable to the Annual Report. This box should provide complementary information on the performance of the surveys, the results and their main use.

1G.2 Baltic International Acoustic Survey (BIAS)

1. Objectives of the survey

The objective of the Baltic International Acoustic Survey (BIAS) and Baltic Acoustic Spring Survey (SPARS) programs are to obtain the fisheries-independent information for tuning analytical stock assessment models for Baltic herring and sprat, to standardize survey design, acoustic measurements, fishing method and data analysis throughout all national surveys where data are used as indices for assessment purposes.

2. Description of the methods used in the survey. For mandatory surveys, link to the manuals. Include a graphical representation (map)

The acoustic surveys cover the total area of ICES Division III. Each statistical rectangle of the area under investigation is allocated to one particular country by the Baltic International Fish Survey Working Group (WGBIFS), thus each country has a mandatory responsible area. The area is limited inshore by the 10 m depth line. The standard equipment used for the survey is the Simrad EK/EY-60 echosounder and the standard frequency is 38 kHz. Baltic International Acoustic Survey (BIAS) is carried out in September/October. All surveys are carried out by the agreed Manual of International Baltic Acoustic Surveys (IBAS) (<http://www.ices.dk/community/groups/Pages/WGBIFS.aspx>). The surveys are coordinated and the results discussed by the ICES WGBIFS annually. Data are stored in BIAS_DB.mdb. In future the data will be transferred to the new ICES acoustic and trawl database which is under construction.

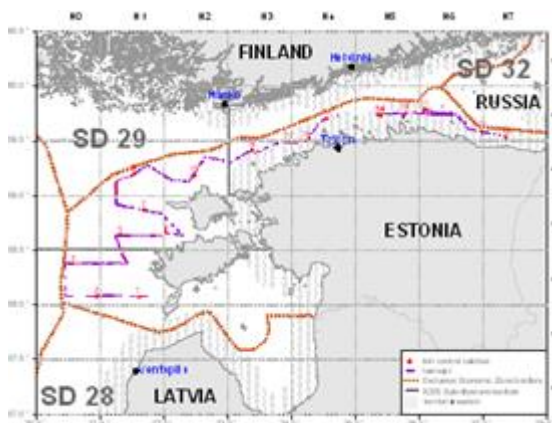


Figure 2. Location of planned track for BIAS in the Sub-divisions 28.2, 29 and 32

3. For internationally coordinated surveys, describe the participating Member States/vessels and the relevant international group in charge of planning the survey.

Each MS performs the survey in its EEZ on its own or shared research vessel. Estonia is using the Polish Research vessel BALTICA for both SPARS and BIAS surveys. The overall coordination of the coming surveys is done by the WGBIFS in order to secure the full coverage of the Baltic Sea.

4. Where applicable, describe the international task sharing (physical and/or financial) and the cost sharing agreement used.

Estonia is sharing the coverage of statistical rectangles of the Gulf of Finland during the BIAS.

5. Explain where thresholds apply

NA

6. Graphical representation (map) showing the positions (locations) of the realized samples.

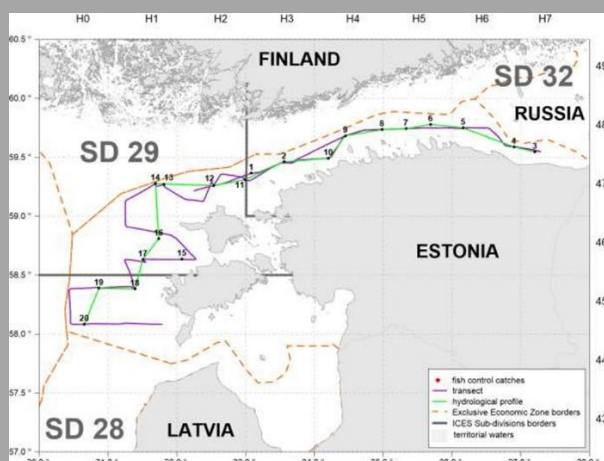


Figure 1G.2. Survey track and locations of the fish pelagic control catches and hydrological stations during of EST-POL BIAS in Sub-divisions 28.2, 29 and 32 in 18-28 October 2020 (430 NM of acoustic survey and 21 control hauls were realized).

7. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. ICES WGBIFS and the Baltic RCG are in charge in coordinating the survey.

(<https://www.ices.dk/sites/pub/Publication%20Reports/Forms/DispForm.aspx?ID=37344>)

8. List the main use of the results of the survey (e.g. indices, abundance estimates, environmental indicators). The results are used by WGBFAS for Baltic sea herring and sprat stocks assessment.

9. Extended comments (Tables 1G and 1H)

Nine countries have been participating in realization of the BIAS surveys: Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Sweden and Russia. Survey was conducted on board of the chartered Polish research vessel “Baltica”. All collected acoustic information was uploaded ICES Acoustic and Trawl Database. The results are used by the ICES WGBFAS on routinely

General comment: This box fulfills Chapter I of the Annex of the Implementing Decision (EU) 2019/909, on the list of mandatory surveys and thresholds, of the multiannual Union programme; and Article 2 and Article 7 paragraph (3) of the Decision (EU) 2016/1701 on the format of the WP. It is intended to specify which research surveys at sea set out in the multiannual Union programme will be carried out. Member States shall specify whether

the research survey is included in Chapter I of the Annex of the implementing decision of the multiannual Union programme or whether it is an additional survey.

General comment: This box is applicable to the Annual Report. This box should provide complementary information on the performance of the surveys, the results and their main use.

1G.3 Gulf of Riga Acoustic Herring Survey GRAHS

1. Objectives of the survey.

The aim of the survey is to obtain the fisheries-independent information for tuning analytical stock assessment models for Baltic herring in the Gulf of Riga (Gulf of Riga herring). The information obtained during the survey is used by the Baltic Fisheries Assessment Working Group of the ICES (WGBFAS).

2. Description of the methods used in the survey. For mandatory surveys, link to the manuals. Include a graphical representation (map).

Survey will be carried out following the agreed Manual of International Baltic Acoustic Surveys (IBAS) (<http://www.ices.dk/community/groups/Pages/WGBIFS.aspx>). The surveys are coordinated and the results are discussed by the ICES WGBIFS annually. The survey is carried out in July-August annually in order to cover the period after main spawning season when most of the stock has left the near-coast spawning grounds. In near future data will be stored in ICES Acoustic trawl surveys Database.

The map (Figure 3) describes the acoustic track and approximate position of trawl stations in the Gulf of Riga

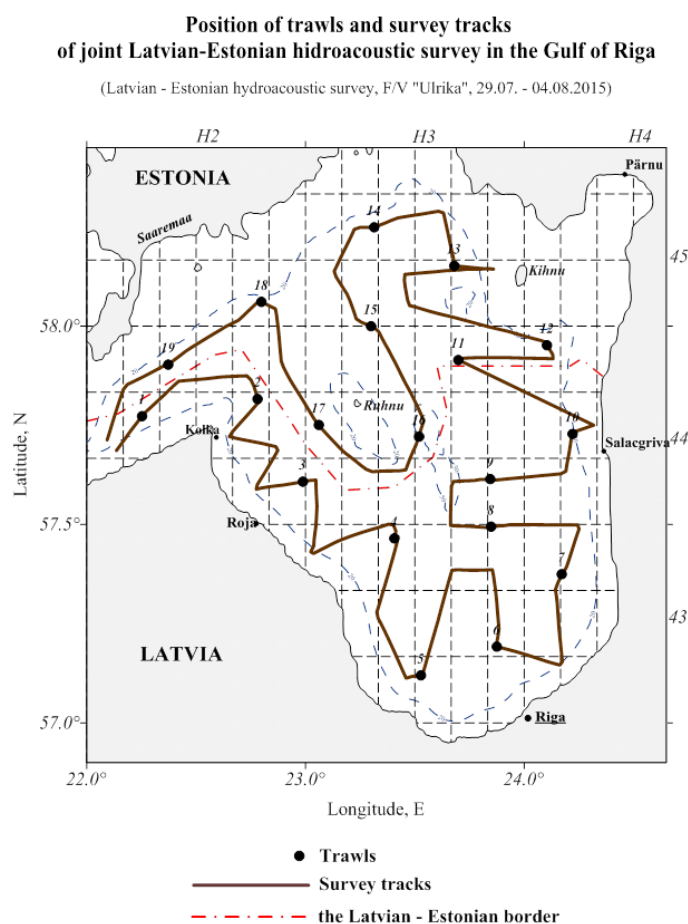


Figure 3. Acoustic track and trawl stations during the Gulf of Riga Acoustic herring survey.

3. For internationally coordinated surveys, describe the participating Member States/vessels and the relevant international group in charge of planning the survey.

The survey is carried out jointly by the Latvian and Estonian scientists on the chartered Latvian fishing vessel. The results are discussed and future surveys planned during the meeting of the ICES WGBIFS annual meetings.

4. Where applicable, describe the international task sharing (physical and/or financial) and the cost sharing agreement used.

Estonia and Latvia share the tasks of work and also the survey costs on this joint survey.

5. Explain where thresholds apply

NA

6. Graphical representation (map) showing the positions (locations) of the realized samples.

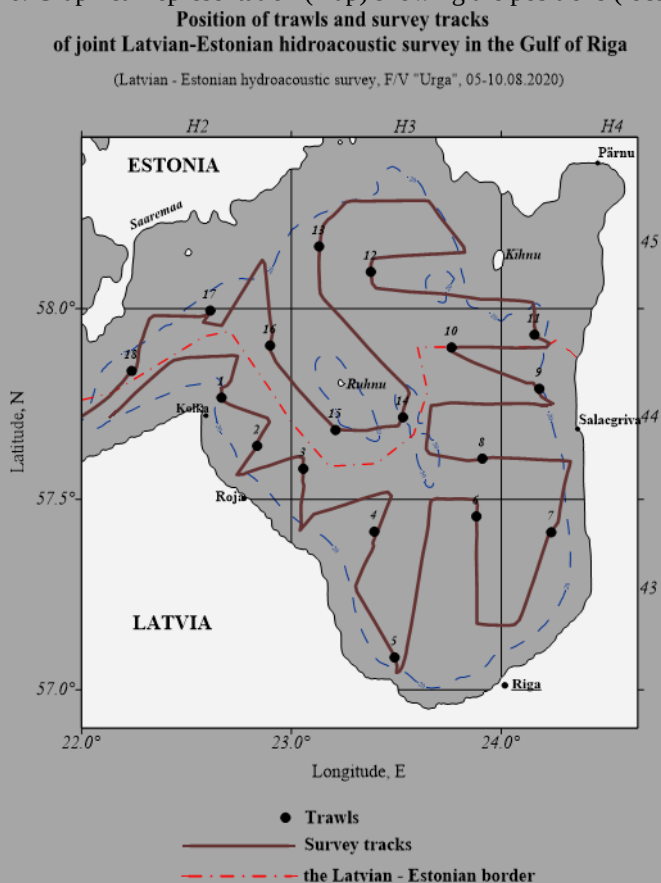


Figure 1G.3. Survey track and location of control hauls during the EST-LAT acoustic survey in the Gulf of Riga in August 2020.

7. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. ICES WGBIFS and the Baltic RCG are in charge in coordinating the survey.

(<https://www.ices.dk/sites/pub/Publication%20Reports/Forms/DispForm.aspx?ID=37344>)

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

The information on abundance, biomass and distribution of the Baltic herring in the Gulf of Riga is used by the relevant ICES working group (WGBFAS) in stock assessment process.

9. Extended comments (Tables 1G and 1H)

Survey was performed in 05.08-10.08.2020 (7 days at sea), using the same particular chartered fishing vessel as in previous years. Altogether 21 trawl hauls were performed and acoustic track of 480 NM was covered with acoustic measurements in the Estonian and Latvian EEZs (Fig. 1G.3). (max 450 words per survey)

General comment: This box fulfills Chapter I of the Annex of the Implementing Decision (EU) 2019/909, on the list of mandatory surveys and thresholds, of the multiannual Union programme; and Article 2 and Article 7 paragraph (3) of the Decision (EU) 2016/1701 on the format of the WP. It is intended to specify which research surveys at sea set out in the multiannual Union programme will be carried out. Member States shall specify whether the research survey is included in Chapter I of the Annex of the implementing decision of the multiannual Union programme or whether it is an additional survey.

General comment: This box is applicable to the Annual Report. This box should provide complementary information on the performance of the surveys, the results and their main use.

1G.4 Sprat Acoustic Survey (SPARS)

1. Objectives of the survey.

The main objective of the Sprat Acoustic Survey (SPARS) programs are to obtain the fisheries-independent information for tuning analytical stock assessment models for Baltic sprat, to standardize survey design, acoustic measurements, fishing method and data analysis throughout all national surveys where data are used as indices for assessment purposes.

2. Description of the methods used in the survey. For mandatory surveys, link to the manuals. Include a graphical representation (map)

The acoustic survey covers the main area of sprat distribution in the Baltic. Each statistical rectangle of the area under investigation is allocated to one particular country by the Baltic International Fish Survey Working Group (WGBIFS), thus each country has a mandatory responsible area. The area is limited inshore by the 10 m depth line. The standard equipment used for the survey is the Simrad EK/EY-60 echosounder and the standard frequency is 38 kHz. The Baltic Acoustic Spring Survey (SPARS) is carried out annually in May. Survey is carried out by the agreed Manual of International Baltic Acoustic Surveys (IBAS) (<http://www.ices.dk/community/groups/Pages/WGBIFS.aspx>). The survey is annually coordinated and the results discussed by the ICES WGBIFS. Data is stored in ICES Acoustic trawl surveys Database.

Map (Figure 4) describes the location of sampling sites allocated for Estonia during the SPARS.

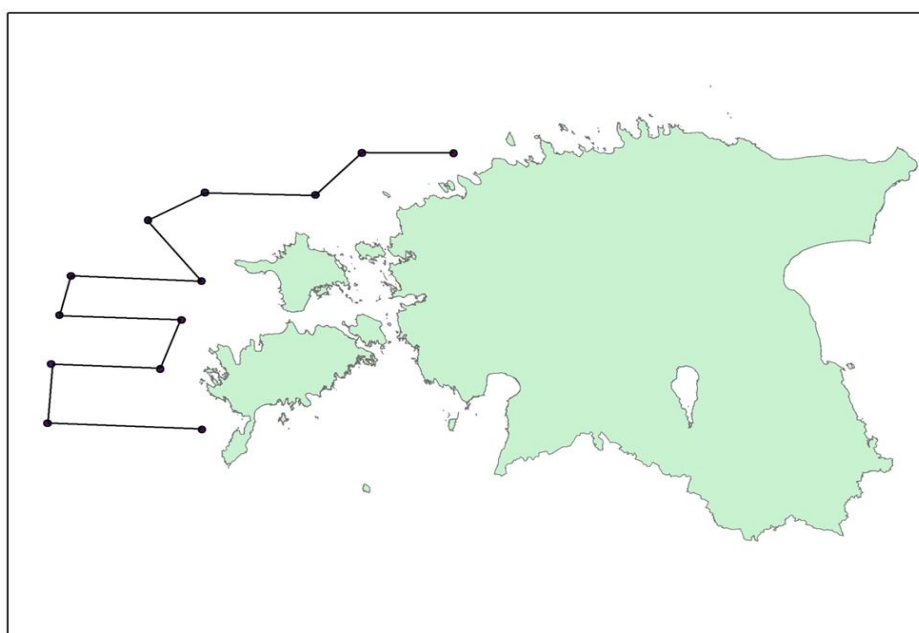


Figure 4. Location of planned acoustic track for Estonian SPARS in the Sub-divisions 28.2, 29 and 32.

3. For internationally coordinated surveys, describe the participating Member States/vessels and the relevant international group in charge of planning the survey

Each MS performs the survey in its EEZ on its own or shared research vessel. Estonia is using the Polish Research vessel BALTICA. The overall coordination of the coming surveys is done by the WGBIFS in order to secure the full coverage of the agreed during the WGBIFS area.

4. Where applicable, describe the international task sharing (physical and/or financial) and the cost sharing agreement used

Each MS performs the survey in its EEZ according to the agreed coverage of the statistical rectangles.

5. Explain where thresholds apply

NA

6. Graphical representation (map) showing the positions (locations) of the realized samples.

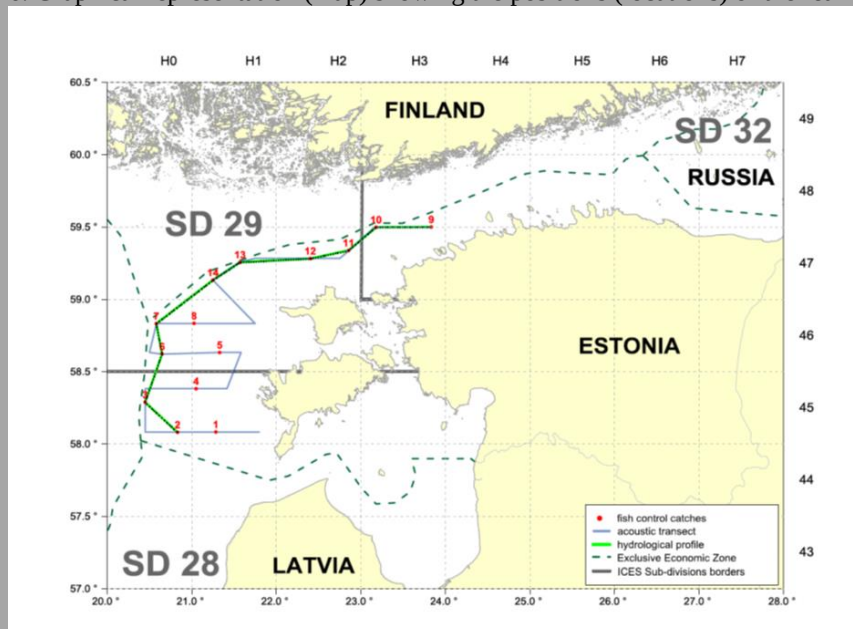


Figure 1G.4. Survey track of EST-POL SPRAS in Sub-divisions 28.2, 29 and 32 in May 2020 (291 NM of acoustic survey and 14 control hauls were realized).

7. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. ICES WGBIFS and the Baltic RCG are in charge in coordinating the survey. (<https://www.ices.dk/sites/pub/Publication%20Reports/Forms/DispForm.aspx?ID=37344>)

8. List the main use of the results of the survey (e.g. indices, abundance estimates, environmental indicators). Information on abundance, biomass and distribution of the Baltic herring and sprat obtained during the SPARS are used by the relevant ICES working group (WGBFAS) in stock assessment process (to produce the tuning files) of the Baltic sprat on routinely basis.

9. Extended comments (Tables 1G and 1H)

Five countries have been participating in realization of the SPRAS surveys: Estonia, Germany, Latvia, Lithuania and Poland. SPRAS survey was conducted between 27-31 May 2020, on board of the Polish research vessel “Baltica” (Fig. 1G.4.) All collected acoustic information was uploaded ICES Acoustic and Trawl Database.

(max 450 words per survey)

General comment: This box fulfills Chapter I of the Annex of the Implementing Decision (EU) 2019/909, on the list of mandatory surveys and thresholds, of the multiannual Union programme; and Article 2 and Article 7 paragraph (3) of the Decision (EU) 2016/1701 on the format of the WP. It is intended to specify which research surveys at sea set out in the multiannual Union programme will be carried out. Member States shall specify whether the research survey is included in Chapter I of the Annex of the implementing decision of the multiannual Union programme or whether it is an additional survey.

General comment: This box is applicable to the Annual Report. This box should provide complementary information on the performance of the surveys, the results and their main use.

1G.5 Estonian Fish Larvae Survey

1. Objectives of the survey

This national survey has been conducted annually since 1947 to study the distribution and abundance of fish larvae and juveniles with the aim to provide primary information on herring yearclass abundance and to understand the affecting environmental background. Results of the survey is used for early estimation of the spawning success and yearclass potential of herring, but also commercially important percids (perch and pikeperch) and smelt.

2. Description of the methods used in the survey. For mandatory surveys, link to the manuals. Include a graphical representation (map)

Nine fixed stations are visited weekly (May-July). Hensen larval fish net is used for 10 min. hauls in NE of the Gulf of Riga in commercially important fish spawning and nursery grounds.

Larvae and juveniles will be collected using research vessels of the Estonian Marine Institute. Larvae are identified, measured and counted. Plankton samples and environmental data are collected and analysed. The map (Figure 5) describes the location of the stations which are visited during the survey.

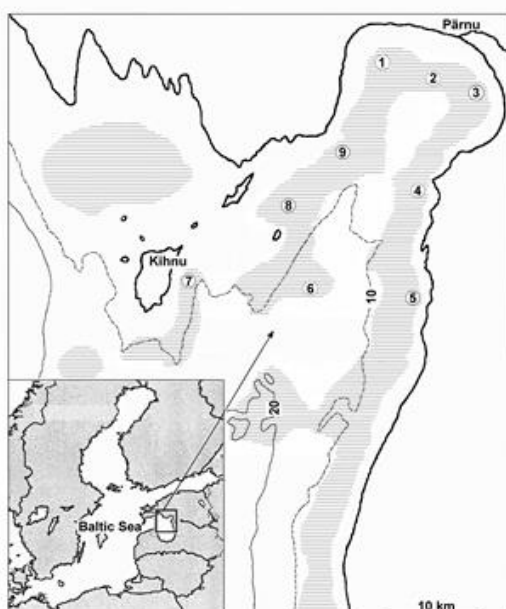


Figure 5. Location of the stations: 1 – Audru, 2 – Poi, 3 – Uulu, 4 – Tahku, 5 – Timmkanal, 6 – Palva, 7 – Kihnu, 8 – Sorgu ja 9 – Liu

6. Graphical representation (map) showing the positions (locations) of the realized samples.

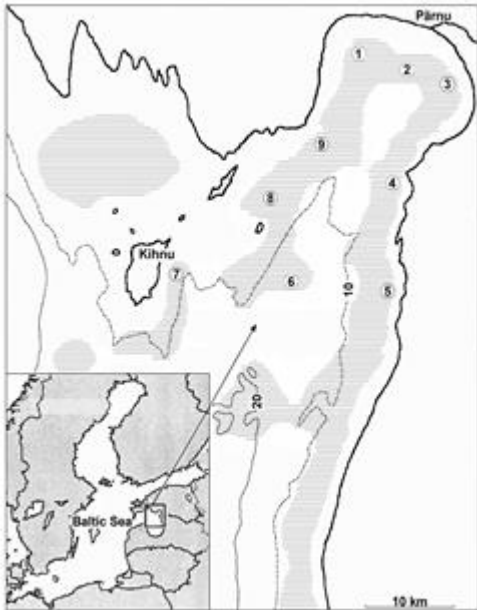


Figure 1G.5 . Location of 9 larval herring sampling stations in the NE of the Gulf of Riga in 2020.

7. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Not coordinated internationally.

8. List the main use of the results of the survey (e.g. indices, abundance estimates, environmental indicators).
Data on abundance and distribution of the spring spawning herring larvae in the Gulf of Riga is used to calculate larval herring index N2. The rationale for this approach is that (i) the eggs and larvae of a species should be in direct proportion to the biomass of the adults, (ii) estimating the abundance of eggs or larvae is either more accurate or less costly than estimating the abundance of adults, and (iii) ichthyoplankton surveys provide data on a different group of species than trawl surveys for adults. One commonly used analytical approach to developing indices from ichthyoplankton surveys relies on the mean larval abundance across a survey area.

9. Extended comments (Tables 1G and 1H)

Survey was conducted from April until the end of July (normally once a week), using EMI RV AURELIE. Altogether 13 trips were performed, 89 fish hauls performed and 29 vertical CTD profiles measured.

(max 450 words per survey)

General comment: This box fulfills Chapter I of the Annex of the Implementing Decision (EU) 2019/909, on the list of mandatory surveys and thresholds, of the multiannual Union programme; and Article 2 and Article 7 paragraph (3) of the Decision (EU) 2016/1701 on the format of the WP. It is intended to specify which research surveys at sea set out in the multiannual Union programme will be carried out. Member States shall specify whether the research survey is included in Chapter I of the Annex of the implementing decision of the multiannual Union programme or whether it is an additional survey.

General comment: This box is applicable to the Annual Report. This box should provide complementary information on the performance of the surveys, the results and their main use.

1G.6 Gulf of Riga Fish survey

1. Objectives of the survey

Objective of this survey is to collect fisheries independent data for tuning the pikeperch and perch VPA assessment and get information about other commercially important species (smelt, cyprinids).

Trawl survey in the Pärnu Bay was conducted already in earlier decades (since 1950s), and resumed 2009.

2. Description of the methods used in the survey. For mandatory survey, link to the manuals. Include a graphical representation (map).

Research vessel of the Estonian Marine Institute AURELIE is used for trawling. The trawl (working depth 0.3 m from the bottom) is pulled with the speed of 3 knots for 30 minutes. The trawl mouth is 2 m high and 6 m wide, distance between doors is 20 m and maximum distance between the 8.2 m long trawl wings is 12 m. Mesh size is 60 mm (knot to knot), at the tip of the trawl wings, 45 mm at the trawl mouth and decreases gradually to 10 mm at the codend. Six fixed trawl transects are situated three to eight km from shore (water depth five to nine m) to cover the entire length of the Pärnu Bay. All fixed stations are fished in May, September, October, November and December. The survey is coordinated and the results are discussed by the HELCOM FISH-PRO annually. Survey is carried out following the manual of HELCOM: (<https://portal.helcom.fi/meetings/FISH-PRO%20III%201-2019-592/MeetingDocuments/4-1%20Updated%20guidelines%20for%20coastal%20fish%20monitoring.pdf>)

Map (Figure 6.) describes the location of sampling sites which are visited during the survey.

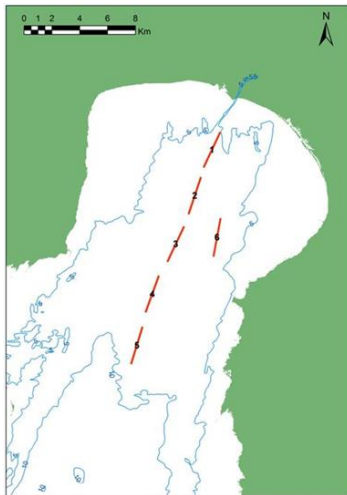


Figure 6. Location of the Gulf of Riga Fish survey transects.

6. Graphical representation (map) showing the positions (locations) of the realized samples.

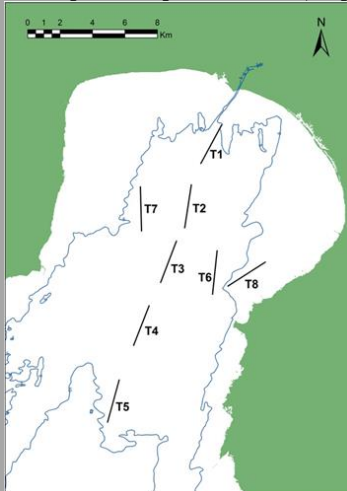


Figure 1G.6 Map of trawl transects fished in 2020

7. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group.

Not internationally coordinated. 8. List the main use of the results of the survey (e.g. indices, abundance estimates, environmental indicators). Results are used in national context, primarily to assess the pikeperch and perch stock, but also abundance index for other species. 9. Extended comments (Tables 1G and 1H) Research vessel AURELIE of the Estonian Marine Institute is used. In 2020 trawling was conducted in April, May, August, September, October and November. 41 fish hauls were made during six days at sea. Altogether 22 species of fish were caught, and 4754 specimens were measured for length.
General comment: This box fulfills Chapter I of the Annex of the Implementing Decision (EU) 2019/909, on the list of mandatory surveys and thresholds, of the multiannual Union programme; and Article 2 and Article 7 paragraph (3) of the Decision (EU) 2016/1701 on the format of the WP. It is intended to specify which research surveys at sea set out in the multiannual Union programme will be carried out. Member States shall specify whether the research survey is included in Chapter I of the Annex of the implementing decision of the multiannual Union programme or whether it is an additional survey.
General comment: This box is applicable to the Annual Report. This box should provide complementary information on the performance of the surveys, the results and their main use.
1G.7 Coastal fish survey 1. Objectives of the survey National annual survey started in 1992, now in 10 fixed areas. Collected information (CPUE, age and length distribution, age-length keys for commercial species etc) form the basis for advice for commercially important stocks (perch, pikeperch, flounder, eel, cyprinids) and allow following fish assemblage dynamics, including abundance of alien species and their distribution. 2. Description of the methods used in the survey. For mandatory surveys, link to the manuals. Include a graphical representation (map) Annual gill-net survey in defined areas along the Estonian coast, in fixed (Hiiumaa, Kõiguste and Küdema) or random stations. Each station consists of a series of gill nets of fixed mesh sizes and construction. 24-72 stations are fished in each area (less in Vaindloo). Additionally in six areas (Vilsandi, Kihnu, Kõiguste, Matsalu, Saarnaki and Käsmu) minimum 80 standard fyke net/days are fished for eel CPUE and length distribution. Methods: Thoresson, 1995, HELCOM 2015 (http://www.helcom.fi/Documents/Action%20areas/Monitoring%20and%20assessment/Manuals%20and%20Guidelines/Guidelines%20for%20Coastal%20fish%20Monitoring%20of%20HELCOM.pdf)

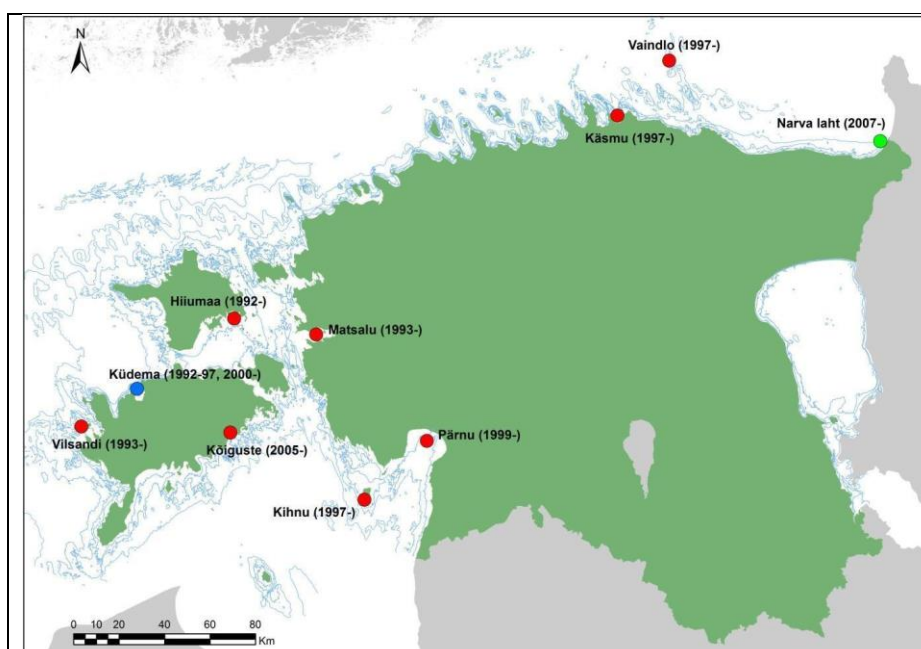


Figure 7. Map of research areas and the data series starting year.

3. For internationally coordinated surveys, describe the participating Member States and the relevant international group in charge of planning the survey.

Similar surveys are conducted in Sweden, Finland, Lithuania, Poland, Germany and Latvia. Data are stored in national database, and delivered to HELCOM.

6. Graphical representation (map) showing the positions (locations) of the realized samples.



Fig 1G.7. Map of research areas in 2020.

7. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Not internationally coordinated.

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

Data on abundance, relative year class strength, size and age distribution, structure of coastal fish assemblages are used in routine basis for giving advice for main commercially important species (also those not namely listed in the National WP). Most of our coastal fish are listed in EU regulation 1251/2016 Table 1D as relevant to HELCOM. Additional data on bycatch (incl. birds), seal damage to catch, distribution and abundance of alien species, microplastics in fish stomachs is collected. Data is also used to calculate Marine Strategy Framework Directive indicators.

9. Extended comments (Tables 1G and 1H)

Test fishing was conducted in all 10 areas. In total 299 stations were fished, and 37504 specimens belonging to 38 species were measured.

SECTION 2: FISHING ACTIVITY DATA

Text Box 2A: Fishing activity variables data collection strategy

General comment: This box fulfills paragraph 4 of Chapter III of the Annex of the Delegated Decision (EU) 2019/910 on the multiannual Union programme; and Article 2, Article 4 paragraph (2) point (b) and Article 5 paragraph (2) of the Implementing Decision (EU) 2016/1701 on the format of the WP. It is intended to describe the method used to derive estimates on representative samples where data are not to be recorded under Regulation (EU) No 1224/2009 or where data collected under Regulation (EU) No 1224/2009 are not at the right aggregation level for the intended scientific use.
General comment: This box is applicable to the Annual Report. This box should provide information on the implementation of the data collection of fishing activity variables of Member States.
1. Description of methodologies used to cross-validate the different sources of data The census data are obtained from an administrative source – Estonian Fisheries Information System (an electronic database - includes logbook and coastal fishing data, fishing vessel register, first-sales data etc.). 2. Description of methodologies used to estimate the value of landings Value of landings is calculated through the multiplication of the amount of landings per species in kilograms and the average price per kilogram live weight per species. 3. Description of methodologies used to estimate the average price (it is recommended to use weighted averages, trip by trip) Estimation about the average price per kilogram live weight per species based on first-sales data. 4. Description of methodologies used to plan collection of the complementary data (sample plan methodology, type of data collected, frequency of collection etc) No additional studies are planned.
5. Deviations from Work Plan methodology used to cross-validate the different sources of data No deviations 6. Deviations from Work Plan methodology used to estimate the value of landings. No deviations 7. Deviations from Work Plan methodology used to estimate the average price. No deviations 8. Deviations from Work Plan methodology used to plan collection of the complementary data No deviations

SECTION 3: ECONOMIC AND SOCIAL DATA

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

General comment: This box fulfils paragraph 5 points (a) and (b) of Chapter III of the Annex of the Delegated Decision (EU) 2019/910 on the multiannual Union programme; and Article 2, Article 4 paragraphs (1), (2) and (5) and Article 5 paragraph (2) of the Implementing Decision (EU) 2016/1701 on the format of the WP. It is intended to specify data to be collected under Tables 5(A) and 6 of the delegated decision on the multiannual Union programme.

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

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

Selection of the data source depends on the variable and its availability. Main sources are:

- Survey (questionnaires - the variables which are not available from administrative sources);
- Estonian Fisheries Information System (an electronic database - includes logbook and coastal fishing data, fishing vessel register and first-sales data);
- Estonian Agricultural Registers and Information Board (information about operating and investment subsidies)

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

Total population is defined as all vessels that are in the fishing vessel register, sampling is done through owner (management unit).

Logbook and first-sales data, which are obtained from administrative sources, are census data as reporting this info is obligatory by law. To collect other variables survey is conducted. Estonian fishing fleet can be divided into two – open sea trawlers and coastal fishing fleet, that are using mainly passive gears. All trawlers are under survey (census), as well as those boats from coastal fleet that catch at least 100t per year (based on previous year's catches). Rest of the coastal fleet is handled by stratified probability sample.

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

Coastal fleet (length classes 0-< 10 m and 10-< 12 m), that catch less than 100t per year, are sampled by stratified probability sample. Every sample group will have a weight that is used for extrapolation. The weight is corrected so that non responses would have less influence. The sampling unit is a vessel and a randomly selected sample of vessels is selected for both segment.

For other fleet segments all vessels are covered by census based approach.

Fishermen will be informed by 15th of December if they are chosen to the sampling frame. The list is updated and obligations corrected in the beginning of the sampling year. Raw data are obtained through online questionnaire by 1st of August. Questionnaires and all related information are available in Statistics Estonia homepage <https://www.stat.ee/andmete-esitamine>.

4. Description of methodologies used for estimation procedures

In the case of missing or unreliable data, estimate imputation based on established regulations will be used. The data of the enterprises that did not submit the questionnaire are replaced by the respective average of responded similar enterprises.

For statistical units weights are calculated, which are used to expand the data of the sample survey to the total population.

Microdata are aggregated to the level necessary for analysis. This includes aggregating the data according to the classification, and calculating various statistical measures, e.g. average, median, dispersion, etc.

The collected data are converted into statistical output. This includes calculating additional indicators.

5. Description of methodologies used on data quality

Validation includes arithmetical and qualitative controls including comparison with other data.

To assure the quality of processes and products, Statistics Estonia applies the EFQM Excellence Model, the European Statistics Code of Practice and the Quality Assurance Framework of the European Statistical System (ESS QAF). Statistics Estonia is also guided by the requirements in § 7. “Principles and quality criteria of producing official statistics” of the Official Statistics Act.

Statistics Estonia performs all statistical activities according to an international model (Generic Statistical Business Process Model – GSBPM). According to the GSBPM, the final phase of statistical activities is overall evaluation using information gathered in each phase or sub-process; this information can take many forms, including feedback from users, process metadata, system metrics and suggestions from employees. This information is used to prepare the evaluation report which outlines all the quality problems related to the specific statistical activity and serves as input for improvement actions.

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

No deviations

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

No deviations.

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

No deviations

9. Deviations from Work Plan methodology used for estimation procedures

No deviations

10. Quality assurance

10.1 Sound methodology

Sound methodology is ensured by Estonian Statistics.

10.2. Accuracy and reliability

Response rate and achieved sample rate are provided in Table 3A.

Accuracy and reliability is ensured by Estonian Statistics.

10.3. Accessibility and Clarity

Are methodological documents publicly available? Yes

Are data stored in databases? Yes

Where can methodological and other documentation be found? <https://www.envir.ee/et/eesmargid-tegevused/kalandus/kalanduse-riiklik-andmekogumise-programm-akp>

SECTION 3: ECONOMIC AND SOCIAL DATA

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

General comment: This box fulfills paragraph 5 point (b) and paragraph 6 point (b) of Chapter III of the Annex Delegated Decision (EU) 2019/910 on the multiannual Union programme; and Article 2 and Article 4 paragraph (3) point (c) of the Implementing Decision (EU) 2016/1701 on the format of the WP. It is intended to specify data to be collected under Table 6 of the delegated decision on the multiannual Union programme.
General comment: This box is applicable to the Annual Report. This box is intended to provide information on the results obtained from the implementation of the pilot study (including deviations from planned and justifications as to why if this was not the case).
Social data collection is now part of the data collection programm.

SECTION 3: ECONOMIC AND SOCIAL DATA

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

General comment: This box fulfills paragraph 6 points (a) and (b) of Chapter III of the Annex of the Delegated Decision (EU) 2019/910 on the multiannual Union programme; and Article 2, Article 4 paragraphs (1) and (5) and Article 5 paragraph (2) of the Implementing Decision (EU) 2016/1701 on the format of the WP. It is intended to specify data to be collected under Tables 6 and 7 of the delegated decision on the multiannual Union programme.
General comment: This box is applicable to the Annual Report. This box should provide information on the implementation of the socio-economic data collection for aquaculture of Member States.
According to the multiannual Union programme for the collection, management and use of data in the fisheries and aquaculture sectors the collection of social, economic and environmental data on freshwater aquaculture is optional. Because there is no marine aquaculture and the total production of freshwater aquaculture is very low, Estonia does not collect data on aquaculture under the EU MAP

SECTION 3: ECONOMIC AND SOCIAL DATA

Pilot Study 4: Environmental data on aquaculture

General comment: This box fulfills paragraph 6 point (c) of Chapter III of the Annex of the Delegated Decision (EU) 2019/910 on the multiannual Union programme; and Article 2 and Article 4 paragraph (3) point (d) of the Implementing Decision (EU) 2016/1701 on the format of the WP. It is intended to specify data to be collected under Table 8 of the delegated decision on the multiannual Union programme.
General comment: This box is applicable to the Annual Report. This box is intended to provide information on the results obtained from the implementation of the pilot study (including deviations from planned and justifications as to why if this was not the case).
According to the multiannual Union programme for the collection, management and use of data in the fisheries and aquaculture sectors the collection of social, economic and environmental data on freshwater aquaculture is optional. Because there is no marine aquaculture and the total production of freshwater aquaculture is very low, Estonia does not collect data on aquaculture under the EU MAP.

SECTION 3: ECONOMIC AND SOCIAL DATA

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

General comment: This box fulfils footnote 6 of paragraph 1.1(d) of Chapter III of the Annex of the Delegated Decision (EU) 2019/910 on the multiannual Union programme; and Article 2, Article 4 paragraphs (1) and (5) and Article 5 paragraph (2) of the Implementing Decision (EU) 2016/1701 on the format of the WP. It is intended to specify data to be collected under Table 10 of the delegated decision on the multiannual Union programme.
General comment: This box is applicable to the Annual Report. This box should provide information on the implementation of the socio-economic data collection for aquaculture of Member States.
According to the multiannual Union programme for the collection, management and use of data in the fisheries and aquaculture sectors the collection of data on the processing industry is optional. Because similar data is already collected by Statistics Estonia and forwarded to Eurostat, Estonia will not collect data on the processing industry in frames of EU MAP, to avoid the duplication in data collection.

Text Box 4A: Sampling plan description for biological data

General comment: This box fulfills Article 3, Article 4 paragraph (4) and Article 8 of the Implementing Decision (EU) 2016/1701 on the format of the WP and forms the basis for the fulfilment of paragraph 2 point (a)(i) of Chapter III of the Annex of the Delegated Decision (EU) 2019/910 on the multiannual Union programme. This Table refers to data to be collected under Tables 1(A), 1(B) and 1(C) of the delegated decision on the multiannual Union programme.

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

All fleet segments of commercial fisheries are sampled (strata OSF PEL–29 vessels; GOR PEL–15 vessels; HSF-1 –3 vessels; HSF-2 – 2 and stratum SB – 1585 vessels).

Primary sampling unit (PSU) for OSF PEL and GOR PEL segments is time unit of week and sampling takes place onshore. Sampling scheme for these segments follow the Hierarchy 8 in RDBES. Description of RDBES hierarchy 8: Sampling where time (e.g. days, weeks) is the primary sampling unit (PSU) and vessel is the secondary sampling units (SSU). For the pelagic fisheries (OSF PEL, GOR PEL) our sampling strategy is that in every month when active fishing is ongoing (this depends on the year and subarea) subset of week(s) are sampled (PSU=week). The OSF PEL stratum consists of multiple subareas (SD29, 28.2, 32) and each of this stratum is sampled separately, as the aim is to get detailed description of the fisheries per subarea, even though all these subareas belong under one stock unit (Central Baltic herring stock and Baltic sprat stock unit). Average number of PSU during the reference years was calculated as the sum of subareas. E.g. for OSF PEL the number of weeks in 2018 when fishing was conducted was as follows: SD 28.2 - 31 weeks; SD29 - 40 weeks, SD32 - 49 weeks. The total number of weeks in 2018 when fishing was ongoing is calculated as the sum of weeks in all subareas (31+40+49=110). Same is done for all reference years and then divided by 3 to get the average per reference time period. So in OSF PEL on average 2 weeks per month per area are sampled during the active fishing period. GOR PEL is a separate stratum (and stock unit) consisting only subarea SD28.1 (Gulf of Riga) and there too on average 2 weeks per month, during fishing season, are sampled. OSF PEL segment targets *Clupea harengus* and *Sprattus sprattus* in central Baltic (ICES SD 25-29 and 32 excluding 28.1), while GOR PEL targets *Clupea harengus* in Gulf of Riga (SD28.1).

Stratum SB is sampled onshore or by self-sampling by fishermen according to the Hierarchy 8 in RDBES. PSU is month and sampling is species specific and evenly distributed by catch volumes along the coastal area. Average number of PSU during reference years is calculated with the same logic as for OSF PEL and GOR PEL. In total 6 species are sampled in different sub areas: *Platichthys flesus* (SD28-29, 32), *Perca fluviatilis* (SD28.1), *Sander lucioperca* (SD28.1), *Salmo salar* (SD28, 32), *Salmo trutta* (SD32) and *Clupea harengus* (caught with FPN during spawning season in SD28.1, 29, 32).

Stratums HSF-1 (Eastern Arctic) and HSF-2 (NAFO) are sampled on sea and according to the Hierarchy 3 in RDBES the corresponding PSU is fishing trip. In the Eastern Arctic (ICES areas I and II) the sampled species are *Gadus morhua*, *Pandalus borealis* and *Reinhardtius hippoglossoides*. *Sebastes* spp. is sampled in NAFO areas (3LN, 3M and 3O), but *Gadus morhua* only in NAFO 3M area. *Limanda ferruginea* will be sampled in NAFO areas (3LNO) and *Reinhardtius hippoglossoides* in areas (3KLMNO).

Samples of biological variables are taken as indicated in Table1B. Sample of 100 fish from catch is taken and analysed or when less than 100 then all the individuals of the catch are sampled. The latter case describes mostly sampling of *Salmo salar*, *Salmo trutta* and *Sander lucioperca* where sample sizes are lower due to the nature of fishery. Selected Eastern Arctic and North Atlantic species are sampled annually by scientific observers on board as indicated in Table1B.

The number of sampled variables from commercial catches for different species is related to the stock and catch size, number of fisheries involved, availability of survey data, end-user needs etc. In certain cases, the quota availability, e.g. in the second half of the year, and/or fishers' behavior may affects both fishery and thus also the sampling intensity. Sampling effort will be directed to the most important fishing grounds and fishing seasons.

Sampling plan purpose, design, quality assurance procedures, analysis methods, sampling units, sampling frames and sample selection methods and data archiving methods are coordinated (RCGs), and follow the needs of the relevant end-users (e.g. ICES, NAFO) via their respective working groups (ICES WGBFAS, WGBIFS, WGBAST etc.). To ensure the quality of data, observers on board are regularly trained and briefed before every trip. Data of different observers are cross-checked.

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

2. Deviations from the Work Plan

Due to unexpectedly high presence of sprat in the pelagic catches of Gulf of Riga sprat samples were taken additionally which caused oversampling in stratum GOR PEL.

It should be stressed that commercial sample numbers for herring in Table 1C include both trawl fishery and trapnet (pound net) fishery. In Table 4A, trapnet fishery is included to stratum SB, and thus total number of sampled fish in OSF PEL and GOR PEL is lower than in Table 1C. Table 4A in stratum rows OSF PEL and GOR PEL contain only combined commercial catch of herring and sprat.

Only 50% of planned number of PSUs in Eastern Arctic (ICES areas I and II) were achieved because of the international travel restrictions (side effect of COVID-19 crises).

3. Action to avoid deviations

No good solutions.

(max. 1000 words per region OR fishing ground)

SECTION 5: DATA QUALITY

Text Box 5A: Quality assurance framework for biological data

General comment: This box is applicable to the Annual Report. This box fulfills Article 5 paragraph (2) point (a) of the Implementing Decision (EU) 2016/1701 on the format of the WP. This box is intended to specify data to be collected under Tables 1(A), 1(B) and 1(C) of the Annex of the Delegated Decision (EU) 2019/910 on the multiannual Union programme. Use this box to provide additional information on Table 5A of the Annual Report.

1. Evidence of data quality assurance

Quality assurance framework for biological data have been made available (survey manuals, sampling commercial fishery in Baltics, sampling manual for our distant fleet, how the data is handled, stored, methodology of phone survey of recreational fishery etc): <https://www.envir.ee/et/eesmargid-tegevused/kalandus/kalanduse-riiklik-andmekogumise-programm-akp>

2. Sampling design

3. Sampling implementation

4. Data capture

5. Data Storage

A major issue is storage of otoliths and other structures for age determination. Currently, we are attempting to put together historical collection of these structures (to be stored in the database of the Natural Museum of the University of Tartu). We hope to make use of this system also for recent data.

6. Data processing

For areas outside the Baltic Sea sampling depends on available quotas and in the Eastern Arctic (ICES areas I and II) is not predictable due to limited observer coverage; our data can be hardly evaluated nationally.

SECTION 5: DATA QUALITY

Text Box 5B: Quality assurance framework for socioeconomic data

General comment: This box fulfills Article 5 paragraph (2) point (b) of the Implementing Decision (EU) 2016/1701 on the format of the WP. This box is intended to specify data to be collected under Tables 5(A), 6 and 7 of the Annex of the Delegated Decision (EU) 2019/910 on the multiannual Union programme. Use this box to provide additional information on Table 5B of the Annual Report.

1. Evidence of data quality assurance

Within this section MS shall provide information on the methodology used to assure the quality of the data collected, highlighting those aspects where changes have been made during the sampling year. Information shall be provided by each sector (Fishing fleet, Aquaculture, Fish processing) for which data was collected and by each data collection scheme. In the case where the same quality assurance framework is applied to all sectors or/and all data collection schemes, information can be provided at general level with the indication “all sectors” or “all data collection schemes”.

In those sections of Table 5B where “N” is indicated, Member States shall explain the main constraints and/ or the steps taken to fulfil this obligation. In the cases where a reference documents is requested, Member States shall provide a web link.

In cases where documents are not publicly available, due to institutions internal policy, confidentiality or other reasons, this shall be indicated by the Member State.

According to the WP, socioeconomic data was collected only for fishing fleet. Census data collection scheme was used, where data collection is mandatory for all fishermen by Technical Measures regulation. To collect other variables probability sample survey was conducted by Statistics Estonia. Due to the low response rates in voluntary based surveys in previous years, Estonia changed the data collector. As the governmental organisation Statistics Estonia has a stronger legal base for obtaining the data. Response rate has improved significantly.

2. Section P3 Impartiality and objectiveness

Explain main constraints and/ or steps taken, if ‘N’ (no) was indicated in Table 5B

3. Section P4 Confidentiality

Explain main constraints and/ or steps taken, if ‘N’ (no) was indicated in Table 5B

4. Section P5 Sound methodology

Explain main constraints and/ or steps taken, if 'N' (no) was indicated in Table 5B

Information on this principle should be briefly explained in Text boxes 3A, 3B and 3C. Description of methodologies used on data quality.

5. Section P6 Appropriate statistical procedures

Explain main constraints and/ or steps taken, if 'N' (no) was indicated in Table 5B. Please provide a link if the documented revisions are available and not confidential.

6. Section P7 Non-excessive burden on respondents

Explain main constraints and/ or steps taken, if 'N' (no) was indicated in Table 5B

7. Section P8 Cost effectiveness

Explain main constraints and/ or steps taken, if 'N' (no) was indicated in Table 5B

8. Section P9 Relevance

Explain main constraints and/ or steps taken, if 'N' (no) was indicated in Table 5B

9. Section P10 Accuracy and reliability

Explain main constraints and/ or steps taken, if 'N' (no) was indicated in Table 5B. Information on this principle should be briefly explained in Text boxes 3A, 3B and 3C. Description of methodologies used on data quality.

10. Section P11 Timeliness and punctuality

Explain main constraints and/ or steps taken, if 'N' (no) was indicated in Table 5B

11. Section P12 coherence and comparability

Explain main constraints and/ or steps taken, if 'N' (no) was indicated in Table 5B

12. Section P13 Accessibility and Clarity

Explain main constraints and/ or steps taken, if 'N' (no) was indicated in Table 5B. Information and links to documentation on this principle should be briefly explained in Text boxes 3A, 3B and 3C. Description of methodologies used on data quality.

(max. 900 words per Region/RFMO/RFO/IO/NSB OR sector)