Institute of Food Safety, Animal Health and Environment BIOR

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) 2021/…

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

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

2022-2024

Version [3.0]

Riga, Latvia, 23.11.2021

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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 new data collection program (DCP) period 2022-2024 it is not planned of any major methodological changes in approach for data collection in comparison with the previous years.
The following institution will be involved in implementation of Latvian Work Plan for data collection in the fisheries and aquaculture sectors:

Institute of Food Safety, Animal Health and Environment "BIOR", Lejupes str. 3, LV-1076, Riga, Latvia: phone: +371 26366098, e-mail: bior@bior.lv, website: www.bior.lv,

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Didzis Ustups, Head of Fish Resources Research department, Institute of Food Safety, Animal Health and Environment "BIOR", Lejupes str. 3, LV-1076, Riga, Latvia, phone: +371 26366098, e-mail: Didzis.Ustups@bior.lv

The collateral contact person:
Maksims Kovsars, Head of Information and Data division (Data collection program coordinator), Fish Resources Research department, Institute of Food Safety, Animal Health and Environment "BIOR", Lejupes str. 3, LV-1076, Riga, Latvia, e-mail: Maksims.Kovsars@bior.lv

The information on Latvian National Program for Collection of Fisheries Data can be found on the website of the BIOR: https://www.bior.lv/lv/valsts-delegetas-funkcijas/nacionalais-zivsaimniecibas-un-akvakulturas-datu-vaksanas-darba-plans
. The main information on the implementation of DCP will be published there. Actual versions of all necessary documents, manuals, protocols and guidelines to perform data collection from scientific surveys, observer trips or collection of the samples could be found in the same place.
Like in previous years DCP will be executed by one institution. There will be at least one national coordination meeting in Latvia during the year. The first meeting will take place in the beginning of the year and is confined with arrangement of organizational issues for the execution of the national program:

1) designation of the responsible persons for procurement procedures for the rent of vessels for scientific surveys;
2) designation of the responsible persons for preparation of the list of active commercial vessels operating in the Baltic Sea and Gulf of Riga outside the coastal area with assigned quota per species and area to define the fleet segments for the random sampling during the year;
3) drafting of the list of eligible meetings where the participation of Latvia is important for the implementation of DCP and designation of persons who will participate in these meetings;
4) setting of dates, responsible persons and deadlines for the preparation of data for the ICES assessment working groups and for the Annual Report of the implementation of DCP in the previous year;
5) designation of the responsible persons and setting of dates for preparation the amendments of Latvian Work Plan for data collection in the fisheries and aquaculture sectors for the next year if it is necessary.
6) submission of annual Latvian National Program for Collection of Fisheries Data to Rural Support Service to be run under European Maritime Fisheries and Aquaculture Fund (EMFAF).

Besides, quarterly reporting on progress in implementation of data collection program to the Ministry of Agriculture and to the Rural Support Service which supervises the financial implementation of DCP will be send.

(max. 1000 words)

Text Box 1a: Test studies description

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

1. Aim of the test study

To understand how mutually different or close the salmon populations in Latvian salmon rivers are, first of all in natural ones, and how much the gene pool of natural salmon populations in mixed salmon rivers is affected by salmon released by the hatcheries.

To find out the genetic affiliation and regional origin of salmon caught by Latvian and other countries fishermen in Latvian waters.

Using environmental DNA methods identify the presence of salmon in the potential spawning grounds.

2. Duration of the test study

Annually from April 2022 to the end of 2024.

3. Methodology and expected outcomes of the test study

A total of 30 samples from each AU5 river will be collected in Latvia, both from wild and mixed rivers. Tissue samples from caudal fin will be taken from each salmon and placed in 96% ethanol. Samples will be stored in the freezer until further analysis. DNA extraction will be performed with the DNeasy Blood & Tissue Kit. DNA concentration and quality targets will be performed with NanoDrop ™. Samples will be amplified with seventeen microsatellite markers - SSa14, SSa407, SSaD157, SSsp1605, SSsp2201, SSsp2216, SSsp3016, SSa289, SSa85, SSa171, SSa197, SSa202, SSosl417, SSosl85, SSosl438, SSsp2210, SSspG7. The fragment analysis will be performed with 3500 Series Data Collection Software. Length determination of PCR products and identification of microsatellite alleles will be performed with ThermoFisher Cloud MSA Application.

Microsatellite marker analyses will be tested on samples collected from specialised open sea long line fishery and coastal fishery to identify affiliation to certain river population in the Baltic Sea region. Genetic and biological sample collection might be organised by special research surveys if necessary.

It is expected that in smaller salmon rivers were successful spawning does not occur every year, salmon populations could be closely related to neighbouring bigger salmon rivers. Test study results will allow the development of appropriate measures for the conservation and management of individual salmon populations. Environmental DNA sampling could answer questions about salmon population in the smallest wild salmon rivers (e.g. Bārta River) which are listed as wild salmon rivers – is salmon still present there, because no salmon parr have been caught in the electrofishing studies.

(max 900 words per study)

Text Box 1b: Other data collection activities

THE EVALUATION OF THE STATUS OF POPULATION OF RIVER LAMPREY

General comment: Use this text box to provide information on other data collection activities that relate to your EMFAF operational programme and need to be included in the work plan and the annual report. Describe activities that are funded by the DCF but fulfil objectives under other EMFAF priorities, like marine knowledge, or activities funded by the DCF, but without a direct link to the EU MAP specific requirements or WP template tables, like freshwater fisheries. You can also include one-off specific studies for a particular end-user need that do not enter the regular data collection.

1. Aim of the data collection activity

Collect data necessary for the evaluation of the status of population of river lamprey *Lampetra fluviatilis*. River lamprey is economically most important species in Latvian inland water fishery and included also in Annex II and V of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. Therefore, the information on the actual status of this species is crucial both for regulation of commercial exploitation of this species as well as nature protection.

2. Duration of the data collection activity

Annually from August to end of April next year.

3. Methodology and expected outcomes of the data collection activity

Methodology for monitoring of river lamprey was elaborated within INTERREG project "Cross-boundary evaluation and management of Lamprey stocks in Lithuania and Latvia (LLI-310 LAMPREY), detailed information of methodology can be found in Handbook of guidelines for River lamprey monitoring in Lithuania and Kurzeme Region, Latvia (available on the link https://bior.lv/sites/default/files/inline-files/Handbook%20of%20guidelines%20for%20River%20lamprey%20monitoring.pdf).

Monitoring should include both the monitoring of lamprey larvae and the monitoring of the number of upstream migrating adults and fishing mortality rate during spawning migration. It needs to be taken into account that the methodology was elaborated only for Kurzeme Region (i.e., rivers falling into Baltic Proper and western part of Gulf of Riga), and to extend it also to rivers falling into western and eastern part of Gulf of Riga the effort of monitoring should be doubled.

Expected outcome of the monitoring of river lamprey larvae is the information (number and size) of captured lamprey larvae from 80 sampling sites (40 located in Kurzeme Region and 40 – in other part of Latvia).

Expected outcome of monitoring of upstream migrating adults is the information on recapture of tagged migrating lamprey by commercial fishermen. At least 6208 migrating lampreys should be tagged annually and released in at least 10 points next to coast of Gulf of Riga and Baltic Proper. 5 of these points should be located in Kurzeme Region and 5 in other part of Latvia. In 6 of these points release should be done twice per fishing season (from August 1 to January 31 next year). Collection of information of the recapture of tagged lampreys also must take place during all fishing season from August 1 to January 31 (April 30 in Daugava River).

(max 900 words per activity)

Text Box 2.3: Data collection for diadromous species in freshwater

General comment: This Textbox 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 commercial fisheries for salmon, sea trout and eel, and from research surveys on salmon and sea trout in freshwater, and on eel in any relevant habitat including coastal waters.

Method selected for collecting data.

Describe briefly the method for collecting the variables presented in Table 2.3. Detailed descriptions are to be included in Annex 1.1. If variables are not directly collected but estimated the method of estimation should be described here.

Small scale reared salmon commercial fishery exists only in Daugava River up to Rīgas HPP dam and in Daugava River connection with Lielupe River. In other rivers commercial fishing on salmon and sea trout is prohibited. Due to large number of grey seals in the Daugava River mouth, landings in this fishery are very low which currently prevents the collection of samples.

Research surveys on salmon and sea trout in freshwater covers all life stages. Electrofishing on salmon and sea trout wild parr is carried out in permanent monitoring sites (45 sites for salmon and 53 for sea trout) annually covering all rivers important for these two species. All caught parr are measured. Electrofishing is carried out regarding standard LVS EN 14011:2003 established on the basis of CEN standard.

The Salaca River is Latvian salmon index river in the Baltic Sea salmon Assessment Unit 5 (AU5). The wild salmon and sea trout populations in the Salaca River has been monitored using smolt trapping since 1964. Smolt trap in the river Salaca is usually operated from the end of April till 3rd decade of May at least 3 weeks annually, however the sampling period could differ depending on hydro-meteorological conditions. All caught smolts are measured, subsample of smolts are tagged with streamer tags and released upstream from the trap for total smolt run (smolt production) calculation as it is partial trapping.

Starting from 2020 in Salaca River ascending salmon and sea trout spawners are counted using VAKI Riverwatcher CS fish counter.

Eel samples are collected in coastal commercial fisheries and in freshwater using fisheries independent methods. 50 eel samples are collected for biological data (length, weight, sex ratio, maturity and age) annually by commercial fishermen using trap net in the coastal area near by the river Daugava mouth.

For yellow eel standing stock assessment electrofishing is performed in lakes and rivers in at least 27 sites annually. Fished area, time in electrofishing and number of eel caught are registered. Subsample of two eels from a size group are collected for sex, age and Anguillicola crassus analyzes.

Silver eel escapement is monitored in two sites – 0,5 km upstream form the Daugava River mouth and lake Lilaste outlet (Lilaste River). The set of 4 small mesh size (8 – 10 mm from knot to knot) fyke-nets used in the lower part of Daugava River. Trap net with side arms closing the lake Lilaste outlet (mesh sizes 20- 14 mm) used to catch silver eel migrating from the lake Lilaste to the Gulf of Riga. Number of days in operation and number of eels caught registered in the logbook. All caught eel from river Daugava and lake Lilaste outlet are hold alive in net – cage until sampling procedure. All caught eel from this gear analyzed at harbour (length, weight, maturity (silvering index) according to Durif et al. 2009), all of them tagged with T-bar tags and released to estimate mortality in different types of fisheries.

Salmon recreational fishery in Latvia consists of three parts: self-consumption fishery, licensed angling in several rivers, and salmon trolling in the open sea. Data of recreational fishery of salmon will be reported every

year ICES WGBAST and WGRFS. In this Text Box surveys from diadromous freshwater fisheries are presented.

Licensed angling of salmon kelts is organized in several rivers in Latvia – Salaca, Venta, and Gauja. Anglers are allowed to catch one salmon or sea-trout per day per one license and have to report to organizers each fish. At the end of the year, organizers of licensed anglings are reporting to Institute angling data by fish species.

Institute is planning to contract two NGOs for data collection purposes, one for Gauja, one for Salaca. Special seminar with representatives from both NGOs will be organised where detailed information about sampling design will be explain to participants. At the end of the year, anglers will provide detailed sampled information (catch, by-catch, biological data) to institute BIOR. Eel recreational fishery in Latvia consists of three parts: self-consumption fishery in coastal waters, self-consumption fishery in inland waters, eel angling and underwater hunting in inland waters.

In self-consumption fishery in Latvia, after every fishing activity, fishermen are obliged to report landings in the logbooks. Therefore, all available information (including by-catch) from this segment is officially documented and available for Data collection purposes.

The same regulation is for consumption fishery in inland waters, therefore all landings ar e recorded and will be available for Data collection purposes.

In angling, anglers can use two fishing rods or one muscle-powered harpoon rifle in underwater hunting. No aqualung or other autonomous breathing apparatus can be used in underwater hunting. One angler or underwater hunter can retain three eels per day unless otherwise specified in lakes where the licensed angling is organised. In licensed angling and underwater hunting after every angling activity, anglers are obliged to report to organizers each fish. At the end of the year, organizers of licensed anglings are reporting to Institute BIOR angling data by fish species. No data are available from waters where licensed angling is not established.

(max 250 words per species and area)

Text Box 2.4: Recreational fisheries

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 for the data collected on marine and freshwater recreational catches.

Description of the sampling scheme/survey according to Table 2.4.

The sampling scheme and survey design was developed and reported in "Relative share of catches of recreational fisheries compared to commercial fisheries Pilot study results" submitted to Commission on 2021. Latvia will continue to collect data from marine recreational fishery of salmon and sea trout. Sampling schemes for freshwater diadromous species fisheries were given in Text Box 2.3. According to Pilot Study results, no specific survey data will be collected for eel and cod recreational fishery.

Salmon recreational fishery in Latvia consists of three parts: self-consumption fishery, licensed angling in several rivers, and salmon trolling in the open sea. Data of recreational fishery of salmon will be reported every year ICES WGBAST and WGRFS. In this Text Box surveys from marine recreational fisheries are presented.

A self-consumption fishery in Latvia is conducted in coastal marine waters (up to 20 m depth or 2 nautical miles from the coast), where fishermen could use a limited number of fishing gears. After every fishing activity, fishermen are obliged to report landings in the logbooks. Therefore, all available information (including by-

catch) from this segment is officially documented and available for Data collection purposes according to national legislations.

Trolling of salmon in Latvia is relatively new and limited. According to available information, only 5-10 Latvian boats are catching salmon in the open part of the Baltic Sea. Most of the boats are located in Liepaja and is represented by NGO. Institute is planning to contract NGO for data collection purposes. Special seminar with representatives from NGO will be organised where detailed information about sampling design will be explain to participants. At the end of the year, anglers will provide detailed sampled information (catch, by-catch, biological data) to institute BIOR. Annual meetings in the end of fishing season with anglers will organized in Liepaja, where anglers are interviewed for additional information. Salmon trolling in Latvia is still very limited and locally focused, therefore contracted anglers were able to provide additional information about other anglers (number of boats and their effort), outside of their NGO.

Sea trout recreational fishery in Latvia, like salmon, consists of three parts: self-consumption fishery, licensed angling in several rivers, and salmon trolling in the open sea. Data will be reported every year ICES WGBAST and WGRFS. The same sampling design, like for salmon, will be applied to collect data from sea-trout recreational fishery.

Latvia will start to collect data from flounder recreational fishery, as it is the most popular marine recreational fishery in Latvia. Flounder recreational fishery data (including by-catch) will be collected from coastline, where most active flounder fishery is realised. It is planned to collect data performing interviews on angling locations and using internet or mobile app. More detailed design will be established in first two years of data collection.

Additionally, it is planned to start a data collection from predator recreational fishery (mainly pike and pike-perch angling with artificial lures). Samplings area will cover coastal zone of Gulf of Riga, Daugava river, and Lakes Ķīšezers and Jugla. The survey will be caried out in close cooperation with fishermen NGOs.

(max 900 words per region)

Text Box 2.5: Sampling plan description for biological data

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) and 4.1 of the EU MAP Delegated Decision annex. This text box complements Table 2.5.

Baltic Sea

OSF PEL-1 Baltic Sea pelagic trawlers

Additional information on sampling schemes

It is planned to collect samples at the same level as in previous years. This sampling scheme aims to collect biological samples of target species (sprat and herring) from commercial catches in the pelagic fishery. Herring usually is caught as a bycatch in the Central Baltic sprat fishery. Due to a highly variable bycatch rate, the total amount of sampled herring might differ from the initial plan. In 2022 Central Baltic herring TAC will also decrease due to decreased stock size.

Additional description of sampling frames

In case if OSF DEM-1 segment won't be active, additional flounder by-catch samples will be collected from OSF PEL-1.

OSF DEM-1 Baltic Sea demersal trawlers

Additional information on sampling schemes

Due to the critical state of cod stocks of the Baltic Sea, the specialized cod fishing is not permitted in 2022 and it's not predictable when it will be allowed again. Cod could be kept in the catch only if it is an unavoidable by-catch in other fish fisheries (Baltic Herring, Sprat, and Flounder).

In 2021 only few fishing trips targeted flounder were performed. Due to very low available cod by-catch quota and limited market possibilities, flounder fishery was almost stopped in last few years.

In this critical situation with cod stocks, the European Commission has taken supportive measures for fishermen to completely stop cod fishing in areas affected by the cod ban. Latvian fishermen have decided to use this support and decommission their fishing vessels. As a result, OTB fleet segment will not exist in the near future. In Latvian fishery cod and flounder discards are registered only in OTB fleet segment. Thus, if this segment will be eliminated, collection of information on cod and flounder discards becomes very problematic.

Additional description of sampling frames

In case if this fleet segment will be active then biological samples will be collected according to plan.

GOR PEL-1 Gulf of Riga Pelagic trawlers

Additional information on sampling schemes

It is planned to collect samples at the same level as in previous years. There might be some deviations from the initial monthly-based sampling plan due to low pelagic trawl fishing activity in the summer months (June, July).

Additional description of sampling frames

NA

SB-1 Active vessels from coastal fishery < 12 m employing herring trap-nets

Additional information on sampling schemes

It is planned to collect samples at the same level as in previous years. In case if the trap-net fishing season is shorter or herring fishery is ceased in a geographical area, the total number of collected samples might not reach the initial plan.

Additional description of sampling frames

NA

SB-2 Active vessels from coastal fishery < 12 m employing static gears, except herring trap nets (SB-1)

Additional information on sampling schemes

Due to the salmon fishery ban, salmon samples will be collected only from contracted fishermen operating with the special scientific permit or from commercial fisheries bycatch.

Additional description of sampling frames

NA

SAL_LLD Specialized salmon fishery with longlines

Additional information on sampling schemes

Annually 200 samples of Atlantic salmon biological data are collected by contract fisherman in the open sea – ICES subdivisions 26 and 28. Longlines are used for salmon sample collection. Scale samples for age determination and biological data are collected in the scale books. Data about all fishing trips are registered in fishing logbooks. Length, gutted weight (1.1 conversion factor used for full weight), sex and origin (adipose fin clipped or fish with adipose fin) is registered. Tissue samples from caudal fin stored in Eppendorf tubes with 96% ethanol for genetic analyses.

Additional description of sampling frames

These data are collected to assess the composition of Atlantic salmon populations in open sea fisheries landings and to understand what part of the landings is made up of AU5 weak salmon populations. Such long-term data will allow better planning for further management and protection actions and could be used in ICES Advice. If salmon longline fishery will be closed in the Central Baltic, special survey could be organised, according to Article 25 of Regulation (EU) 2019/1241.

BAL_PEL_CET Monitoring of cetaceans by-catch
Additional information on sampling schemes
It is planned to cover up to 10% of all fishing trips in OSF PEL-1 and GOR PEL-1 fleet segments annually.

Additional description of sampling frames
It is planned to collect information about by-catch of cetaceans and all PETS species at the same level as in previous years.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Text Box 2.6: Research surveys at sea

BITS Q1 (BALTIC INTERNATIONAL TRAWL SURVEY IN THE FIRST QUARTER)

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. It is intended to specify which research surveys at sea, as set out in Table 2 of the EU MAP Implementing Decision will be carried out. Member States shall specify whether the research survey is included in Table 2 of the EU-MAP Implementing Decision or whether it is an additional survey.

Baltic International Trawl Survey in the first quarter (BITS Q1)

1. **Objectives of the survey**

This research survey at sea is set out in Table 2 of the EU MAP Implementing Decision. The survey will be conducted in March on the rented research vessel. The primary purpose of the survey is to produce abundance estimates and indices of recruitment for cod and flounder in the Eastern Baltic (Sub-divisions 25-32) that are necessary for tuning VPA and prediction of the recruitment. Other species are also intensively investigated to support ecosystem analyses.

Obtained data (e.g. CPUE indices, abundance estimates) are used for the assessment of Baltic cod and flounder stocks during the annual ICES Baltic Fisheries Assessment Working Group (WGBFAS).

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

The data will be collected according to "Manual for the Baltic International Trawl Surveys (BITS). Version 2.0" (WGBIFS, 2017, https://doi.org/10.17895/ices.pub.7580). The trawling is performed during daylight. The trawling is performed using standard scientific trawl TV-3#-930. Vessel speed during trawling should be 3.0 knots, each first control-haul duration should be 30 minutes however, at location with very dense fish shoals catching will be reduced to 15 minutes. Trawling is performed accordingly to the ICES WGBIFS determined catch-stations scheme. Each consecutive fish catch should be sorted out by species in separate boxes or baskets and weighted. The sorted and weighed fish are then used for the length, age and maturity sampling and measurements. Biological sampling procedure and length measurements are performed for cod and flounder. Length distribution should be recorded for all other species from every trawl-station, but with less intensity. For all species the total number and weight is recorded. Sampling level for all species is stratified on the ICES Sub-division level. The age determination is performed in national laboratory. During the survey also the basic hydrological parameters (temperature, salinity, oxygen content) will be measured, collection of ichthyoplankton samples and samples of stomachs of cod will be collected as well as information about marine litter. Collecting the data from the echo-integration conducted during the haul time and between hauls locations will be performed. Collected data are stored in ICES database DATRAS, as well as in the local database BIODATA.

Besides, genetic samples from flounder will be collected in the survey in the first two years of the program. According to the latest ICES Advice two flounder species European flounder *P. flesus* and Baltic flounder *P. solemdali* occur in the Baltic Sea, both of which are present in survey area. It is not possible at this stage to separate the proportions of the two species in either the stock assessment or the fisheries, therefore genetic data will be collected.

3. For internationally coordinated surveys, describe the participating Member States/vessels.

The survey is conducted in collaboration with national institutes from Denmark, Germany, Poland, Lithuania and Sweden within the framework of ICES. Survey is part of the Baltic International Trawl Surveys (BITS), which is coordinated by the ICES Baltic International Fish Survey Working Group [WGBIFS]. For this scientific survey Latvia is using scientific or fishing vessel which is selected based on results of the tender.

4. Where applicable, provide more details on the type of participation and/or threshold agreement applied.

From 2006, Latvian BITS surveys were carried out on the rented scientific vessel. Participation in the BITS surveys always was physical except BITS Q4 2020 and BITS Q1 2021 due to Coronavirus disease (COVID-19) travelling restrictions when survey was performed by scientific team of the rented scientific vessel according to the manual of BITS survey and Latvian scientists' supervision.
(max. 450 words per survey)

BITS Q4 (BALTIC INTERNATIONAL TRAWL SURVEY IN THE FOURTH QUARTER)

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. It is intended to specify which research surveys at sea, as set out in Table 2 of the EU MAP Implementing Decision will be carried out. Member States shall specify whether the research survey is included in Table 2 of the EU-MAP Implementing Decision or whether it is an additional survey.

Baltic International Trawl Survey in the fourth quarter (BITS Q4)

1. Objectives of the survey

This research survey at sea is set out in Table 2 of the EU MAP Implementing Decision. The survey will be conducted in December on the rented research vessel. The primary purpose of the survey is to produce abundance estimates and indices of recruitment for cod and flounder in the Eastern Baltic (Sub-divisions 25-32) that are necessary for tuning VPA and prediction of the recruitment. Other species are also intensively investigated to support ecosystem analyses.

Obtained data (e.g. CPUE indices, abundance estimates) are used for the assessment of Baltic cod and flounder stocks during the annual ICES Baltic Fisheries Assessment Working Group (WGBFAS).

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

The data will be collected according to "Manual for the Baltic International Trawl Surveys (BITS). Version 2.0" (WGBIFS, 2017, https://doi.org/10.17895/ices.pub.7580). The trawling is performed during daylight. The trawling is performed using standard scientific trawl TV-3#-930. Vessel speed during trawling should be 3.0 knots, each first control-haul duration should be 30 minutes however, at location with very dense fish shoals catching will be reduced to 15 minutes. Trawling is performed accordingly to the ICES WGBIFS determined catch-stations scheme. Each consecutive fish catch should be sorted out by species in separate boxes or baskets and weighted. The sorted and weighed fish are then used for the length, age and maturity sampling and measurements. Biological sampling procedure and length measurements are performed for cod and flounder. Length distribution should be recorded for all other species from every trawl-station, but with less intensity. For all species the total number and weight is recorded. Sampling level for all species is stratified on the ICES Sub-division level. The age determination is performed in national laboratory. During the survey also the basic hydrological parameters (temperature, salinity, oxygen content) will be measured, collection of ichthyoplankton samples and samples of stomachs of cod will be collected as well as information about marine litter. Collecting the data from the echo-integration conducted during the haul time and between hauls locations will be performed. Collected data are stored in ICES database DATRAS, as well as in the local database BIODATA.

Besides, genetic samples from flounder will be collected in the survey in the first two years of the program. According to the latest ICES Advice two flounder species European flounder *P. flesus* and Baltic flounder *P. solemdali* occur in the Baltic Sea, both of which are present in survey area. It is not possible at this stage to separate the proportions of the two species in either the stock assessment or the fisheries, therefore genetic data will be collected.

3. For internationally coordinated surveys, describe the participating Member States/vessels.

The survey is conducted in collaboration with national institutes from Denmark, Germany, Poland, Lithuania, Estonia and Sweden within the framework of ICES. Survey is part of the Baltic International Trawl Surveys (BITS), which is coordinated by the ICES Baltic International Fish Survey Working Group [WGBIFS]. For this scientific survey Latvia is using scientific or fishing vessel which is selected based on results of the tender.

4. Where applicable, provide more details on the type of participation and/or threshold agreement applied.

From 2006, Latvian BITS surveys were carried out on the rented scientific vessel. Participation in the BITS surveys always was physical except BITS Q4 2020 and BITS Q1 2021 due to Coronavirus disease (COVID-19) travelling restrictions when survey was performed by scientific team of the rented scientific vessel according to the manual of BITS survey and Latvian scientists' supervision.
(max. 450 words per survey)

BIAS (BALTIC INTERNATIONAL ACOUSTIC SURVEY (AUTUMN))

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. It is intended to specify which research surveys at sea, as set out in Table 2 of the EU MAP Implementing Decision will be carried out. Member States shall specify whether the research survey is included in Table 2 of the EU-MAP Implementing Decision or whether it is an additional survey.

Baltic International Acoustic Survey (Autumn) (BIAS)

1. Objectives of the survey

This research survey at sea is set out in Table 2 of the EU MAP Implementing Decision. The survey will be performed in September-October. The survey will be performed on a rented research or fishing vessel. The main aims of the survey are to obtain abundance estimates of herring and sprat which are used for tuning VPA for the assessment of herring in Sub-divisions 25-29, +32 and of sprat in Sub-divisions 22-32 of the Baltic Sea.

Obtained data (e.g., CPUE indices, abundance estimates) are used for the assessment of herring and sprat stocks during the annual ICES Baltic Fisheries Assessment Working Group (WGBFAS).

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

The data will be collected according to the "Manual for the International Baltic Acoustic Surveys (IBAS). Series of ICES Survey Protocols SISP 8 – IBAS. Version 2.0" (WGBIFS, ICES, 2017, http://doi.org/10.17895/ices.pub.3368).

The survey will be carried out in Sub-divisions 26 and 28. The survey will be performed also in the 12 nm zone of the Latvian economic zone. According to WGBIFS Inquiries Besides of the Fixed ToRs based on WGBFAS request (ICES Working Group on Baltic International Fish Survey [WGBIFS]; outputs from 2020 meeting, ICES Scientific Reports, 3:02, http://doi.org/10.17895/ices.pub.7679 and outputs from 2021 meeting, ICES Scientific Reports, 3:80, https://doi.org/10.17895/ices.pub.8248), the BIAS will be prolonged into the Irbe Strait and Gulf of Riga (ICES SD 28.1). The major aim of this survey prolongation is to prevent the uncertainties in the Gulf of Riga acoustic herring survey to improve the quality of the GRAHS and subsequent indices e.g., stock recruitment of the Gulf of Riga herring population.

Besides hydroacoustic and hydrological sampling, the samples of zooplankton will be collected also. Collected data are stored in ICES databases BAD1, Acoustic DB, as well as in the local database BIODATA.

3. For internationally coordinated surveys, describe the participating Member States/vessels.

The survey is conducted in collaboration with national institutes from Finland, Germany, Poland, Estonia, Lithuania, and Sweden within the framework of ICES. The survey is part of the Baltic International Acoustic Survey (BIAS), which is coordinated by the ICES Baltic International Fish Survey Working Group [WGBIFS].

4. Where applicable, provide more details on the type of participation and/or threshold agreement applied.

From 2005, Latvian BIAS survey is carried out on the rented Polish r/v "Baltica". No cost sharing agreement is used.

(max. 450 words per survey)

SPRAS (SPRAT ACOUSTIC SURVEY)

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. It is intended to specify which research surveys at sea, as set out in Table 2 of the EU MAP Implementing Decision will be carried out. Member States shall specify whether the research survey is included in Table 2 of the EU-MAP Implementing Decision or whether it is an additional survey.

Sprat Acoustic Survey (SPRAS)

1. Objectives of the survey

This research survey at sea is set out in Table 2 of the EU MAP Implementing Decision. The survey will be performed in May. The survey will be performed on a rented research or fishing vessel. The main aims of the survey are to obtain abundance estimates of sprat which are used for tuning VPA for the assessment of sprat in Sub-divisions 22-32 of the Baltic Sea and the data are used for maturity not available from other sources.

Obtained data (e.g., CPUE indices, abundance estimates) are used for the assessment of herring and sprat stocks during the annual ICES Baltic Fisheries Assessment Working Group (WGBFAS).

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

The data will be collected according to the "Manual for the International Baltic Acoustic Surveys (IBAS). Series of ICES Survey Protocols SISP 8 – IBAS. Version 2.0" (WGBIFS, ICES, 2017, http://doi.org/10.17895/ices.pub.3368).

The survey will be carried out in Sub-divisions 26 and 28. The survey will be performed also in the 12 nm zone of the Latvian economic zone. The survey track is standard. The survey track and trawling are performed during daylight. Vessel speed during trawling should be 3.0 knots, each first control-haul duration should be 30 minutes however, at locations with very dense fish shoals catching will be reduced to 15 minutes. Each consecutive fish catch should be sorted out by species in separate boxes or baskets and weighted. The sorted and weighed fish are then used for the length, age and maturity sampling and measurements. Biological sampling procedure and length measurements are performed for herring and sprat. Length distribution should be recorded for all other species from every trawl station, but with less intensity. For all species, the total number and weight are recorded. The sampling level for all species is stratified on the ICES Sub-division level. The age determination is performed in a national laboratory. During the survey at trawling stations also the basic hydrological parameters (temperature, salinity, oxygen content) will be measured, and samples of zooplankton will be collected. Collected data are stored in ICES databases BAD1, Acoustic DB, as well as in the local database BIODATA.

3. For internationally coordinated surveys, describe the participating Member States/vessels.

The survey is conducted in collaboration with national institutes from Germany, Poland, Estonia, Lithuania, and Sweden within the framework of ICES. The survey is part of the Baltic International Acoustic Survey (BIAS), which is coordinated by the ICES Baltic International Fish Survey Working Group [WGBIFS].

4. Where applicable, provide more details on the type of participation and/or threshold agreement applied.

From 2005, Latvian SPRAS survey is carried out on the rented Polish r/v "Baltica". No cost sharing agreement is used.

(max. 450 words per survey)

GRAHS (GULF OF RIGA ACOUSTIC HERRING SURVEY)

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. It is intended to specify which research surveys at sea, as set out in Table 2 of the EU MAP Implementing Decision will be carried out. Member States shall specify whether the research survey is included in Table 2 of the EU-MAP Implementing Decision or whether it is an additional survey.

Gulf of Riga Acoustic Herring Survey (GRAHS)

1. Objectives of the survey

The survey will be performed in July-August on a rented fishing vessel in the Gulf of Riga (ICES Subdivision 28.1). The main aim of the survey is to obtain abundance estimates of the Gulf of Riga herring which are used for tuning VPA for the assessment of the Gulf of Riga herring (separate assessment unit).

Obtained data (e.g., CPUE indices, abundance estimates) are used for the assessment of the Gulf of Riga herring stock during the annual ICES Baltic Fisheries Assessment Working Group (WGBFAS).

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

The data will be collected according to the "Manual for the International Baltic Acoustic Surveys (IBAS). Series of ICES Survey Protocols SISP 8 – IBAS. Version 2.0" (WGBIFS, ICES, 2017, http://doi.org/10.17895/ices.pub.3368).

The survey will be carried out in Sub-division 28.1. The survey track is standard. The survey track and trawling are performed during daylight. Vessel speed during trawling should be 3.0 knots, each first control-haul duration should be 30 minutes however, at locations with very dense fish shoals catching will be reduced to 15 minutes. Each consecutive fish catch should be sorted out by species in separate boxes or baskets and weighted. The sorted and weighed fish are then used for the length, age and maturity sampling and measurements. Biological sampling procedure and length measurements are performed for herring. Length distribution should be recorded for all other species from every trawl station, but with less intensity. For all species, the total number and weight is recorded. The sampling level for all species is stratified on the ICES Sub-division level. The age determination is performed in a national laboratory. During the survey at trawling stations also the basic hydrological parameters (temperature, salinity, oxygen content) will be measured, and samples of zooplankton will be collected. Collected data are stored in ICES databases BAD1, Acoustic DB, as well as in the local database BIODATA.

3. For internationally coordinated surveys, describe the participating Member States/vessels.

The survey is conducted in collaboration with national institute from Estonia within the framework of ICES. The survey is coordinated by the ICES Baltic International Fish Survey Working Group [WGBIFS].

4. Where applicable, provide more details on the type of participation and/or threshold agreement applied.

The survey is carried out on the rented fishing vessel. Cooperation is based on the agreement between the Institute of Food Safety, Animal Health and Environment "BIOR" in Riga and Latvian commercial fishing company selected at procurement procedure. During the survey, Latvian scientists work together with Estonian colleagues from the Estonian Marine Institute (EMI). No cost sharing agreement is used.

(max. 450 words per survey)

LFJS (LATVIAN FLATFISHES JUVENILE SURVEY)

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. It is intended to specify which research surveys at sea, as set out in Table 2 of the EU MAP Implementing Decision will be carried out. Member States shall specify whether the research survey is included in Table 2 of the EU-MAP Implementing Decision or whether it is an additional survey.

Latvian Flatfishes Juvenile Survey (LFJS)

1. Objectives of the survey

The main aim of the survey is to obtain abundance estimates of flatfish (flounder and turbot) juveniles. The survey will be performed from May to August in the coastal zone of the Baltic Sea. The results of the survey are used to follow up the recruitment of flatfish and the results are used in the Latvian coastal fisheries management and development of national MSP.

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

The data will be collected with beach seine (mesh size in cod-end 8 mm) from the coast in the surf zone of the Baltic Sea on the main nursery area of flatfishes. The sampling area is approximately 4000 m2, the distance from the coastline is approximately 130 m. In every sampling area (Kolka - Gulf of Riga, Kolka – Irbe Strait, Lielirbe, Jurmalciems, Pape – Baltic Sea) 5 samples will be collected. Surveys will be performed twice in each area in the period from May to August. Other species (fish and nectobenthos) are also intensively investigated to support ecosystem analyses. During the survey, the basic hydrological parameters (temperature, salinity, and oxygen content) will be measured.

3. For internationally coordinated surveys, describe the participating Member States/vessels.

This is not an internationally coordinated survey.

4. Where applicable, provide more details on the type of participation and/or threshold agreement applied.

No thresholds were applied for this survey.

(max. 450 words per survey)

GORDEM (GULF OF RIGA DEMERSAL FISH SURVEY)

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. It is intended to specify which research surveys at sea, as set out in Table 2 of the EU MAP Implementing Decision will be carried out. Member States shall specify whether the research survey is included in Table 2 of the EU-MAP Implementing Decision or whether it is an additional survey.

Gulf of Riga Demersal Fish survey (GORDEM)

1. Objectives of the survey

The survey is performed three times a year - in May, August and October on a rented commercial fishing trawler in the Gulf of Riga (Sub-division 28.1). The primary purpose of the survey is to produce abundance estimates of benthic fish species and get hydrological (temperature, salinity, oxygen content) and zooplankton samples in the trawling stations during the survey. In August there are 5 extra zooplankton and hydrological stations added to the survey in the open Baltic Sea Sub-division (27.3.d.26 and 27.3.d.28). The observations of the survey provide data on biological diversity changes in the Gulf of Riga.

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

The data will be collected according to the "Manual for the Baltic International Trawl Surveys (BITS). Version 2.0" (WGBIFS, 2017, https://doi.org/10.17895/ices.pub.7580). The trawling is performed during daylight and nighttime. Trawling stations cover the area in the Gulf of Riga from 8 m coastal zone up to 56 m depth in locations that are selected on appropriate seafloor for benthic trawling. Trawling is performed with a special demersal trawl 18 m wide and 1.5 m high when in action and with 17 mm - 6 mm mesh size. Vessel speed during trawling is 3.0 knots, hauls duration is 30 minutes however, at locations with very dense fish shoals catching will be reduced to 15 minutes. All benthic fishes and invertebrates are separated in the catch and analysed. For all species, the total number and weight are recorded. Length distribution is recorded for all benthic species from every trawl station. During the survey also the basic hydrological parameters (temperature, salinity, oxygen content) and zooplankton samples will be collected. Collected data are stored in the local database BIODATA.

3. For internationally coordinated surveys, describe the participating Member States/vessels.

This is not an internationally coordinated survey however, it is partly performed by the methodology of the ICES WGBIFS.

4. Where applicable, provide more details on the type of participation and/or threshold agreement applied.

No thresholds were applied for this survey.

(max. 450 words per survey)

CFM (COASTAL FISH MONITORING)

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. It is intended to specify which research surveys at sea, as set out in Table 2 of the EU MAP Implementing Decision will be carried out. Member States shall specify whether the research survey is included in Table 2 of the EU-MAP Implementing Decision or whether it is an additional survey.

Coastal fish monitoring (CFM)

1. Objectives of the survey

The objective of the survey is to monitor changes in the fish communities in relation to the impact of eutrophication, habitat alteration, climate change, toxic substances, alien species and fishery. Survey monitors changes over time (years) at fixed stations, and allows to follow the relative abundance of different segments of the coastal fish community in each area. The results of the survey are used for the management of fishery in the Latvian coastal zone.

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

Data are collected in Latvian coastal areas at 3-5 m depth using Nordic coastal multi-mesh gillnets (Guidelines for Coastal Fish Monitoring Sampling Methods of HELCOM, 2015; https://bit.ly/2Pfhv0o. These nets are 45 m long and made up of 9 parts that have different mesh sizes (from 10 to 60 mm). Monitoring will be performed one (Jurkalne, Daugavgriva) and two (Pape) times per year, but in the rest of the areas – twice per month, all year. Length and weight of all fishes are measured and other information like weather conditions, depth, water temperature, salinity and Secchi depth are recorded.

3. For internationally coordinated surveys, describe the participating Member States/vessels.

This is not an internationally coordinated survey however, it is performed by the methodology of the HELCOM and it is performed in other countries of the Baltic Sea.

4. Where applicable, provide more details on the type of participation and/or threshold agreement applied.

No thresholds were applied for this survey.

(max. 450 words per survey)

STS (SPECIALIZED TURBOT SURVEY)

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. It is intended to specify which research surveys at sea, as set out in Table 2 of the EU MAP Implementing Decision will be carried out. Member States shall specify whether the research survey is included in Table 2 of the EU-MAP Implementing Decision or whether it is an additional survey.

Specialized turbot survey (STS)

1. Objectives of the survey

The objective of the survey is to estimate a spawning stock biomass of turbot in Latvian EEZ. The results of the surveys together with BITS Q1 and Q4 data are used for national regulation of coastal fishery, setting allowed number of specialized turbot gillnets.

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

Data are collected in Latvian coastal zone at 2-20 m depth using specialized turbot gillnets. These nets are 60 m long and have mesh size 240 mm. Surveys ir performed in the open part of the coastal zone (excluding Gulf of Riga), to cover the main distribution and spawning areas of turbot in Latvian EEZ. Survey time is set to cover turbot spawning time- 10 days in June and 10 days in July. Biological data are collected from turbot (length, weight, sex, gonad development stages, otoliths for age estimation). Presence of fish in the turbot stomach are recorded. For all bycatch species length measurements and total weight is recorded.

3. For internationally coordinated surveys, describe the participating Member States/vessels.

This is not an internationally coordinated survey.

4. Where applicable, provide more details on the type of participation and/or threshold agreement applied.

No thresholds were applied for this survey.

(max. 450 words per survey)

SECTION 3: FISHING ACTIVITY DATA

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.

Data on inland eel commercial fisheries landings (in weight) and effort are collected from fishing logbooks, that fishermen are obliged to provide for Institute. There are 45 fishing entities that are fishing for eel commercially in the Latvian inland waters. Fishing methods used are fyke nets and eel traps, currently 444 fyke nets and 4 eel traps are operated in five lakes: Ķīšezers, Alūksnes, Cirma, Rāznas and Usmas. Average yearly effort is 0,8 gear–days, total yearly landings – up to 7 t.

(max. 900 words)

Text Box 4.2: Incidental catches of sensitive species

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.

It should be highlighted that in the Baltic Sea most of the metier perform rather clean fishery and the by-catch of non-target species is low or could be absent at all.

According to the observer manuals for collecting biological samples from commercial trips all catch fractions and additionally all by-catch species and observations of PETS must be recorded in the observer protocol for each haul.

All fleet segments are observed by scientific observers and self-sampling except SB-1 and SAL_LLD where self-sampling only is applied. Additionally, information about PETS is collected during the monitoring of cetaceans by-catch (BAL_PEL_CET) in the pelagic fishery (OSF PEL-1 and GOR PEL-1). Scientific observer has full access to the all fishing operations and possibility to investigate trawl cod-end. In the last 10 years no PETS species or any cetaceans were not observed in the pelagic fishery, which is the main fishery in Latvia.

In the last year's by-catch of seals were observed only in the SB-2 segment. Information about observation of seals, it damages to the fishing gears and catches is possible to include in the monthly coastal logbooks. Most of the data about possible PETS bycatch will be collected in close cooperation with small scale fishermen in the coastal zone (SB-2). Based on signed agreement with fishermen (SB-2) which have a long-term collaboration with institute in biological sampling and coastal fishing monitoring activities information about PETS species by-catch from every fishing activity are collected from every municipality in the coastal zone of Latvia.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Text Box 4.3: Fisheries impact on marine habitats

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.

1. Aim of pilot study

Assess the impact of demersal fishing gear on marine benthic habitats.

2. Duration of pilot study

At least one survey during 2022-2024 (3-5 working days at sea).

3. Methodology and expected outcomes of pilot study

It is planned to continue the pilot study to assess the impact of fishing gear on marine benthic habitats. The pilot study will consist of trawl surveys with commercial fishing gears to evaluate the direct impact of demersal fishing on biological resources and marine ecosystem in the Latvian EEZ. Trawl surveys will be performed in cooperation with commercial fishermen and will include benthos sampling and video recording of benthic habitats before and after hauls. Due to the cod fishing ban and low fisherman interest in flounder fishery,

demersal trawling has been significantly reduced in the last two years. It is planned to identify the most intense historical demersal trawling areas and assess their recovery process by comparing current biological community and habitat structure with previously undisturbed areas. Incorporation into regular sampling will be justified after evaluation of the pilot study results and considering the changes in demersal trawling intensity. It is planned to present and discuss preliminary results at ICES Working Group on Fisheries Benthic Impact and Trade-offs (WGFBIT).

National experts will be involved in regional assessments on fisheries benthic impact and trade-offs by participating and providing country-specific data according to data calls ICES WGFBIT and WGSFD working groups.*(max 900 words)*

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 the data to be collected under Tables 7, 8 and 9 of the EU MAP Delegated Decision annex.

1. Description of clustering

The clustering for Latvian collected data is necessary in order to design the sampling plan and to report economic variables. Two segments with similar characteristics as gears, operating areas and target species were clustered. The clustering was applied for the segment's Demersal trawlers and/or demersal seiners 24-40 metres where annually are operating less than 10 vessels (four vessels reported in 2020) and segment Pelagic trawlers 24-40 meters (28 vessels reported in 2020). It should be taken into account that the same vessel may change demersal trawl to pelagic trawl in case of necessity. The share for demersal trawlers from total segment VL2440 meters gross tonnage and capacity in 2020 was 20% and 19% respectively as well as it contributes 23% and 20% respectively to the share of total segment weight and value. The vessels in both segments operating in similar Baltic Sea areas (areas 27.3.d.25, 27.3.d.26, 27.3.d.28.1, 27.3.d.28.2) and oriented to the sprat, herring, flounder and cod. The segment Demersal trawlers and/or demersal seiners 24-40 metres contribute only 8% to total segment days at sea.

2. Description of activity indicator

The activity indicator is not applied.

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

Deviation related to the data submission but not to the data collection in regard to the Fleet population: a small-scale fleet (attributed to the segments VL0008; LV0812) listed in the Union Fishing Fleet Register deal with two types of activity: commercial coastal zone fishery and recreational coastal zone fishery.

According to the Latvian internal legislation, a special coastal fishing permit (licence) should be received by the enterprise deal with commercial activities and fishing in coastal zone. The licence provides the permission for the fishing enterprises to fish, tranship and sell the catch. The information about the company, fishing licence, vessels, gears, landings and fishing days should be provided monthly in the coastal logbook as well as the information about each fishing operation should be reported. The commercial fishing companies obligated to use the vessels registered in the Union Fishing Fleet Register.

The main reason for the inclusion of the vessels used for recreational fishery to the Union Fishing Fleet Register is an obligation for the recreational fishermen to fill coastal logbooks in connection with obtaining special fishing permission (licence) for the "self-consumption fishery". More information about self-consumption fishery provided under the following link: https://likumi.lv/ta/en/en/id/34871.

The "self-consumption fishery" licence has following limitations:

- The catch could not be sold;
- During the fishing operation is permitted to use only one type of fishing gear: hooks (HOK) or fixed gillnets (GNH) or fish nets (NET) or Eelpout trap nets (FYK);
- Cod volume is less than 10% from total catch.

Such type of permission define that the natural persons have to be registered in the Marine and Inland Waters Administration of the State Environmental Service as well as could use the vessel from the Union Fishing Fleet Register. The permission also obligate the recreational fishermen monthly to fill the coastal logbooks where information is reported about each fishing operation.

Is important to mention that the same small-scale vessels from the Union Fishing Fleet Register could be used for both activities - commercial and recreational. There were 15 such vessels reported in 2020. For the data transmission and analysis these vessels capacity data will be attributed to the commercial fishery data. The capacity data for vessels engaged in recreational fishing will not be transmitted into end user due to the ban on commercial activity for such type of fishery.

The economic and social data for recreational fishery are not collected but some parameters such as value of landing, fuel costs, repair and maintenance costs could be calculated based on collected economic data for the commercial enterprises. The share of the Baltic Sea recreational fishery value and weight were 0.4% and 0.1% respectively in the total Latvian landings value in weight in 2020. These values are negligible and cannot influent to the economic situation in Latvia.

Deviation related to Price per Capacity Unit (PCU) used for Perpetual Inventory Method (PIM): the data for Consumption on fixed capital and Value of physical capital will be derived from PIM and also additional fiscal information will be collected by questionnaires. The variables: vessel historical value, annual depreciation costs and vessel current value are included in the annual questionnaire. The information provided in questionnaires is based on the bookkeeping information. The estimates for the calculation of current vessel value based on the information available in the company's documentation. The values from the survey could be used for the cross checks with the results received by PIM. The formulas for the PCU calculation are taken from the COUNCIL REGULATION (EC) No 2792/1999, where the formulas for compensation for the vessel decommissioning are provided. The formulas determine the vessel current value which theoretically is higher than 2nd hand market price due to the compensation for the excluding vessels from the Union Fleet Fishing Register should covered the potential price for the vessel in the market. Liner depreciated scheme could be more approprite for the used due to the long service life for the vessels equipment and average vessels age 30 years. The estimation procedure applieng PIM is fully in line with the definitions provided by PGECON in Guidance Document for Fishing Fleet (https://datacollection.jrc.ec.europa.eu/guidelines/socioeco/fleet). The applied shares in total investment and depreciation rates are recommended by OECD. Share in total investment: Hull – 46%, Engine – 25%, Electronics -2%, Other equipment 27%. Linear depreciation rates: Hull – 4%, Engine – 10%, Electronics – 20%, Other equipment – 16%, Rest value hull – 2.5%. Age schedules: Hull – 25, Engine – 10, Electronics -5, Other equipment 7. Information is not provided in Annex 1.2. due to not directly related to the information collected by survey but estimated by PIM.

The definitions and methodology for all other economic and social variables will be applied according to the definitions provided by PGECON and RCG ECON (https://datacollection.jrc.ec.europa.eu/guidelines/socioeco/fleet).

The list of variables and segmentation are provided in the Table 5.1 and Table 5.2.

The Quality Report for socioeconomic data sampling sheme provided under Annex 1.2.

(max. 900 words)

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 the data to be collected under Tables 10 and 11 of the EU MAP Delegated Decision annex.

1. Description of the threshold application

There is only freshwater aquaculture in Latvia. The total volume and value of freshwater aquaculture production in Latvia were less than 1% between 2015 and 2020 and were around 0.09% and 0.12% respectively on average from the total available Union production reported to EUROSTAT. Although the freshwater aquaculture data collection is not mandatory the economic and social variables will be collected.
No thresholds are applied.

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

Due to the small number of aquaculture companies in Latvia and for the data confidentiality protection all collected information can be submitted as 'Other freshwater fish' for the Aquaculture species group and as 'Other' for the Aquaculture technique.

The list of variables and segmentation are provided in the Table 6.1

The Quality Report for socioeconomic data sampling sheme provided under Annex 1.2.

(max. 900 words)

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'. Use this annex to state whether documentation in the data collection process (design, sampling implementation, data capture, data storage, sample storage and data processing) exists and identify where this documentation can be found. Names of sampling schemes and strata shall be identical to those in Tables 2.2, 2.3, 2.4, 2.5, 2.6 and 4.1 of the WP/AR. For quality information on scientific surveys, use the survey acronym as a sampling scheme identifier. For mandatory surveys, refer to Table 1 of the EU MAP Implementing Decision annex, see also MasterCodeList 'Mandatory survey at sea'.

BITS Q1 – QUALITY REPORT

MS: LVA
Region: Baltic Sea
Sampling scheme identifier: BITS Q1
Sampling scheme type: From Table 1 of EU MAP Implementing Decision
Observation type: SciObsAtSea
Time period of validity: 01.01.2022 – 31.12.2024
The survey will be conducted in February-March on the rented research vessel. The primary purpose of the survey is to produce abundance estimates and indices of recruitment for cod and flounder in the Eastern Baltic (Sub-divisions 25-32) that are necessary for tuning VPA and prediction of the recruitment. Other species are also intensively investigated to support ecosystem analyses.
Description of the population
Population targeted: Primary sampling unit for this survey is fishing haul. The main target species from a survey perspective are Cod and Flounder. Main survey area is Latvian EEZ (ICES subdivision 26 and 28). **Population sampled:** Biological sampling procedure and length measurements are performed for cod and flounder. Length distribution should be recorded for all other species from every trawl-station, but with less intensity. For all species the total number and weight is recorded. Sampling level for all species is stratified on the ICES Sub-division level. **Stratification:** The international trawl surveys use a random stratified design with catch-stations selected from a set of known trawlable sites. Trawl stations positions and depths layers for each survey are received from administrator of Tow-Database.
Sampling design and protocols
Sampling design description: The available haul positions are heterogeneously distributed in many depth layers. Therefore, it is not possible to use a random numbers generator to select fishing-stations from the Tow-Data-base for a planned BITS survey, because such an algorithm produces a biased selection due to different probability of areas to come into the selected pool of hauls (ICES, 2002, 2003). **Is the sampling design compliant with the 4S principle?:** NA

Regional coordination:
The survey is conducted in collaboration with national institutes from Denmark, Germany, Poland, Lithuania and Sweden within the framework of ICES. Survey is a part of the Baltic International Trawl Surveys (BITS), which is coordinated by the ICES Baltic International Fish Survey Working Group [WGBIFS]. The sampling design and protocols are described in Manual for the Baltic International Trawl Surveys (BITS) Version 2.0.

Link to sampling design documentation:
Latest sampling design documentation could be found in Manual for the Baltic International Trawl Surveys (BITS) Version 2.0:
https://www.ices.dk/sites/pub/Publication%20Reports/ICES%20Survey%20Protocols%20(SISP)/SISP7%20BITS%202017.pdf

Compliance with international recommendations: Y

Link to sampling protocol documentation:
Latest sampling protocol documentation could be found in Manual for the Baltic International Trawl Surveys (BITS) Version 2.0:
https://www.ices.dk/sites/pub/Publication%20Reports/ICES%20Survey%20Protocols%20(SISP)/SISP7%20BITS%202017.pdf

Compliance with international recommendations: Y

Sampling implementation

Recording of refusal rate: NA

Monitoring of sampling progress within the sampling year:
Collection of the sample is performed according to the BITS manual.

Data capture

Means of data capture:
For data capture on board measuring board, scales, knife and tweezers to collet otoliths are used. Plankton nets, hydrology probe and echo sounder are used to collect environmental information. Cod stomach and liver samples are stored in separate plastic bags for further analyses. Information about litter is collected from each haul.

Data capture documentation:
Data capture documentation could be found in Manual for the Baltic International Trawl Surveys (BITS) Version 2.0:
https://www.ices.dk/sites/pub/Publication%20Reports/ICES%20Survey%20Protocols%20(SISP)/SISP7%20BITS%202017.pdf

Quality checks documentation: Y
Data quality is checked by ICES during the data upload process to the DATRAS (The Database of Trawl Surveys) database as well the local database "BIODATA".

Data storage

National database:
The name of national database is "BIODATA" (Biological Data Information System) and it's available only for institute employees.

International database:
All collected information is submitted to the International Council for the Exploration of the Sea (ICES) database DATRAS.

Quality checks and data validation documentation:
Quality checks and data validation is implemented in all mentioned above databases to avoid input and many logical mistakes and errors.

Sample storage

Collected otoliths are processed and stored in paper envelopes for each individual specimen. Otoliths are grouped by years, trips and fish species and stored in specific otoliths archive permanently. Plankton, stomach and liver samples are utilised after analyses and data is saved in database. The amount of analysed fish during BITS surveys in 2018-2020 is available: https://bior.lv/sites/default/files/inline-files/BITS_collected_info_2018-2020.pdf

Biological samples are collected and processed by following the next manuals:
Baltic cod otolith harvesting protocol and age determination method: https://bior.lv/sites/default/files/inline-files/Baltic%20cod%20otolith%20collection%20protocol%20and%20age%20reading_0.pdf
Age reading of flounder is performed according to the Annex 6 of the Report of the 2nd Workshop on Age Reading of Flounder (WKARFLO):
https://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2008/WKARFLO/WKARFLO08.pdf
Collection and processing of ichthyoplankton samples: https://bior.lv/sites/default/files/inline-files/Methodology%20of%20Ichthyoplankton%20collection.pdf
Methods of collection and processing of oceanographic and meteorological data: https://bior.lv/sites/default/files/inline-files/Oceanographic_methodology.pdf

Data processing

Evaluation of data accuracy (bias and precision): Y
Evaluation of data accuracy (bias and precision) are described in cod sampling manual (is also applicable for other fish species): https://www.bior.lv/sites/default/files/inline-files/Latvia_cod_sampling.pdf

Editing and imputation methods:
During the data entry length, weight and age data are checked and constrained for minimal and maximal values. Excel data validation tool is used. Once the data for the respective trip has been entered, the length & weight relationship are analysed. A linear regression model is developed by determining the trend line and forecast confidence intervals. Those records that are outside confidence intervals are marked as erroneous and re-checked and if necessary, corrected. Excel macro is used for this checking. As a result, a graph with visual info and a table with problematic fish weights are obtained.
During the data entry process the Fulton's coefficient is used to check the length-weight relationship. Excel conditional formatting option is used to check data quality. After entering the weight that does not match the settings (Fulton's coefficient is > 2 or < 0.5), cell is coloured in red and additional data checking is performed. Clark's coefficient is used to check the length-weight gutted relationship during the data entry. Excel conditional formatting option is used to check data quality. After entering the weight that does not match the settings (Clark's coefficient is > 1.5 or < 0.4), cell is coloured in red and additional data checking is performed.
During the otolith preparation for age reading additional data quality check is performed, if necessary, corrections are made. If data errors are found, original data and outputs including all relevant databases are corrected.

Quality document associated to a dataset: N

Validation of the final dataset:
Data from the survey are prepared in national databases format and DATRAS (the Database of Trawl Surveys) format. DATRAS has an integrated quality check utility. All data, before entering the database, have to pass an extensive quality check.

BITS Q4 – QUALITY REPORT

MS: LVA

Region: Baltic Sea

Sampling scheme identifier: BITS Q4

Sampling scheme type: From Table 1 of EU MAP Implementing Decision

Observation type: SciObsAtSea

Time period of validity: 01.01.2022 – 31.12.2024

The survey will be conducted in November-December on the rented research vessel. The primary purpose of the survey is to produce abundance estimates and indices of recruitment for cod and flounder in the Eastern Baltic (Sub-divisions 25-32) that are necessary for tuning VPA and prediction of the recruitment. Other species are also intensively investigated to support ecosystem analyses.

Description of the population

Population targeted:
Primary sampling unit for this survey is fishing haul. The main target species from a survey perspective are Cod and Flounder. Main survey area is Latvian EEZ (ICES subdivision 26 and 28).

Population sampled:
Biological sampling procedure and length measurements are performed for cod and flounder. Length distribution should be recorded for all other species from every trawl-station, but with less intensity. For all species the total number and weight is recorded. Sampling level for all species is stratified on the ICES Sub-division level.

Stratification:
The international trawl surveys use a random stratified design with catch-stations selected from a set of known trawlable sites. Trawl stations positions and depths layers for each survey are received from administrator of Tow-Database.

Sampling design and protocols

Sampling design description:
The available haul positions are heterogeneously distributed in many depth layers. Therefore, it is not possible to use a random numbers generator to select fishing-stations from the Tow-Data-base for a planned BITS survey, because such an algorithm produces a biased selection due to different probability of areas to come into the selected pool of hauls (ICES, 2002, 2003).

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

Regional coordination:
The survey is conducted in collaboration with national institutes from Denmark, Germany, Poland, Lithuania, Estonia and Sweden within the framework of ICES. Survey is a part of the Baltic International Trawl Surveys (BITS), which is coordinated by the ICES Baltic International Fish Survey Working Group [WGBIFS]. The sampling design and protocols are described in Manual for the Baltic International Trawl Surveys (BITS) Version 2.0.

Link to sampling design documentation:
Latest sampling design documentation could be found in Manual for the Baltic International Trawl Surveys (BITS) Version 2.0:

https://www.ices.dk/sites/pub/Publication%20Reports/ICES%20Survey%20Protocols%20(SISP)/SISP7%20BITS%202017.pdf

Compliance with international recommendations: Y

Link to sampling protocol documentation:
Latest sampling protocol documentation could be found in Manual for the Baltic International Trawl Surveys (BITS) Version 2.0:
https://www.ices.dk/sites/pub/Publication%20Reports/ICES%20Survey%20Protocols%20(SISP)/SISP7%20BITS%202017.pdf

Compliance with international recommendations: Y

Sampling implementation

Recording of refusal rate: NA

Monitoring of sampling progress within the sampling year:
Collection of the sample is performed according to the BITS manual.

Data capture

Means of data capture:
For data capture on board measuring board, scales, knife and tweezers to collet otoliths are used. Hydrology probe and echo sounder are used to collect environmental information. Cod stomach and liver samples are stored in separate plastic bags for further analyses. Information about litter is collected from each haul.

Data capture documentation:
Data capture documentation could be found in Manual for the Baltic International Trawl Surveys (BITS) Version 2.0:
https://www.ices.dk/sites/pub/Publication%20Reports/ICES%20Survey%20Protocols%20(SISP)/SISP7%20BITS%202017.pdf

Quality checks documentation: Y
Data quality is checked by ICES during the data upload process to the DATRAS (The Database of Trawl Surveys) database as well the local database "BIODATA".

Data storage

National database:
The name of national database is "**BIODATA**" (Biological Data Information System) and it's available for institute employees.

International database:
All collected information is submitted to the International Council for the Exploration of the Sea (ICES) database DATRAS**.**

Quality checks and data validation documentation:
Quality checks and data validation is implemented in all mentioned above databases to avoid input and many logical mistakes and errors.

Sample storage

Collected otoliths are processed and stored in paper envelopes for each individual specimen. Otoliths are grouped by years, trips and fish species and stored in specific otoliths archive permanently. Plankton, stomach and liver

samples are utilised after analyses and data is saved in database. The amount of analysed fish during BITS surveys in 2018-2020 is available: https://bior.lv/sites/default/files/inline-files/BITS_collected_info_2018-2020.pdf

Biological samples are collected and processed by following the next manuals:
Baltic cod otolith harvesting protocol and age determination method: https://bior.lv/sites/default/files/inline-files/Baltic%20cod%20otolith%20collection%20protocol%20and%20age%20reading_0.pdf
Age reading of flounder is performed according to the Annex 6 of the Report of the 2nd Workshop on Age Reading of Flounder (WKARFLO): https://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2008/WKARFLO/WKARFLO08.pdf

Methods of collection and processing of oceanographic and meteorological data: https://bior.lv/sites/default/files/inline-files/Oceanographic_methodology.pdf

Data processing

Evaluation of data accuracy (bias and precision): Y
Evaluation of data accuracy (bias and precision) are described in cod sampling manual (is also applicable for other fish species): https://www.bior.lv/sites/default/files/inline-files/Latvia_cod_sampling.pdf

Editing and imputation methods:
During the data entry length, weight and age data are checked and constrained for minimal and maximal values. Excel data validation tool is used. Once the data for the respective trip has been entered, the length & weight relationship are analysed. A linear regression model is developed by determining the trend line and forecast confidence intervals. Those records that are outside confidence intervals are marked as erroneous and re-checked and if necessary, corrected. Excel macro is used for this checking. As a result, a graph with visual info and a table with problematic fish weights are obtained.
During the data entry process the Fulton's coefficient is used to check the length-weight relationship. Excel conditional formatting option is used to check data quality. After entering the weight that does not match the settings (Fulton's coefficient is > 2 or < 0.5), cell is coloured in red and additional data checking is performed. Clark's coefficient is used to check the length-weight gutted relationship during the data entry. Excel conditional formatting option is used to check data quality. After entering the weight that does not match the settings (Clark's coefficient is > 1.5 or < 0.4), cell is coloured in red and additional data checking is performed.
During the otolith preparation for age reading additional data quality check is performed, if necessary, corrections are made. If data errors are found, original data and outputs including all relevant databases are corrected.

Quality document associated to a dataset: N

Validation of the final dataset:
Data from the survey are prepared in national databases format and DATRAS (the Database of Trawl Surveys) format. DATRAS has an integrated quality check utility. All data, before entering the database, have to pass an extensive quality check.

BIAS – QUALITY REPORT

MS: LVA
Region: Baltic Sea
Sampling scheme identifier: BIAS
Sampling scheme type: From Table 1 of EU MAP Implementing Decision
Observation type: SciObsAtSea

Time period of validity: 01.01.2022 – 31.12.2024

The survey will be conducted in October on the rented research or fishing vessel. The primary purpose of the survey is to produce abundance estimates and indices of recruitment for herring and sprat in the Eastern Baltic (Sub-divisions 25-32) that are necessary for tuning VPA and prediction of the recruitment. Other species are also intensively investigated to support ecosystem analyses.

Description of the population

Population targeted: Primary sampling unit for this survey is acoustic record and fishing haul to decode acoustic records. The main target species from a survey perspective are herring and sprat. Main survey area is ICES subdivisions 26 and 28.

Population sampled: Biological sampling procedure and length measurements are performed for herring and sprat. Length distribution should be recorded for all other species from every trawl-station, but with less intensity. For all species the total number and weight is recorded. Sampling level for all species is stratified on the ICES Sub-division level.

Stratification: The Baltic International Acoustic Surveys are performed based on Survey Assignment accepted by ICES WGBIFS. Survey tracks are standard, trawling positions are selected according to survey manual and per each covered ICES rectangle.

Sampling design and protocols

Sampling design description: Survey tracks designed to cover all survey area uniformly, acoustic records performed along tracks. Trawling positions in ICES rectangles are selected based on acoustic records. To decode acoustic records pelagic fish species and cod are used.

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

Regional coordination: The survey is conducted in collaboration with national institutes from Germany, Poland, Estonia, Lithuania, Finland, and Sweden within the framework of ICES. Survey is part of the Baltic International Acoustic Survey (BIAS), which is coordinated by the ICES Baltic International Fish Survey Working Group [WGBIFS].

Link to sampling design documentation: Latest sampling design documentation could be found in "Manual for the International Baltic Acoustic Surveys (IBAS). Series of ICES Survey Protocols SISP 8 – IBAS. Version 2.0" (WGBIFS, ICES, 2017, http://doi.org/10.17895/ices.pub.3368).

Compliance with international recommendations: Y

Link to sampling protocol documentation: Latest sampling protocol documentation could be found in "Manual for the International Baltic Acoustic Surveys (IBAS). Series of ICES Survey Protocols SISP 8 – IBAS. Version 2.0" (WGBIFS, ICES, 2017,http://doi.org/10.17895/ices.pub.3368).

Compliance with international recommendations: Y

Sampling implementation

Recording of refusal rate: NA

Monitoring of sampling progress within the sampling year: Collection of the samples is performed according to the "Manual for the International Baltic Acoustic Surveys (IBAS). Series of ICES Survey Protocols SISP 8 – IBAS. Version 2.0" (WGBIFS, ICES, 2017, http://doi.org/10.17895/ices.pub.3368).

Data capture

Means of data capture: For data capture on board measuring board, marine scales, scalpel to collect otoliths are used. Hydrology probe and echo sounder are used to collect environmental information.

Data capture documentation: Data capture documentation could be found in the "Manual for the International Baltic Acoustic Surveys (IBAS). Series of ICES Survey Protocols SISP 8 – IBAS. Version 2.0" (WGBIFS, ICES, 2017, http://doi.org/10.17895/ices.pub.3368).

Quality checks documentation: Y

Quality checks documentation found in ICES Working Group on Baltic International Fish Survey. WGBIFS; outputs from 2021 meeting. ICES Scientific Reports. 3:80. https://doi.org/10.17895/ices.pub.8248.

Data storage

National database: The name of national database is "**BIODATA**" (Biological Data Information System) and it's available for institute employees.

International database: All collected information is submitted to the International Council for the Exploration of the Sea (ICES) database BAD1 and Acoustic DB**.** Both available only for data providers and stock coordinators.

Quality checks and data validation documentation: Quality checks and data validation is implemented in all mentioned above databases to avoid input and many logical mistakes and errors.

Sample storage

Storage description: Only target fish specimens' otoliths are stored permanently. Plankton samples are stored until processed. Collected fish otoliths are processed and stored in paper booklets or on plastic plates for each sample separately, each individual specimen is stored in separate sheet in booklet or in separate hollows on plastic plates. Otoliths are grouped by years, trips and fish species and stored in specific otoliths archive permanently. Zooplankton samples are stored in plastic bottles and fixed with alcohol. Plankton samples are utilised after analyses and data is saved in database.

Data processing

Evaluation of data accuracy (bias and precision): Y

The evaluation of data accuracy (precision levels) manual is found: https://bior.lv/sites/default/files/inline-files/Precizitate_rezultati_2017.pdf, document language Latvian.

Editing and imputation methods: Y

After data input into file the significant deviations from normal distribution into specific sample are checked by two scientists. If error cannot be corrected, erroneous dataset is deleted from file.

Quality document associated to a dataset: N

Validation of the final dataset: During data upload into database the validation process is implemented according to database vocabularies.

MS: LVA

Region: Baltic Sea

Sampling scheme identifier: SPRAS

Sampling scheme type: From Table 1 of EU MAP Implementing Decision

Observation type: SciObsAtSea

Time period of validity: 01.01.2022 – 31.12.2024

The survey will be conducted in May on the rented research or fishing vessel. The primary purpose of the survey is to produce abundance estimates and indices of recruitment for sprat in the Eastern Baltic (Sub-divisions 25-32) that are necessary for tuning VPA and prediction of the recruitment. Other species are also intensively investigated to support ecosystem analyses.

Description of the population

Population targeted: Primary sampling unit for this survey is acoustic record and fishing haul to decode acoustic records. The main target species from a survey perspective is sprat. Main survey area is ICES subdivisions 26 and 28.

Population sampled: Biological sampling procedure and length measurements are performed for herring and sprat. Length distribution should be recorded for all other species from every trawl-station, but with less intensity. For all species the total number and weight is recorded. Sampling level for all species is stratified on the ICES Sub-division level.

Stratification: The Sprat Acoustic Surveys are performed based on Survey Assignment accepted by ICES WGBIFS. Survey tracks are standard, trawling positions are selected according to survey manual and per each covered ICES rectangle.

Sampling design and protocols

Sampling design description: Survey tracks designed to cover all survey area uniformly, acoustic records performed along tracks. Trawling positions in ICES rectangles are selected based on acoustic records. To decode acoustic records pelagic fish species and cod are used.

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

Regional coordination: The survey is conducted in collaboration with national institutes from Germany, Poland, Estonia, Lithuania, and Sweden within the framework of ICES. Survey is part of the Sprat Acoustic Survey (SPRAS) named as well as Baltic Acoustic Spring Survey (BASS), which is coordinated by the ICES Baltic International Fish Survey Working Group [WGBIFS].

Link to sampling design documentation: Latest sampling design documentation could be found in “Manual for the International Baltic Acoustic Surveys (IBAS). Series of ICES Survey Protocols SISP 8 – IBAS. Version 2.0” (WGBIFS, ICES, 2017,http://doi.org/10.17895/ices.pub.3368).

Compliance with international recommendations: Y

Link to sampling protocol documentation: Latest sampling protocol documentation could be found in “Manual for the International Baltic Acoustic Surveys (IBAS). Series of ICES Survey Protocols SISP 8 – IBAS. Version 2.0” (WGBIFS, ICES, 2017, http://doi.org/10.17895/ices.pub.3368).

Compliance with international recommendations: Y

Sampling implementation

Recording of refusal rate: NA

Monitoring of sampling progress within the sampling year: Collection of the samples is performed according to the "Manual for the International Baltic Acoustic Surveys (IBAS). Series of ICES Survey Protocols SISP 8 – IBAS. Version 2.0" (WGBIFS, ICES, 2017, http://doi.org/10.17895/ices.pub.3368).

Data capture

Means of data capture: For data capture on board measuring board, marine scales, scalpel to collect otoliths are used. Hydrology probe and echo sounder are used to collect environmental information.

Data capture documentation: Data capture documentation could be found in the "Manual for the International Baltic Acoustic Surveys (IBAS). Series of ICES Survey Protocols SISP 8 – IBAS. Version 2.0" (WGBIFS, ICES, 2017, http://doi.org/10.17895/ices.pub.3368).

Quality checks documentation: Y

Quality checks documentation found in ICES Working Group on Baltic International Fish Survey. WGBIFS; outputs from 2021 meeting. ICES Scientific Reports. 3:80. https://doi.org/10.17895/ices.pub.8248.

Data storage

National database: The name of national database is "**BIODATA**" (Biological Data Information System) and it's available for institute employees.

International database: All collected information is submitted to the International Council for the Exploration of the Sea (ICES) database BAD1 and Acoustic DB**.** Both available only for data providers and stock coordinators.

Quality checks and data validation documentation: Quality checks and data validation is implemented in all mentioned above databases to avoid input and many logical mistakes and errors.

Sample storage

Storage description: Only target fish specimens' otoliths are stored permanently. Plankton samples are stored until processed. Collected fish otoliths are processed and stored in paper booklets or on plastic plates for each sample separately, each individual specimen is stored in separate sheet in booklet or in separate hollows on plastic plates. Otoliths are grouped by years, trips and fish species and stored in specific otoliths archive permanently. Ichthyoplankton samples are stored in plastic bottles and fixed with 2% formalin. Zooplankton samples are stored in plastic bottles and fixed with alcohol. Plankton samples are utilised after analyses and data is saved in database.

Data processing

Evaluation of data accuracy (bias and precision): Y

The evaluation of data accuracy (precision levels) manual is found: https://bior.lv/sites/default/files/inline-files/Precizitate_rezultati_2017.pdf, document language Latvian.

Editing and imputation methods: Y

After data input into file the significant deviations from normal distribution into specific sample are checked by two scientists. If error cannot be corrected, erroneous dataset is deleted from file.

Quality document associated to a dataset: N

Validation of the final dataset: During data upload into database the validation process is implemented according to database vocabularies.

GRAHS – QUALITY REPORT

MS: LVA
Region: Baltic Sea
Sampling scheme identifier: GRAHS
Sampling scheme type: From Table 1 of EU MAP Implementing Decision
Observation type: SciObsAtSea
Time period of validity: 01.01.2022 – 31.12.2024
The survey will be conducted in July-August on the rented fishing vessel. The primary purpose of the survey is to produce abundance estimates and indices of recruitment for Gulf of Riga herring population in the Eastern Baltic (Sub-division 28.1) that are necessary for tuning VPA and prediction of the recruitment. Other species are also intensively investigated to support ecosystem analyses.
Description of the population
Population targeted: Primary sampling unit for this survey is acoustic record and fishing haul to decode acoustic records. The main target species from a survey perspective is herring. Main survey area is ICES subdivision 28.1. **Population sampled:** Biological sampling procedure and length measurements are performed for herring. Length distribution should be recorded for all other species from every trawl-station, but with less intensity. For all species the total number and weight is recorded. Sampling level for all species is stratified on the ICES Sub-division level. **Stratification:** The Gulf of Riga Acoustic Herring Surveys are performed based on Survey Assignment accepted by ICES WGBIFS. Survey tracks are standard, trawling positions are selected according to survey manual and per each covered ICES rectangle.
Sampling design and protocols
Sampling design description: Survey tracks designed to cover all survey area uniformly, acoustic records performed along tracks. Trawling positions in ICES rectangles are selected based on acoustic records. To decode acoustic records pelagic fish species and cod are used. **Is the sampling design compliant with the 4S principle?:** NA **Regional coordination:** The survey is conducted in collaboration with national institute Estonia within the framework of ICES and is coordinated by the ICES Baltic International Fish Survey Working Group [WGBIFS]. **Link to sampling design documentation:** Latest sampling design documentation could be found in "Manual for the International Baltic Acoustic Surveys (IBAS). Series of ICES Survey Protocols SISP 8 – IBAS. Version 2.0" (WGBIFS, ICES, 2017, http://doi.org/10.17895/ices.pub.3368). **Compliance with international recommendations:** Y **Link to sampling protocol documentation:** Latest sampling protocol documentation could be found in "Manual for the International Baltic Acoustic Surveys (IBAS). Series of ICES Survey Protocols SISP 8 – IBAS. Version 2.0" (WGBIFS, ICES, 2017, http://doi.org/10.17895/ices.pub.3368).

Compliance with international recommendations: Y

Sampling implementation

Recording of refusal rate: NA

Monitoring of sampling progress within the sampling year: Collection of the samples is performed according to the "Manual for the International Baltic Acoustic Surveys (IBAS). Series of ICES Survey Protocols SISP 8 – IBAS. Version 2.0" (WGBIFS, ICES, 2017, http://doi.org/10.17895/ices.pub.3368).

Data capture

Means of data capture: For data capture on board measuring board, marine scales, scalpel to collect otoliths are used. Hydrology probe and echo sounder are used to collect environmental information.

Data capture documentation: Data capture documentation could be found in the "Manual for the International Baltic Acoustic Surveys (IBAS). Series of ICES Survey Protocols SISP 8 – IBAS. Version 2.0" (WGBIFS, ICES, 2017, http://doi.org/10.17895/ices.pub.3368).

Quality checks documentation: Y

Quality checks documentation found in ICES Working Group on Baltic International Fish Survey. WGBIFS; outputs from 2021 meeting. ICES Scientific Reports. 3:80. https://doi.org/10.17895/ices.pub.8248.

Data storage

National database: The name of national database is "**BIODATA**" (Biological Data Information System) and it's available for institute employees.

International database: All collected information is submitted to the International Council for the Exploration of the Sea (ICES) database BAD1 and Acoustic DB**.** Both available only for data providers and stock coordinators.

Quality checks and data validation documentation: Quality checks and data validation is implemented in all mentioned above databases to avoid input and many logical mistakes and errors.

Sample storage

Storage description: Only target fish specimens' otoliths are stored permanently. Plankton samples are stored until processed. Collected fish otoliths are processed and stored in paper booklets or on plastic plates for each sample separately, each individual specimen is stored in separate sheet in booklet or in separate hollows on plastic plates. Otoliths are grouped by years, trips and fish species and stored in specific otoliths archive permanently. Zooplankton samples are stored in plastic bottles and fixed with alcohol. Plankton samples are utilised after analyses and data is saved in database.

Data processing

Evaluation of data accuracy (bias and precision): Y

The evaluation of data accuracy (precision levels) manual is found: https://bior.lv/sites/default/files/inline-files/Precizitate_rezultati_2017.pdf, document language Latvian.

Editing and imputation methods: Y

After data input into file the significant deviations from normal distribution into specific sample are checked by two scientists. If error cannot be corrected, erroneous dataset is deleted from file.

Quality document associated to a dataset: N

Validation of the final dataset: During data upload into database the validation process is implemented according to database vocabularies.

LFJS – QUALITY REPORT

MS: LVA

Region: Baltic Sea

Sampling scheme identifier: LFJS

Sampling scheme type: Latvian Flatfishes Juvenile Survey

Observation type: SciObsAtSea

Time period of validity: 01.01.2022 – 31.12.2024

Short description (max 100 words):
Data are will be collected in 5 areas in Latvian coastal zone at 3-5 m depth using beach seine.
The objective of survey is to obtain abundance estimates of flatfish (flounder and turbot) juveniles. Other fish species are also intensively investigated to support ecosystem analyses.

Description of the population

Population targeted: Primary sampling unit is beach seine haul. Main survey area is the surf zone of the Baltic sea which is the main nursery area of flatfishes. Main target species from a survey perspective are flounder and turbot. Sampling areas have been selected historically as the main recruitment areas for turbot (South-West Latvian coast) and flounder (North-West Latvian coast).

Population sampled: Biological analysis of all flatfishes (flounder, turbot) are made. Other fish and nektobenthos species are also intensively investigated to support ecosystem analyses.

Stratification: Stratification is not used in this research survey.

Sampling design and protocols

Sampling design description: Sampling design is planned to monitor changes over time (years) at fixed stations, and to follow the relative abundance of flatfish juveniles in each area. Areas have been selected historically in places which are the most successful flatfish nursery areas. More than one haul in each area have been performed to ensure number of flatfishes caught per area are enough to do data analysis.

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

Regional coordination: This is not an internationally coordinated survey.

Link to sampling design documentation: https://bior.lv/sites/default/files/inline-files/Guidelines_for_Latvian_Flatfishes_Juvenile_Survey%28LFJS%29.pdf

Compliance with international recommendations: N. The data will be collected with beach seine (mesh size in cod-end 8 mm) from the coast in surf zone of the Baltic Sea on the main nursery areas of flatfishes. The sampling area is approximately 4000 m2, the distance from the coastline is approximately 130 m. In every

sampling area (Kolka - Gulf of Riga, Kolka – Irbe Strait, Lielirbe, Jurmalciems, Pape – Baltic Sea) 5 hauls will be performed. Other species (fish and nektobenthos) are also intensively investigated to support ecosystem analyses. During the survey the basic hydrological parameters (temperature, salinity, and oxygen content) will be measured.

Link to sampling protocol documentation: https://bior.lv/sites/default/files/inline-files/Guidelines_for_Latvian_Flatfishes_Juvenile_Survey%28LFJS%29.pdf

Compliance with international recommendations: N. All fish species are measured after each haul, biological analysis of flatfishes is done. Other species (e.g. nektobenthos) are also intensively investigated to support ecosystem analyses. During the survey the basic hydrological parameters (temperature, salinity, and oxygen content) will be measured. Sampling protocol is more detailed described in the relevant manual: https://bior.lv/sites/default/files/inline-files/Guidelines_for_Latvian_Flatfishes_Juvenile_Survey%28LFJS%29.pdf

Sampling implementation

Recording of refusal rate: NA

Monitoring of sampling progress within the sampling year: Sampling period is extended to ensure survey will be performed in case of unfavourable weather conditions (e.g. strong wind, waves). Location of areas allow to do survey in one of the areas if the weather is bad in another one.

Data capture

Means of data capture: For data capture measuring board, scales, buckets are used. Hydrology probe and Secchi disc are used to collect environmental information.

Data capture documentation: Y
https://bior.lv/sites/default/files/inline-files/Guidelines_for_Latvian_Flatfishes_Juvenile_Survey%28LFJS%29.pdf

Quality checks documentation: https://bior.lv/sites/default/files/inline-files/Guidelines_for_Latvian_Flatfishes_Juvenile_Survey%28LFJS%29.pdf

Data storage

National database: The name of national database is "**BIODATA**" (Biological Data Information System) and it's available for institute employees.
International database: NA

Quality checks and data validation documentation:

Sample storage

Storage description: No samples are stored in this research survey. All fishes are measured immediately after each beach seine haul.

Data processing

Evaluation of data accuracy (bias and precision): Y.
https://bior.lv/sites/default/files/inline-files/Guidelines_for_Latvian_Flatfishes_Juvenile_Survey%28LFJS%29.pdf
Editing and imputation methods: Y.
https://bior.lv/sites/default/files/inline-files/Guidelines_for_Latvian_Flatfishes_Juvenile_Survey%28LFJS%29.pdf
Quality document associated to a dataset: N.

Validation of the final dataset: Data quality is checked according to the Latvian Juvenile Flatfish Survey manual.
https://bior.lv/sites/default/files/inline-files/Guidelines_for_Latvian_Flatfishes_Juvenile_Survey%28LFJS%29.pdf

GORDEM – QUALITY REPORT

MS: LVA

Region: Baltic Sea

Sampling scheme identifier: GORDEM

Sampling scheme type: Gulf of Riga Demersal Fish survey

Observation type: SciObsAtSea

Time period of validity: 01.01.2022 – 31.12.2024

Benthic trawl surveys the Gulf of Riga in May. Performed in standard stations with a small scientific trawl on a rented MRTK type fishing trawler in the Gulf of Riga (Sub-division 28.1) The primary purpose of the survey is to produce abundance estimates of benthic fish species and get hydrological (temperature, salinity, oxygen content) and zooplankton samples in the trawling stations during the survey. There are 3 days at sea planned for all Gulf of Riga trawling, zooplankton and hydrological samples.

Description of the population

Population targeted: Benthic fish community in the Gulf of Riga coastal and open waters. Primary sampling unit for this survey is fishing haul. The main target species from a survey perspective are all benthic fish species. Main survey area is Latvian EEZ Gulf of Riga (ICES subdivision 28.1).

Population sampled:
Demersal species sampling. Length distribution are recorded for all benthic species from every trawl-station. For all species the total number and weight is recorded. Biological sampling procedure is performed for round goby.

Stratification:
A random stratified design is used to select catch-stations from a set of known trawlable sites. A list of continuously sampled long-year standard trawling stations starting from the 1970's is used. In every trip 14 trawling stations, 10 zooplankton samples and 20 hydrological stations are sampled. In addition information about marine litter is collected from each haul.

Sampling design and protocols

Sampling design description:
The available haul positions are heterogeneously distributed representing various depth layers (10-50 m) and ICES rectangles.

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

Regional coordination: N

Link to sampling design documentation:
Sampling design documentation can be found here (in Latvian):
https://bior.lv/sites/default/files/inline-files/Methodology_of_GoR_Demersal_Survey.pdf

Compliance with international recommendations:
N
Sampling design was developed in accordance to methodology provided by ICES (Latest sampling design documentation could be found in Manual for the Baltic International Trawl Surveys (BITS) Version 2.0: https://www.ices.dk/sites/pub/Publication%20Reports/ICES%20Survey%20Protocols%20(SISP)/SISP7%20BITS%202017.pdf). The selected sampling design represents various depth layers and ICES rectangles.

Link to sampling protocol documentation:
Sampling protocol documentation can be found here (in Latvian):
https://bior.lv/sites/default/files/inline-files/Methodology_of_GoR_Demersal_Survey.pdf

Compliance with international recommendations:
N
Sampling protocol was developed in accordance to methodology provided by ICES (Latest sampling protocol documentation could be found in Manual for the Baltic International Trawl Surveys (BITS) Version 2.0: https://www.ices.dk/sites/pub/Publication%20Reports/ICES%20Survey%20Protocols%20(SISP)/SISP7%20BITS%202017.pdf).
Sampling protocol documentation can be found here (in Latvian):
https://bior.lv/sites/default/files/inline-files/Methodology_of_GoR_Demersal_Survey.pdf

Sampling implementation

Recording of refusal rate: NA

Monitoring of sampling progress within the sampling year:
Sampling period is extended to one month in each season to ensure the survey will be performed in case of unfavourable weather conditions (e.g. strong wind, waves).

Data capture

Means of data capture:
For data capture on board measuring board and scales are used. Plankton nets are used to collect zooplankton samples, and hydrology probe is used to collect environmental information.

Data capture documentation:
Data capture documentation is available here (in Latvian):
https://bior.lv/sites/default/files/inline-files/Methodology_of_GoR_Demersal_Survey.pdf

Quality checks documentation:
N
Data quality is checked during upload process to the local database "BIODATA".

Data storage

National database: The name of national database is "**BIODATA**" (Biological Data Information System) and it's available for institute employees.

International database:
NA

Quality checks and data validation documentation:
Quality checks and data validation is implemented after data input in Excel files and before the upload to the database to avoid input and many logical mistakes and errors.

Sample storage

Storage description:
Collected otoliths are processed and stored in paper envelopes for each individual specimen. Otoliths are grouped by years, trips and fish species and stored in specific otoliths archive permanently. Stomach samples are stored frozen and processed later in laboratory. Plankton samples are stored in ethanol and utilised after processing in laboratory.

Data processing

Evaluation of data accuracy (bias and precision):
Y
Evaluation of data accuracy (bias and precision) are described in cod sampling manual (is also applicable for other fish species): https://www.bior.lv/sites/default/files/inline-files/Latvia_cod_sampling.pdf

Editing and imputation methods:
Y

During the data entry, biological data are checked for minimal and maximal values. Once the data for the respective trip has been entered, the length & weight relationship is analysed by a linear regression model and Fulton's coefficient. Outliers are marked, re-checked and if necessary, corrected. If data errors are found, original data and outputs, including all relevant databases, are corrected.

Quality document associated to a dataset:
N

Validation of the final dataset:
Data from the survey are prepared in national databases format. All data, before entering the database, have to pass an extensive quality check.

CFM – QUALITY REPORT

MS: LVA
Region: Baltic Sea
Sampling scheme identifier: CFM
Sampling scheme type: Coastal fish monitoring
Observation type: SciObsOnShore
Time period of validity: 01.01.2022 – 31.12.2024
Data will be collected in 6 areas in Latvian coastal zone at 3-5 m depth using Nordic coastal multi-mesh gillnets. The objective of survey is to monitor changes in the fish communities in relation to the impact of eutrophication, habitat alteration, climate change, toxic substances, alien species and fishery. The results of the survey are used for the management of fishery in the Latvian coastal zone.
Description of the population
Population targeted: Primary sampling unit is net haul. Main survey area is coastal zone at 3-5 m depth. This is a multispecies survey hence the whole composition of fish community in the specific area is monitored, including fishes with both - marine and freshwater - origins. **Population sampled:** This is a multispecies survey. All fish species (including those of both, demersal and pelagic, origin) and individuals are measured (individual length and weight). **Stratification:** Survey in each area every time is performed in selected fixed stations and depth. Number and distance of individual stations, position of nets has been chosen according to Helcom guidelines for coastal fish monitoring (https://bit.ly/2Pfhv0o).
Sampling design and protocols
Sampling design description: Sampling design is planned out to monitor changes over time (years) at fixed stations, and to follow the relative abundance of different segments of the coastal fish community in each area. Areas have been selected historically to cover all Latvian coast. **Is the sampling design compliant with the 4S principle?:** NA **Regional coordination:** This is not an internationally coordinated survey however, sampling design was developed in accordance to methodology provided by HELCOM (Guidelines for Coastal Fish Monitoring Sampling Methods of HELCOM, 2015; https://bit.ly/2Pfhv0o) and it is performed in other countries of the Baltic Sea. No regional or multi-lateral agreement is used. **Link to sampling design documentation:** Sampling design documentation is available here: https://bior.lv/sites/default/files/inline-files/Guidelines_for_Coastal_fish_monitoring%28CFM%29.pdf

Compliance with international recommendations: Y. Sampling design was developed in accordance to methodology provided by HELCOM (Guidelines for Coastal Fish Monitoring Sampling Methods of HELCOM, 2015; https://bit.ly/2Pfhv0o) and it is performed in other countries of the Baltic Sea.

Link to sampling protocol documentation: Sampling protocol documentation is available here: https://bior.lv/sites/default/files/inline-files/Guidelines_for_Coastal_fish_monitoring%28CFM%29.pdf Guidelines for Coastal Fish Monitoring Sampling Methods of HELCOM, 2015, https://bit.ly/2Pfhv0o

Compliance with international recommendations: Y. Sampling protocol was developed in accordance to methodology provided by HELCOM (Guidelines for Coastal Fish Monitoring Sampling Methods of HELCOM, 2015; https://bit.ly/2Pfhv0o). Sampling protocol documentation is available here: https://bior.lv/sites/default/files/inline-files/Guidelines_for_Coastal_fish_monitoring%28CFM%29.pdf

Sampling implementation

Recording of refusal rate: NA

Monitoring of sampling progress within the sampling year: Sampling progress of coastal fish monitoring is revised every quarter of the year. In sampling design two net hauls per month are performed in 3 areas - in case of bad weather conditions at least one haul per month can be done to ensure continuity of monthly data.

Data capture

Means of data capture: For data capture measuring board, scales, buckets are used. Hydrology probe and Secchi disc are used to collect environmental information.

Data capture documentation: Data capture documentation is available here: https://bior.lv/sites/default/files/inline-files/Guidelines_for_Coastal_fish_monitoring%28CFM%29.pdf

Quality checks documentation: Y. Sampling design documentation is available here: https://bior.lv/sites/default/files/inline-files/Guidelines_for_Coastal_fish_monitoring%28CFM%29.pdf

Data storage

National database: The name of national database is "**BIODATA**" (Biological Data Information System) and it's available for institute employees.

International database: Data from this survey is used to calculate HELCOM indicators regarding coastal fish community. Indicator values are updated annually and are available in online database here: http://bio.helcom.fi/apex/f?p=108:5::::::

Quality checks and data validation documentation: Quality checks and data validation is implemented in national database to avoid input and many logical mistakes and errors.

Sample storage

Storage description: No samples are stored in this research survey. All fishes are measured immediately after each net haul.

Data processing

Evaluation of data accuracy (bias and precision): Y. Documentation is available here: https://bior.lv/sites/default/files/inline-files/Guidelines_for_Coastal_fish_monitoring%28CFM%29.pdf

Editing and imputation methods: Y. Documentation is available here: https://bior.lv/sites/default/files/inline-files/Guidelines_for_Coastal_fish_monitoring%28CFM%29.pdf

Quality document associated to a dataset: N

Validation of the final dataset: Validation documentation is available here: https://bior.lv/sites/default/files/inline-files/Guidelines_for_Coastal_fish_monitoring%28CFM%29.pdf

OSF DEM-1 (SciObsAtSea) – QUALITY REPORT

MS: LVA

Region: Baltic Sea

Sampling scheme identifier: OSF DEM-1 (SciObsAtSea)

Sampling scheme type: Commercial fishing trip

Observation type: SciObsAtSea

Time period of validity: 01.01.2022 – 31.12.2024

This sampling scheme is aiming to collect biological samples of target species (Cod and Flounder) from commercial catches in demersal fishery. The information is collected by scientific observer on-board during the fishing trips.

Description of the population

Population targeted:
Primary sampling unit for this sampling scheme is vessel*trip.

Population sampled:
Annually the list of fishing vessels with obtained fishing quota for main commercial species for demersal fishery is obtained from the Fisheries Department of the Ministry of Agriculture. PSU is randomly selected from the list of vessels by using Excel function "**RANDBETWEEN**". Random selection of PSU is monthly based, except March and December, when scientific surveys **BITS Q1** and **BITS Q4** are performed.

Stratification:
Due to very limited number of fishing vessels in Latvian fleet no stratification is used.

Sampling design and protocols

Sampling design description:
According the results of random selection of PSU the vessel owner is called by phone to arrange the scientific observer participation in the next fishing trip. During the observer trip information about all fish species and all catch fractions are collected separately (Landings, Discards and BMS). Additionally, information about incidental by-catch of birds and mammals is collected.

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

Regional coordination:
This sampling scheme is not regionally coordinated.

Link to sampling design documentation:
Methodology description of randomly selected PSU from the list of fishing vessels is described in document "Methodology for the collection of biological samples from randomly selected fishing vessels" (https://www.bior.lv/sites/default/files/inline-files/Random_sampling.pdf) in Latvian.
Guidelines for scientific observers to collect biological information during a commercial fishing trip are described in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf in Latvian.

Compliance with international recommendations: Y

Annually all international recommendations about sampling design are revised and if it's decided that they are appropriate the changes are implemented.

Link to sampling protocol documentation:
Sampling protocol documentation is available in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf) in Latvian.

Compliance with international recommendations: Y
Annually all international recommendations about sampling design are revised and if it's decided that they are appropriate the changes are implemented.

Sampling implementation

Recording of refusal rate: Y
During the process of random selection of fishing vessel for the next observer trip the following information is registered in the “Random selection protocol”: the name of selected vessel, type of fishing/segment, is able to enter into contact with the ship's representative - (negotiation date, time, contact person, phone), does the ship is available for data collection on the next voyage (yes/no, if "no" then the reason why it is not possible), does the ship is suitable for the observer to work (yes / no), do contact with a representative of the fishing vessel is successful (yes/no), has the journey taken place on the selected ship (yes/no).

Monitoring of sampling progress within the sampling year:
The samples are collected on month base and if it’s not possible to carry out the planned trip, the selection process is repeated and next vessel from the list is selected.

Data capture

Means of data capture:
For data capture on board measuring board, scales, knife and tweezers to collet otoliths are used.

Data capture documentation:
Description of data capture is available in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf) in Latvian.

Quality checks documentation: Y
Description of quality checks is available in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf) in Latvian.

Data storage

National database:
The name of national database is “BIODATA” (Biological Data Information System) and it’s available for institute employees.

International database:
All collected information is submitted to the International Council for the Exploration of the Sea (ICES) databases: **RDB-FishFrame** (A database for regional fisheries assessments for increased transparency and enhanced data quality) and **RDB/RDBES** (Regional Database & Estimation System).

Quality checks and data validation documentation:
Quality checks and data validation is implemented in all mentioned above databases to avoid input and many logical mistakes and errors.

Sample storage

Collected otoliths are processed and stored in paper envelopes for each individual specimen. Otoliths are grouped by years, trips and fish species and stored in specific otoliths archive permanently.

Biological samples are collected and processed by following the next manuals:
https://bior.lv/sites/default/files/inline-files/Baltic%20cod%20otolith%20collection%20protocol%20and%20age%20reading_0.pdf

Age reading of flounder is performed according to the Annex 6 of the Report of the 2nd Workshop on Age Reading of Flounder (WKARFLO):
https://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2008/WKARFLO/WKARFLO08.pdf

Data processing

Evaluation of data accuracy (bias and precision): Y
Evaluation of data accuracy (bias and precision) are described in cod sampling manual (is also applicable for other fish species): https://www.bior.lv/sites/default/files/inline-files/Latvia_cod_sampling.pdf

Editing and imputation methods:
During the data entry length, weight and age data are checked and constrained for minimal and maximal values. Excel data validation tool is used. Once the data for the respective trip has been entered, the length & weight relationship are analysed. A linear regression model is developed by determining the trend line and forecast confidence intervals. Those records that are outside confidence intervals are marked as erroneous and re-checked and if necessary, corrected. Excel macro is used for this checking. As a result, a graph with visual info and a table with problematic fish weights are obtained.
During the data entry process the Fulton's coefficient is used to check the length-weight relationship. Excel conditional formatting option is used to check data quality. After entering the weight that does not match the settings (Fulton's coefficient is > 2 or < 0.5), cell is coloured in red and additional data checking is performed.
During the otolith preparation for age reading additional data quality check is performed, if necessary, corrections are made. If data errors are found, original data and outputs including all relevant databases are corrected.

Quality document associated to a dataset: N

Validation of the final dataset:
Data from the survey are prepared in national databases format and FishFrame (RDBES) format. FishFrame (RDBES) has an integrated quality check utility. All data, before entering the database, have to pass an extensive quality check.

OSF DEM-1 (SelfAtSea) – QUALITY REPORT

MS: LVA
Region: Baltic Sea
Sampling scheme identifier: OSF DEM-1 (SelfAtSea)
Sampling scheme type: Commercial fishing trip
Observation type: SelfAtSea
Time period of validity: 01.01.2022 – 31.12.2024

This sampling scheme is aiming to collect biological samples of Flounder from commercial catches in demersal fishery. The information is collected by fishermen on-board during the fishing trips.

Description of the population

Population targeted:
Primary sampling unit for this sampling scheme is vessel*trip.

Population sampled:
Annually the list of fishing vessels with obtained fishing quota for main commercial species for demersal fishery is obtained from the Fisheries Department of the Ministry of Agriculture. PSU is randomly selected from the list of vessels by using Excel function "**RANDBETWEEN**". Random selection of PSU is monthly based, except March and December, when scientific surveys **BITS Q1** and **BITS Q4** are performed.

Stratification:
Due to very limited number of fishing vessels in Latvian fleet no stratification is used.

Sampling design and protocols

Sampling design description:
According the results of random selection of PSU the vessel owner is called by phone to arrange the sample collection from the next fishing trip. An unsorted sample of flounder shall be collected from one fishing operation during the trip.

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

Regional coordination:
This sampling scheme is not regionally coordinated.

Link to sampling design documentation:
Methodology description of randomly selected PSU from the list of fishing vessels is described in document "Methodology for the collection of biological samples from randomly selected fishing vessels" (https://www.bior.lv/sites/default/files/inline-files/Random_sampling.pdf) in Latvian.

Compliance with international recommendations: Y
Annually all international recommendations about sampling design are revised and if it's decided that they are appropriate the changes are implemented.

Link to sampling protocol documentation: N
An unsorted sample of flounder approximately 25-50 kg are collected and shipped to the institute for the further analysis.

Compliance with international recommendations: Y
Annually all international recommendations about sampling design are revised and if it's decided that they are appropriate the changes are implemented.

Sampling implementation

Recording of refusal rate: Y
During the process of random selection of fishing vessel for the next observer trip the following information is registered in the "Random selection protocol": the name of selected vessel, type of fishing/segment, is able to

enter into contact with the ship's representative - (negotiation date, time, contact person, phone), does the ship is available for data collection on the next voyage (yes/no, if "no" then the reason why it is not possible), does the ship is suitable for the observer to work (yes / no), do contact with a representative of the fishing vessel is successful (yes/no), has the journey taken place on the selected ship (yes/no).

Monitoring of sampling progress within the sampling year:
The samples are collected on quarter base and if it's not possible to carry out the planned trip, the selection process is repeated and next vessel from the list is selected.

Data capture

Means of data capture:
Special inventory is not necessary. Fishermen are using one or two fish boxes for collecting the sample.

Data capture documentation: N
The only requirement is to supply an unsorted sample of flounder.

Quality checks documentation: N
The ERS fishing logbook is checked for flounder catches in the selected trip.

Data storage

National database:
The name of national database is "BIODATA" (Biological Data Information System) and it's available for institute employees.

International database:
All collected information is submitted to the International Council for the Exploration of the Sea (ICES) databases: **RDB-FishFrame** (A database for regional fisheries assessments for increased transparency and enhanced data quality) and **RDB/RDBES** (Regional Database & Estimation System).

Quality checks and data validation documentation:
Quality checks and data validation is implemented in all mentioned above databases to avoid input and many logical mistakes and errors.

Sample storage

Collected otoliths are processed and stored in paper envelopes for each individual specimen. Otoliths are grouped by years, trips and fish species and stored in specific otoliths archive permanently.

Biological samples are collected and processed by following the next manuals:
Age reading of flounder is performed according to the Annex 6 of the Report of the 2nd Workshop on Age Reading of Flounder (WKARFLO):
https://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2008/WKARFLO/WKARFLO08.pdf

Data processing

Evaluation of data accuracy (bias and precision): Y
Evaluation of data accuracy (bias and precision) are described in flounder sampling manual (is also applicable for other fish species): https://bior.lv/sites/default/files/inline-files/Latvia_flounder_sampling.pdf

Editing and imputation methods:
During the data entry length, weight and age data are checked and constrained for minimal and maximal values. Excel data validation tool is used. Once the data for the respective trip has been entered, the length & weight relationship are analysed. A linear regression model is developed by determining the trend line and forecast

confidence intervals. Those records that are outside confidence intervals are marked as erroneous and re-checked and if necessary, corrected. Excel macro is used for this checking. As a result, a graph with visual info and a table with problematic fish weights are obtained.
During the data entry process the Fulton's coefficient is used to check the length-weight relationship. Excel conditional formatting option is used to check data quality. After entering the weight that does not match the settings (Fulton's coefficient is > 2 or < 0.5), cell is coloured in red and additional data checking is performed.
During the otolith preparation for age reading additional data quality check is performed, if necessary, corrections are made. If data errors are found, original data and outputs including all relevant databases are corrected.

Quality document associated to a dataset: N

Validation of the final dataset:
Data from the survey are prepared in national databases format and FishFrame (RDBES) format. FishFrame (RDBES) has an integrated quality check utility. All data, before entering the database, have to pass an extensive quality check.

OSF PEL-1 (SciObsAtSea) – QUALITY REPORT

MS: LVA
Region: Baltic Sea
Sampling scheme identifier: OSF PEL-1 (SciObsAtSea)
Sampling scheme type: Commercial fishing trip
Observation type: SciObsAtSea
Time period of validity: 01.01.2022 – 31.12.2024
This sampling scheme aims to collect biological samples of target species (sprat and herring) from commercial catches in the pelagic fishery. The information is collected on-board by the scientific observer during fishing trips. The scheme covers the Latvian pelagic fleet in the Central Baltic area (22–24; 25–27, 28.2, 29, 32; 30–31).
Description of the population
Population targeted: Primary sampling unit for this sampling scheme is vessel*trip. **Population sampled:** The list of fishing vessels with the obtained fishing quota for main commercial species for the pelagic fishery is annually obtained from the Fisheries Department of the Ministry of Agriculture. PSU is randomly selected from the list of vessels by using the Excel function "RANDBETWEEN". Random selection of PSU is monthly based. **Stratification:** Due to very limited number of fishing vessels in Latvian fleet no stratification is used.
Sampling design and protocols
Sampling design description: According to the results of a random selection of PSU, the vessel owner is called by phone to arrange the scientific observer participation in the next fishing trip. During the observer trip, information about all fish species and all catch fractions are collected separately (Landings and Discards). Additionally, information about incidental by-catch of birds and mammals is collected. **Is the sampling design compliant with the 4S principle?:** Y **Regional coordination:** This sampling scheme is not regionally coordinated.

Link to sampling design documentation: Methodology description of randomly selected PSU from the list of fishing vessels is described in document "Methodology for the collection of biological samples from randomly selected fishing vessels" (https://www.bior.lv/sites/default/files/inline-files/Random_sampling.pdf) in Latvian. Guidelines for scientific observers to collect biological information during a commercial fishing trip are described in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf) in Latvian.

Compliance with international recommendations: Y
Annually all international recommendations about sampling design are revised, and if it's decided that they are appropriate, the changes are implemented.

Link to sampling protocol documentation: Sampling protocol documentation is available in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf) in Latvian.
Compliance with international recommendations:
Y
Annually all international recommendations about sampling design are revised, and if it's decided that they are appropriate, the changes are implemented.

Sampling implementation

Recording of refusal rate:
Y
During the process of a random selection of fishing vessel for the next observer trip the following information is registered in the “Random selection protocol”: the name of the selected vessel, type of fishing/segment, is able to enter into contact with the ship's representative - (negotiation date, time, contact person, phone), does the ship is available for the data collection on the next voyage (yes/no, if "no" then the reason why it is not possible), does the ship is suitable for the observer to work (yes / no), do contact with a representative of the fishing vessel is successful (yes/no), has the journey taken place on the selected ship (yes/no).

Monitoring of sampling progress within the sampling year: The samples are collected monthly, and if it’s not possible to carry out the planned trip, the selection process is repeated, and the next vessel from the list is selected.

Data capture

Means of data capture: For data capture on board measuring board, marine scales and scalpel to collect otoliths are used.

Data capture documentation: Description of data capture is available in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf) in Latvian.

Quality checks documentation:
Y
Description of quality checks is available in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf) in Latvian.

Data storage

National database: The name of the national database is “BIODATA” (Biological Data Information System), and it’s available for institute employees.

International database: All collected information is submitted to the International Council for the Exploration of the Sea (ICES) databases: RDB-FishFrame (A database for regional fisheries assessments for increased transparency and enhanced data quality) and RDB/RDBES (Regional Database & Estimation System).

Quality checks and data validation documentation: Quality checks and data validation is implemented in all mentioned above databases to avoid input and many logical mistakes and errors.

Sample storage

Biological samples are collected and processed according to the following manual:
https://bior.lv/sites/default/files/inline-files/Pelagic_fish_sampling_methodology.pdf

Collected otoliths are processed and stored in paper booklets or plastic trays, each individual specimen is stored in separate sheet in booklet or place in a tray. Age reading for herring is performed according to the following manual:
https://bior.lv/sites/default/files/inline-files/Manual%20for%20age%20determination%20of%20Baltic%20herring.pdf

Age reading for sprat is performed according to the following manual:
https://bior.lv/sites/default/files/inline-files/Baltic%20sprat%20age%20reading%20methodology.pdf

After analysis, otoliths are grouped by years, trips and fish species and permanently stored in a specific otolith archive.

Data processing

Evaluation of data accuracy (bias and precision):
Y
The evaluation of data accuracy (precision levels) manual is found: https://bior.lv/sites/default/files/inline-files/Precizitate_rezultati_2017.pdf, document language Latvian.

Editing and imputation methods:
Y
During the data entry, biological data (length, weight, sex, stage, age) are checked for minimal and maximal values. Once the data for the respective trip has been entered, the length & weight relationship is analysed by a linear regression model and Fulton's coefficient. Outliers are marked, re-checked and if necessary, corrected. If data errors are found, original data and outputs, including all relevant databases, are corrected.

Quality document associated to a dataset: N

Validation of the final dataset: Data from the survey are prepared in national databases format and FishFrame (RDBES) format. FishFrame (RDBES) has an integrated quality check utility. All data before entering the database have to pass an extensive quality check.

OSF PEL-1 (SelfAtSea) – QUALITY REPORT

MS: LVA

Region: Baltic Sea

Sampling scheme identifier: OSF PEL-1 (SelfAtSea)

Sampling scheme type: Commercial fishing trip

Observation type: SelfAtSea

Time period of validity: 01.01.2022 – 31.12.2024

This sampling scheme aims to collect biological samples of target species (sprat and herring) from commercial catches in the pelagic fishery. The information is collected on-board by the vessel captain during fishing trips.

Sample is taken on-board by vessel's crew or in harbour by institute's representative and sent to laboratory for processing. The scheme covers the Latvian pelagic fleet in the Central Baltic area (22–24; 25–27, 28.2, 29, 32; 30–31).

Description of the population

Population targeted: Primary sampling unit for this sampling scheme is vessel*trip.

Population sampled: The list of fishing vessels with the obtained fishing quota for main commercial species for the pelagic fishery is annually obtained from the Fisheries Department of the Ministry of Agriculture. PSU is randomly selected from the list of vessels by using the Excel function "RANDBETWEEN". Random selection of PSU is monthly based.

Stratification: Due to very limited number of fishing vessels in Latvian fleet no stratification is used.

Sampling design and protocols

Sampling design description: According to the results of a random selection of PSU, the vessel owner is called by phone to arrange the sampling from the next fishing trip.

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

Regional coordination: This sampling scheme is not regionally coordinated.

Link to sampling design documentation: Methodology description of randomly selected PSU from the list of fishing vessels is described in document "Methodology for the collection of biological samples from randomly selected fishing vessels" (https://www.bior.lv/sites/default/files/inline-files/Random_sampling.pdf) in Latvian.

Guidelines for biological sampling during a commercial fishing trip are described in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf) in Latvian.

Compliance with international recommendations: Y.
Annually all international recommendations about sampling design are revised, and if it's decided that they are appropriate, the changes are implemented.

Link to sampling protocol documentation: Sampling protocol documentation is available in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf) in Latvian.

Compliance with international recommendations: Y.
Annually all international recommendations about sampling design are revised, and if it's decided that they are appropriate, the changes are implemented.

Sampling implementation

Recording of refusal rate: Y.
During the process of random selection of fishing vessel for the next sample the following information is registered in the "Random selection protocol": the name of selected vessel, type of fishing/segment, is able to enter into contact with the ship's representative - (negotiation date, time, contact person, phone), do contact with a representative of the fishing vessel is successful (yes/no), has the sample taken on the selected ship (yes/no).

Monitoring of sampling progress within the sampling year: The samples are collected monthly, and if it's not possible to carry out the planned trip, the selection process is repeated, and the next vessel from the list is selected.

Data capture

Means of data capture: For data capture in laboratory measuring board, scales, scalpel to collect otoliths are used.

Data capture documentation: Description of data capture is available in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf) in Latvian.

Quality checks documentation: Description of quality checks is available in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf) in Latvian.

Data storage

National database: The name of the national database is "BIODATA" (Biological Data Information System), and it's available for institute employees.

International database: All collected information is submitted to the International Council for the Exploration of the Sea (ICES) databases: RDB-FishFrame (A database for regional fisheries assessments for increased transparency and enhanced data quality) and RDB/RDBES (Regional Database & Estimation System).

Quality checks and data validation documentation: Quality checks and data validation is implemented in all mentioned above databases to avoid input and many logical mistakes and errors.

Sample storage

Biological samples are collected and processed according to the following manual:
https://bior.lv/sites/default/files/inline-files/Pelagic_fish_sampling_methodology.pdf

Collected otoliths are processed and stored in paper booklets or plastic trays, each individual specimen is stored in separate sheet in booklet or place in a tray. Age reading for herring is performed according to the following manual:
https://bior.lv/sites/default/files/inline-files/Manual%20for%20age%20determination%20of%20Baltic%20herring.pdf

Age reading for sprat is performed according to the following manual:
https://bior.lv/sites/default/files/inline-files/Baltic%20sprat%20age%20reading%20methodology.pdf

After analysis, otoliths are grouped by years, trips and fish species and permanently stored in a specific otolith archive.

Data processing

Evaluation of data accuracy (bias and precision): Y
The evaluation of data accuracy (precision levels) manual is found: https://bior.lv/sites/default/files/inline-files/Precizitate_rezultati_2017.pdf, document language Latvian.

Editing and imputation methods: During the data entry, biological data (length, weight, sex, stage, age) are checked for minimal and maximal values. Once the data for the respective trip has been entered, the length & weight relationship is analysed by a linear regression model and Fulton's coefficient. Outliers are marked, re-checked and if necessary, corrected. If data errors are found, original data and outputs, including all relevant databases, are corrected.

Quality document associated to a dataset: N

Validation of the final dataset: Data from the survey are prepared in national databases format and FishFrame (RDBES) format. FishFrame (RDBES) has an integrated quality check utility. All data before entering the database have to pass an extensive quality check.

GOR PEL-1 (SciObsAtSea) – QUALITY REPORT

MS: LVA
Region: Baltic Sea
Sampling scheme identifier: GOR PEL-1 (SciObsAtSea)
Sampling scheme type: Commercial fishing trip
Observation type: SciObsAtSea
Time period of validity: 01.01.2022 – 31.12.2024
This sampling scheme aims to collect biological samples of target species (herring) from commercial catches in the pelagic fishery. The information is collected on-board by the scientific observer during fishing trips. The scheme covers the Latvian pelagic fleet in the Gulf of Riga (28.1).
Description of the population
Population targeted: Primary sampling unit for this sampling scheme is vessel*trip. **Population sampled:** The list of fishing vessels with the obtained fishing quota for main commercial species for the pelagic fishery is annually obtained from the Fisheries Department of the Ministry of Agriculture. PSU is randomly selected from the list of vessels by using the Excel function “RANDBETWEEN”. Random selection of PSU is monthly based. **Stratification:** Due to very limited number of fishing vessels in Latvian fleet no stratification is used.
Sampling design and protocols
Sampling design description: According to the results of a random selection of PSU, the vessel owner is called by phone to arrange the scientific observer participation in the next fishing trip. During the observer trip, information about all fish species and all catch fractions are collected separately (Landings and Discards). Additionally, information about incidental by-catch of birds and mammals is collected. **Is the sampling design compliant with the 4S principle?:** Y **Regional coordination:** This sampling scheme is not regionally coordinated. It is planned to include the existing scheme in the Regional sampling on Small pelagic in the Baltic Sea pilot study. **Link to sampling design documentation:** Methodology description of randomly selected PSU from the list of fishing vessels is described in document "Methodology for the collection of biological samples from randomly selected fishing vessels" (https://www.bior.lv/sites/default/files/inline-files/Random_sampling.pdf) in Latvian. Guidelines for scientific observers to collect biological information during a commercial fishing trip are described in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf) in Latvian. **Compliance with international recommendations:** Y Annually all international recommendations about sampling design are revised, and if it's decided that they are appropriate, the changes are implemented.

Link to sampling protocol documentation: Sampling protocol documentation is available in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf) in Latvian.

Compliance with international recommendations:
Y
Annually all international recommendations about sampling design are revised, and if it's decided that they are appropriate, the changes are implemented.

Sampling implementation

Recording of refusal rate:
Y
During the process of a random selection of fishing vessel for the next observer trip the following information is registered in the "Random selection protocol": the name of the selected vessel, type of fishing/segment, is able to enter into contact with the ship's representative - (negotiation date, time, contact person, phone), does the ship is available for the data collection on the next voyage (yes/no, if "no" then the reason why it is not possible), does the ship is suitable for the observer to work (yes / no), do contact with a representative of the fishing vessel is successful (yes/no), has the journey taken place on the selected ship (yes/no).

Monitoring of sampling progress within the sampling year: The samples are collected quarterly, and if it's not possible to carry out the planned trip, the selection process is repeated, and the next vessel from the list is selected.

Data capture

Means of data capture: For data capture on board measuring board and marine scales are used.

Data capture documentation: Description of data capture is available in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf) in Latvian.

Quality checks documentation:
Y
Description of quality checks is available in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf) in Latvian.

Data storage

National database: The name of the national database is "BIODATA" (Biological Data Information System), and it's available for institute employees.

International database: All collected information is submitted to the International Council for the Exploration of the Sea (ICES) databases: RDB-FishFrame (A database for regional fisheries assessments for increased transparency and enhanced data quality) and RDB/RDBES (Regional Database & Estimation System).

Quality checks and data validation documentation: Quality checks and data validation is implemented in all mentioned above databases to avoid input and many logical mistakes and errors.

Sample storage

Biological samples are collected and processed according to the following manual:
https://bior.lv/sites/default/files/inline-files/Pelagic_fish_sampling_methodology.pdf

Collected otoliths are processed and stored in paper booklets or plastic trays, each individual specimen is stored in separate sheet in booklet or place in a tray. Age reading for herring is performed according to the following manual:

https://bior.lv/sites/default/files/inline-files/Manual%20for%20age%20determination%20of%20Baltic%20herring.pdf

After analysis, otoliths are grouped by years, trips and fish species and permanently stored in a specific otolith archive.

Data processing

Evaluation of data accuracy (bias and precision):
Y
The evaluation of data accuracy (precision levels) manual is found: https://bior.lv/sites/default/files/inline-files/Precizitate_rezultati_2017.pdf, document language Latvian.

Editing and imputation methods:
Y
During the data entry, biological data (length, weight, sex, stage, age) are checked for minimal and maximal values. Once the data for the respective trip has been entered, the length & weight relationship is analysed by a linear regression model and Fulton's coefficient. Outliers are marked, re-checked and if necessary, corrected. If data errors are found, original data and outputs, including all relevant databases, are corrected.

Quality document associated to a dataset: N

Validation of the final dataset: Data from the survey are prepared in national databases format and FishFrame (RDBES) format. FishFrame (RDBES) has an integrated quality check utility. All data before entering the database have to pass an extensive quality check.

GOR PEL-1 (SelfAtSea) – QUALITY REPORT

MS: LVA

Region: Baltic Sea

Sampling scheme identifier: GOR PEL-1 (SelfAtSea)

Sampling scheme type: Commercial fishing trip

Observation type: SelfAtSea

Time period of validity: 01.01.2022 – 31.12.2024

This sampling scheme aims to collect biological samples of target species (herring) from commercial catches in the pelagic fishery. The information is collected on-board by the vessel captain during fishing trips. Sample is taken on-board by vessel's crew or in harbour by institute's representative and sent to laboratory for processing. The scheme covers the Latvian pelagic fleet in the Gulf of Riga (28.1).

Description of the population

Population targeted: Primary sampling unit for this sampling scheme is vessel*trip.

Population sampled: The list of fishing vessels with the obtained fishing quota for main commercial species for the pelagic fishery is annually obtained from the Fisheries Department of the Ministry of Agriculture. PSU is randomly selected from the list of vessels by using the Excel function "RANDBETWEEN". Random selection of PSU is monthly based.

Stratification: Due to very limited number of fishing vessels in Latvian fleet no stratification is used.

Sampling design and protocols

Sampling design description: According to the results of a random selection of PSU, the vessel owner is called by phone to arrange the sampling from the next fishing trip.

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

Regional coordination: This sampling scheme is not regionally coordinated. It is planned to include the existing scheme in the Regional sampling on Small pelagic in the Baltic Sea pilot study.

Link to sampling design documentation: Methodology description of randomly selected PSU from the list of fishing vessels is described in document "Methodology for the collection of biological samples from randomly selected fishing vessels" (https://www.bior.lv/sites/default/files/inline-files/Random_sampling.pdf) in Latvian.

Guidelines for biological sampling during a commercial fishing trip are described in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf) in Latvian.

Compliance with international recommendations: Y.
Annually all international recommendations about sampling design are revised, and if it's decided that they are appropriate, the changes are implemented.

Link to sampling protocol documentation: Sampling protocol documentation is available in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf) in Latvian.

Compliance with international recommendations: Y.
Annually all international recommendations about sampling design are revised, and if it's decided that they are appropriate, the changes are implemented.

Sampling implementation

Recording of refusal rate: Y.
During the process of random selection of fishing vessel for the next sample the following information is registered in the “Random selection protocol”: the name of selected vessel, type of fishing/segment, is able to enter into contact with the ship's representative - (negotiation date, time, contact person, phone), do contact with a representative of the fishing vessel is successful (yes/no), has the sample taken on the selected ship (yes/no).

Monitoring of sampling progress within the sampling year: The samples are collected monthly, and if it’s not possible to carry out the planned trip, the selection process is repeated, and the next vessel from the list is selected.

Data capture

Means of data capture: For data capture in laboratory measuring board, scales, scalpel to collect otoliths are used.

Data capture documentation: Description of data capture is available in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf) in Latvian.

Quality checks documentation: Description of quality checks is available in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf) in Latvian.

Data storage

National database: The name of the national database is “BIODATA” (Biological Data Information System), and it’s available for institute employees.

International database: All collected information is submitted to the International Council for the Exploration of the Sea (ICES) databases: RDB-FishFrame (A database for regional fisheries assessments for increased transparency and enhanced data quality) and RDB/RDBES (Regional Database & Estimation System).

Quality checks and data validation documentation: Quality checks and data validation is implemented in all mentioned above databases to avoid input and many logical mistakes and errors.

Sample storage

Biological samples are collected and processed according to the following manual:
https://bior.lv/sites/default/files/inline-files/Pelagic_fish_sampling_methodology.pdf

Collected otoliths are processed and stored in paper booklets or plastic trays, each individual specimen is stored in separate sheet in booklet or place in a tray. Age reading for herring is performed according to the following manual:
https://bior.lv/sites/default/files/inline-files/Manual%20for%20age%20determination%20of%20Baltic%20herring.pdf

After analysis, otoliths are grouped by years, trips and fish species and permanently stored in a specific otolith archive.

Data processing

Evaluation of data accuracy (bias and precision): Y
The evaluation of data accuracy (precision levels) manual is found: https://bior.lv/sites/default/files/inline-files/Precizitate_rezultati_2017.pdf, document language Latvian.

Editing and imputation methods: During the data entry, biological data (length, weight, sex, stage, age) are checked for minimal and maximal values. Once the data for the respective trip has been entered, the length & weight relationship is analysed by a linear regression model and Fulton's coefficient. Outliers are marked, re-checked and if necessary, corrected. If data errors are found, original data and outputs, including all relevant databases, are corrected.

Quality document associated to a dataset: N

Validation of the final dataset: Data from the survey are prepared in national databases format and FishFrame (RDBES) format. FishFrame (RDBES) has an integrated quality check utility. All data before entering the database have to pass an extensive quality check.

SB-1 (SelfAtSea) – QUALITY REPORT

MS: LVA

Region: Baltic Sea

Sampling scheme identifier: SB-1 (SelfAtSea)

Sampling scheme type: Commercial fishing trip

Observation type: SelfAtSea

Time period of validity: 01.01.2022 – 31.12.2024

This sampling scheme aims to collect biological samples of target species (herring) from commercial catches in the coastal trap-net fishery. Sample is taken by a selected coastal fishing companies and then sent to laboratory for processing. The scheme covers the Latvian coastal herring targeted fishery by trap-nets in the Gulf of Riga (SD 28.1).

Description of the population

Population targeted: Primary sampling unit for this sampling scheme is vessel*trip.

Population sampled: Herring trap-net sampling scheme has been designed to cover all herring fishery management areas in the Gulf of Riga. The total herring coastal limit in the Gulf of Riga is distributed by three

coastal areas (Eastern, Southern and Western). When the area limit is reached, the fishery is ceased in a given area.

Stratification: Historical geographical stratification between three areas is used. Data should ensure good spatial and temporal comparability, because these data are used as tuning fleet in the stock assessment.

Sampling design and protocols

Sampling design description: Samples are collected according to special agreements with the coastal fishing companies. Annual agreements are made with four trap-net companies.

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

Regional coordination: This sampling scheme is not regionally coordinated.

Link to sampling design documentation: During the main season of trap-net fishery in the Gulf of Riga (mid-April till the beginning of July), each company should collect one unsorted biological sample per 10 days (eight samples in total).

Compliance with international recommendations: N

Link to sampling protocol documentation: Each unsorted biological sample should consist of at least 120 herring specimens. Sample should be transported to institute fresh or frozen ensuring good quality. Additional information on landing site, date, landed amount, fishing duration, bycatch and corresponding coastal logbook number should be provided.

Compliance with international recommendations: N

Sampling implementation

Recording of refusal rate: N
Sample collection is based on agreement with the coastal fishing companies.

Monitoring of sampling progress within the sampling year: After transportation to institute samples are registered in the institute database. When agreement ends, special act is prepared including information on total number of provided samples. In case if the total number of provided samples is not reaching the initial plan, final payment is adjusted to correspond the actual number of samples.

Data capture

Means of data capture: For data capture in laboratory measuring board, scales, scalpel to collect otoliths are used.

Data capture documentation: Description of data capture is available in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf) in Latvian.

Quality checks documentation: Description of quality checks is available in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf) in Latvian.

Data storage

National database: The name of the national database is “BIODATA” (Biological Data Information System), and it’s available for institute employees.

International database: All collected information is submitted to the International Council for the Exploration of the Sea (ICES) databases: RDB-FishFrame (A database for regional fisheries assessments for increased transparency and enhanced data quality) and RDB/RDBES (Regional Database & Estimation System).

Quality checks and data validation documentation: Quality checks and data validation is implemented in all mentioned above databases to avoid input and many logical mistakes and errors.

Sample storage

Biological samples are collected and processed according to the following manual:
https://bior.lv/sites/default/files/inline-files/Pelagic_fish_sampling_methodology.pdf

Collected otoliths are processed and stored in paper booklets or plastic trays, each individual specimen is stored in separate sheet in booklet or place in a tray. Age reading for herring is performed according to the following manual:
https://bior.lv/sites/default/files/inline-files/Manual%20for%20age%20determination%20of%20Baltic%20herring.pdf

After analysis, otoliths are grouped by years, trips and fish species and permanently stored in a specific otolith archive.

Data processing

Evaluation of data accuracy (bias and precision): Y
The evaluation of data accuracy (precision levels) manual is found: https://bior.lv/sites/default/files/inline-files/Precizitate_rezultati_2017.pdf, document language Latvian.

Editing and imputation methods: During the data entry, biological data (length, weight, sex, stage, age) are checked for minimal and maximal values. Once the data for the respective trip has been entered, the length & weight relationship is analysed by a linear regression model and Fulton's coefficient. Outliers are marked, re-checked and if necessary, corrected. If data errors are found, original data and outputs, including all relevant databases, are corrected.

Quality document associated to a dataset: N

Validation of the final dataset: Data from the survey are prepared in national databases format and FishFrame (RDBES) format. FishFrame (RDBES) has an integrated quality check utility. All data before entering the database have to pass an extensive quality check.

SB-2 (SciObsAtSea)– QUALITY REPORT

MS: LVA

Region: Baltic Sea

Sampling scheme identifier: SB-2 (SciObsAtSea)

Sampling scheme type: Commercial fishing trip

Observation type: SciObsAtSea

Time period of validity: 01.01.2022 – 31.12.2024

This sampling scheme aims to register detailed catch and bycatch information in coastal fishery. The information is collected by scientific observer on-board trips on coastal vessels (< 12 m) employing static gears, except herring trap-nets (SB-1) in March-November.

Description of the population

Population targeted: Primary sampling unit for this sampling scheme is vessel*trip.

Population sampled: Landings, bycatch and discards in the main Latvian coastal municipalities with active fishery (according to logbook information).

Stratification: Sampling is covering most of the Latvian coastline.

Sampling design and protocols

Sampling design description:
Samples are collected according to special agreements with the coastal fishing companies (at least one company from municipality to ensure spatial coverage). In total, it is planned to organise at least 15 observer trips per year covering main fishing seasons and areas.

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

Regional coordination: This sampling scheme is not regionally coordinated.

Link to sampling design documentation: Guidelines for scientific observers to collect biological information during a commercial fishing trip are described in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf).

Compliance with international recommendations: N
Samples are collected according to special agreements with the coastal fishing companies (at least one company from municipality to ensure spatial coverage). In total, it is planned to organise at least 15 observer trips per year covering main fishing seasons and areas.

Link to sampling protocol documentation: Sampling protocol documentation is available in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf).

Compliance with international recommendations: N
During the observer trip information about all fish species and all catch fractions are collected separately (Landings, Discards and BMS). Additionally, information about incidental by-catch of birds and mammals is collected.

Sampling implementation

Recording of refusal rate: N
Sample collection is based on agreement with the coastal fishing companies.

Monitoring of sampling progress within the sampling year: Sampling progress is checked monthly. There are several fishing companies contracted to choose from if there are complications in sampling progress or weather conditions.

Data capture

Means of data capture: For data capture on board measuring board and scales are used.

Data capture documentation: Description of data capture is available in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf).

Quality checks documentation: Y
Description of quality checks is available in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf).

Data storage

National database: The name of national database is "**BIODATA**" (Biological Data Information System) and it's available for institute employees.

International database: NA

Quality checks and data validation documentation: Quality checks and data validation is implemented in database mentioned above to avoid input and many logical mistakes and errors.
Sample storage
Collected otoliths are processed and stored in paper envelopes for each individual specimen. Otoliths are grouped by years, trips and fish species and stored in specific otoliths archive permanently.
Data processing
Evaluation of data accuracy (bias and precision): Y The evaluation of data accuracy (precision levels) manual is found: https://bior.lv/sites/default/files/inline-files/Precizitate_rezultati_2017.pdf, document language Latvian. **Editing and imputation methods:** During the data entry, biological data are checked for minimal and maximal values. Once the data for the respective trip has been entered, the length & weight relationship is analysed by a linear regression model and Fulton's coefficient. Outliers are marked, re-checked and if necessary, corrected. If data errors are found, original data and outputs, including all relevant databases, are corrected. **Quality document associated to a dataset:** N **Validation of the final dataset:** Data from the survey are prepared in national databases format. All data before entering the database have to pass an extensive quality check.

SB-2 (SelfAtSea) – QUALITY REPORT

MS: LVA
Region: Baltic Sea
Sampling scheme identifier: SB-2 (SelfAtSea)
Sampling scheme type: Commercial fishing trip
Observation type: SelfAtSea
Time period of validity: 01.01.2022 – 31.12.2024
This sampling scheme aims to collect samples of specific species from coastal fishery to support biological data collection for these species. The information is collected by fishermen self-sampling from coastal vessels (< 12 m) employing static gears, except herring trap-nets (SB-1) in March-November.
Description of the population
Population targeted: Primary sampling unit for this sampling scheme is vessel*trip. **Population sampled:** The main commercial fish species in coastal area: landings and discards in Latvian fishery. Main coastal municipalities with active fishery (according to logbook information). **Stratification:** Sampling is covering most of the Latvian coastline.
Sampling design and protocols
Sampling design description: Samples are collected according to special agreements with the coastal fishing companies. The total number of samples is not fixed and may vary depending on planned number of individuals for each species (see Table 2.2 Biol variables). Sampling time is species and area specific. **Is the sampling design compliant with the 4S principle?:** N **Regional coordination:** This sampling scheme is not regionally coordinated. **Link to sampling design documentation:** Sampling design is not fixed and may depend on fishing activity and species occurrence in coastal areas.

Compliance with international recommendations: N
Samples are collected according to special agreements with the coastal fishing companies.

Link to sampling protocol documentation: Sampling protocol documentation is available in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea" (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf).

Compliance with international recommendations: N
Sampling documentation is available in the following documents:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf
https://bior.lv/sites/default/files/inline-files/Round_goby_methodology.pdf
https://bior.lv/sites/default/files/inline-files/Pelagic_fish_sampling_methodology.pdf
https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf

Sampling implementation

Recording of refusal rate: N
Sample collection is based on agreement with the coastal fishing companies.

Monitoring of sampling progress within the sampling year:
Sampling time is species and area-specific and can be adjusted depending on the fishing activity and species occurrence in coastal areas. Sampling progress is checked quarterly. There are several fishing companies contracted to choose from if there are complications in sampling progress.

Data capture

Means of data capture: For data capture in laboratory measuring board, scales scalpel to collect otoliths are used.

Data capture documentation:
Data capture documentation is available in the following documents:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf
https://bior.lv/sites/default/files/inline-files/Round_goby_methodology.pdf
https://bior.lv/sites/default/files/inline-files/Pelagic_fish_sampling_methodology.pdf
https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf

Quality checks documentation: Y
Quality checks documentation is available in the following documents:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf
https://bior.lv/sites/default/files/inline-files/Round_goby_methodology.pdf
https://bior.lv/sites/default/files/inline-files/Pelagic_fish_sampling_methodology.pdf
https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf

Data storage

National database: The name of national database is "**BIODATA**" (Biological Data Information System) and it's available for institute employees.

International database: Collected information is partially submitted to the International Council for the Exploration of the Sea (ICES) databases: RDB-FishFrame (A database for regional fisheries assessments for increased transparency and enhanced data quality) and RDB/RDBES (Regional Database & Estimation System).

Quality checks and data validation documentation: Quality checks and data validation is implemented in all mentioned above databases to avoid input and many logical mistakes and errors.
Sample storage
Collected otoliths are processed and stored in paper envelopes for each individual specimen. Otoliths are grouped by years, trips and fish species and stored in specific otoliths archive permanently.
Data processing
Evaluation of data accuracy (bias and precision): Y The evaluation of data accuracy (precision levels) manual is found: https://bior.lv/sites/default/files/inline-files/Precizitate_rezultati_2017.pdf, document language Latvian. **Editing and imputation methods:** During the data entry, biological data are checked for minimal and maximal values. Once the data for the respective trip has been entered, the length & weight relationship is analysed by a linear regression model and Fulton's coefficient. Outliers are marked, re-checked and if necessary, corrected. If data errors are found, original data and outputs, including all relevant databases, are corrected. **Quality document associated to a dataset:** N **Validation of the final dataset:** Data from the survey are prepared in national databases format and FishFrame (RDBES) format. FishFrame (RDBES) has an integrated quality check utility. All data, before entering the database, have to pass an extensive quality check.

SAL_LLD (SELFATSEA)– QUALITY REPORT

MS: LVA
Region: Baltic Sea
Sampling scheme identifier: SAL_LLD (SelfAtSea)
Sampling scheme type: Diadromous (scientific)
Observation type: SelfAtSea
Time period of validity: 01.01.2022 – 31.12.2024
Sampling scheme aiming to collect Atlantic salmon length, weight, sex ratio, age structure data and samples for genetic catch structure analyses from longline fishery in the open sea (ICES subdivisions 26, 28).
Description of the population
Population targeted: Survey targets all Atlantic salmon populations in open sea – ICES subdivisions 26 and 28. **Population sampled:** Atlantic salmon populations in open sea – ICES subdivisions 26 and 28. **Stratification:** NA
Sampling design and protocols
Sampling design description: Annually 200 samples of Atlantic salmon biological data are collected by one contract fisherman. Scale samples for age determination and biological data are collected in the scale books. Length, gutted weight (1,1 conversion factor used for full weight), sex and origin (adipose fin clipped or fish with adipose fin) is registered. Tissue samples from caudal fin stored in Eppendorf tubes with 96% ethanol for genetic analyses.

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

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

Link to sampling design documentation: https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Compliance with international recommendations: Y

Link to sampling protocol documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Compliance with international recommendations: Y

Sampling implementation

Recording of refusal rate: NA

Monitoring of sampling progress within the sampling year:
Fishermen submit scale books with biological data during all fishing season. Institute staff can control the amount of biological data and samples collected.

Data capture

Means of data capture:
For length measurements measuring board with millimetre increments is used and electronic scales for weight measurements.

Data capture documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Quality checks documentation: Y
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Data storage

National database:
The name of national database is “BIODATA” (Biological Data Information System) and it’s available for institute employees.

International database:
Data that is collected through the data calls is stored in ICES WGBAST database.

Quality checks and data validation documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Sample storage

Scale samples collected are stored in scale books in the Institute’s repository, access to samples is organized through staff responsible for age reading. The condition of the scale books is periodically checked. Tissue samples for genetic analyses stored in Eppendorf tubes with 96% ethanol.

Salmon age reading is done in accordance with Atlantic salmon scale reading guidelines https://sfcc.co.uk/assets/files/Atlantic%20Salmon%20Scale%20Reading%20Guidelines.pdf

For genetic sample analyses description see Text Box 1a.

Data processing

Evaluation of data accuracy (bias and precision): Y
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Editing and imputation methods: Y
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Quality document associated to a dataset: NA

Validation of the final dataset:
Limits are defined for the biological parameters (minimum and maximum values) in Excel database. Before being provided to the end user the dataset is independently reviewed by two researchers and, if necessary, the erroneous entries are corrected.

BAL_PEL_CET (SelfAtSea) – QUALITY REPORT

MS: LVA

Region: Baltic Sea

Sampling scheme identifier: BAL_PEL_CET (SelfAtSea)

Sampling scheme type: Commercial fishing trip

Observation type: SelfAtSea

Time period of validity: 01.01.2022 – 31.12.2024

According to Regulation (EU) 2019/1241 of the European Parliament and of the Council of 20 June 2019 on the conservation of fisheries resources and the protection of marine ecosystems through technical measures Latvia is obliged to monitor pelagic trawl fishery. Monitoring is performed by specially educated fishermen who observe pelagic commercial trips in the Baltic Sea and Gulf of Riga. Additionally, during the observation's information about PETS species by-catch is collected. It should be highlighted that in all monitoring period by-catch of cetaceans were not observed.

Description of the population

Population targeted:
Primary sampling unit for this sampling scheme is vessel*trip.

Population sampled:
Population is all Latvian pelagic fleet. It is planned to cover up to 10% of all pelagic fishery trips annually.

Stratification:
Due to very limited number of fishing vessels in Latvian fleet no stratification is used.

Sampling design and protocols

Sampling design description:
Each year based on the results of tender the winner is taking responsibility to organise trips for observer (not licensed but specially trained person). The winner is providing for observers the contacts of the vessel owners to arrange the necessary trips. In case, when it's not possible to take observer on board vessel crew is asked to collect necessary information (not more than 10% of all observed trips during the year).

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

Regional coordination:
No regional coordination.

Link to sampling design documentation:
https://bior.lv/sites/default/files/inline-files/Monitoring_of_cetaceans.pdf

Compliance with international recommendations: N

Link to sampling protocol documentation:
https://bior.lv/sites/default/files/inline-files/Monitoring_of_cetaceans.pdf

Compliance with international recommendations: N

Sampling implementation

Recording of refusal rate:
Recording of refusal rate is not performed.

Monitoring of sampling progress within the sampling year:
Monitoring of sampling progress is up to performer of the monitoring. The performer of the monitoring is following-up that the number of trips specified in the contract is observed.

Data capture

Means of data capture:
Special monitoring protocols, photo camera or mobile phone.

Data capture documentation:
https://bior.lv/sites/default/files/inline-files/Monitoring_of_cetaceans.pdf

Quality checks documentation: Y
Collected data is compared with the E-logbooks data.

Data storage

National database:
Data is stored in Excel flat databases. In the future it is planned to develop additional module in the national database BIODATA to store this information.

International database:
Collected data is used to response on ICES data call for advisory work related to bycatch of protected species (WGBYC) according to provided guidelines.

Quality checks and data validation documentation:
Quality of the data is performed during the upload process to the ICES WGBYC portal.

Sample storage

The methodology of the monitoring does not provide the collection of biological samples.

Data processing

Evaluation of data accuracy (bias and precision): N

Editing and imputation methods: N

Quality document associated to a dataset: N

Validation of the final dataset:
Quality of the data is performed during the upload process to the ICES WGBYC portal.

STS – QUALITY REPORT

MS: LVA
Region: Baltic Sea
Sampling scheme identifier: STS
Sampling scheme type: Commercial fishing trip
Observation type: SciObsAtSea
Time period of validity: 01.01.2022 – 31.12.2024
The survey will be conducted on rented commercial vessel in June-July. The primary purpose of the survey is to determine turbot spawning stock in the Latvian economical zone. Other species are also investigated to support ecosystem analyses. The results of the survey complement the BITS surveys data on which the ICES scientific advice about turbot stock is based. The results of the survey are used in coastal fisheries management to determine the number of fishing gears (specialized turbot gillnets) allowed.
Description of the population
Population targeted: Primary sampling unit is net haul. Main survey area is coastal zone at 3-20 m depth. The survey shall be carried out with large mesh (240 mm) bottom-set nets, which are used in commercial turbot fishery. **Population sampled:** This is a turbot targeted survey, but information about all other fish species and by-catch (including PETS species) are collected (individual length and total weight by species). **Stratification:** The main turbot commercial fishery is carried out only in coastal fishery area in subdivision 28.2. The survey takes place during the turbot fishing ban to assess the size of the spawning stock.
Sampling design and protocols
Sampling design description: Samples are collected according to special agreement with the coastal fishing company. An advantage is given to a company with experience in this type of fishery. **Is the sampling design compliant with the 4S principle?:** N **Regional coordination:** No regional coordination. **Link to sampling design documentation:** https://bior.lv/sites/default/files/inline-files/Guidelines_for_turbot_surveys.pdf

Compliance with international recommendations: N

Link to sampling protocol documentation:
https://bior.lv/sites/default/files/inline-files/Guidelines_for_turbot_surveys.pdf

Compliance with international recommendations: N

Sampling implementation

Recording of refusal rate: NA

Monitoring of sampling progress within the sampling year:
Collection of the sample is performed according to the STS manual. The number of otoliths collected is especially monitored.

Data capture

Means of data capture:
Special monitoring protocols, electronical scales and measuring board.

Data capture documentation:
https://bior.lv/sites/default/files/inline-files/Guidelines_for_turbot_surveys.pdf

Quality checks documentation: Y
https://bior.lv/sites/default/files/inline-files/Guidelines_for_turbot_surveys.pdf

Data storage

National database:
The name of national database is "BIODATA" (Biological Data Information System) and it's available for institute employees.

International database: N
At this moment there is no any international database where this is information could be stored.

Quality checks and data validation documentation:
Quality checks and data validation is implemented in national database to avoid input and many logical mistakes and errors.

Sample storage

Collected turbot otoliths are processed and stored in paper envelopes for each individual specimen. Otoliths are grouped by years, trips and stored in specific otoliths archive permanently.

Data processing

Evaluation of data accuracy (bias and precision): Y
https://bior.lv/sites/default/files/inline-files/Guidelines_for_turbot_surveys.pdf

Editing and imputation methods: Y
During the data entry length, weight and age data are checked and constrained for minimal and maximal values. Excel data validation tool is used. Once the data for the respective trip has been entered, the length & weight relationship are analysed. A linear regression model is developed by determining the trend line and forecast confidence intervals. Those records that are outside confidence intervals are marked as erroneous and re-checked

and if necessary, corrected. Excel macro is used for this checking. As a result, a graph with visual info and a table with problematic fish weights are obtained.
During the otolith preparation for age reading additional data quality check is performed, if necessary, corrections are made. If data errors are found, original data and outputs including all relevant databases are corrected.

Quality document associated to a dataset: N

Validation of the final dataset: Y
Data from the survey are prepared in national databases format. All data, before entering the database, have to pass an extensive quality check.

LV_SAL_PARR – QUALITY REPORT

MS: LVA

Region: Baltic Sea

Sampling scheme identifier: LV_SAL_Parr

Sampling scheme type: Diadromous (scientific)

Observation type: Self water body

Time period of validity: 01.01.2022 – 31.12.2024

Sampling scheme aiming to annually collect Atlantic salmon parr density data using electrofishing method in all the rivers with great significance for wild salmon reproduction.

Description of the population

Population targeted:
Survey targets Atlantic salmon *Salmo salar* populations in all AU5 Latvian wild, mixed and potential salmon rivers.

Population sampled:
Sampling will cover all of the Atlantic salmon *Salmo salar* populations in AU5 salmon rivers of Latvia.

Stratification:
It is currently considered that each AU5 salmon river in Latvia holds genetically distinct salmon population.

Sampling design and protocols

Sampling design description:
Each year 12 salmon rivers including some tributaries will be monitored covering the overall distribution of the species. Parr electrofishing sites are established in representative rifle sections in the rivers where salmon spawning takes place. Number of sites sampled depends on river size and quantity of reproduction habitats available in the river. Annually one pass electrofishing will be conducted in monitoring sites from the last decade of July to the end of August. In Salmon index river Salaca and its tributaries three pass electrofishing will be conducted. All the salmon parr will be measured and divided into age groups to calculate 0+ and older parr density. Scale samples will be collected from subsample of five fish from the length classes to verify distribution in age groups.

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

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

Link to sampling design documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Compliance with international recommendations: Y

Link to sampling protocol documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Compliance with international recommendations: Y

Sampling implementation

Recording of refusal rate: NA

Monitoring of sampling progress within the sampling year:
If, due to hydrological conditions, in any of the sites it is not possible to carry out sampling in the same time at the season as previously, the sampling is performed later when conditions are suitable. If such conditions do not occur, site is not sampled.

Data capture

Means of data capture:
Stationary (SE 300; KC Denmark) or backpack-type (EFBP400) direct current electrofishing devices are used for electrofishing. For length measurements 50 cm measuring board with millimetre increments is used.

Data capture documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Quality checks documentation: Y
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Data storage

National database: The name of national database is “BIODATA” (Biological Data Information System) and it’s available for institute employees.

International database: Provide the name of the international database(s) and the organisation hosting the database, if applicable. Otherwise, insert 'NA' (not applicable). Provide a link if the database is accessible through a website.

Data that is collected through the data calls is stored in ICES WGBAST database.
https://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/Fisheries%20Resources%20Steering%20Group/2020/WGBAST_2020.pdf

Quality checks and data validation documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Sample storage

Scale samples collected are stored in scale books in the Institute’s repository, access to samples is organized through staff responsible for age reading. The condition of the scale books is periodically checked.

Salmon parr age reading is done in accordance with Atlantic salmon scale reading guidelines https://sfcc.co.uk/assets/files/Atlantic%20Salmon%20Scale%20Reading%20Guidelines.pdf

Data processing

Evaluation of data accuracy (bias and precision): Y

https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf
Editing and imputation methods: Y
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf
Quality document associated to a dataset: NA

Validation of the final dataset:
Biological data are entered and compiled in Excel database format. Limits are defined for the biological parameters (minimum and maximum values). Once the data on the salmon parr are entered, the length measurements of the fish are analysed (independently reviewed by two researchers) and, if necessary, the erroneous entries are corrected in an Excel file and in the electrofishing protocol).

LV_TRS_Parr – QUALITY REPORT

MS: LVA
Region: Baltic Sea
Sampling scheme identifier: LV_TRS_Parr
Sampling scheme type: Diadromous (scientific)
Observation type: Self water body
Time period of validity: 01.01.2022 – 31.12.2024
Sampling scheme aiming to annually collect sea trout *Salmo trutta* parr density data using electrofishing method in the rivers with greatest significance for wild sea trout reproduction.
Description of the population
Population targeted: Survey targets sea trout *Salmo trutta* populations in the rivers of Baltic Sea eastern assessment area (East). **Population sampled:** Sampling will cover 40 sea trout streams from three river basin districts. These rivers currently have the greatest significance for wild sea trout reproduction. Sampling will not take place in rivers where sea trout is found only in certain years. **Stratification:** It is currently considered that each Baltic Sea eastern assessment area (East) sea trout river in Latvia holds genetically distinct sea trout population.
Sampling design and protocols
Sampling design description: Each year 40 sea trout rivers will be monitored covering the overall distribution of the species. Parr electrofishing sites are established in representative rifle sections in the rivers where sea trout spawning takes place. Number of sites sampled depends on river size and quantity of reproduction habitats available in the river. Annually one pass electrofishing will be conducted in monitoring sites from the last decade of July to the end of August. All sea trout parr will be measured and divided into age groups to calculate 0+ and older parr density. Scale samples will be collected from subsample of five fish from the length classes to verify distribution in age groups. **Is the sampling design compliant with the 4S principle?:** Y **Regional coordination:** Sampling design and protocols were not developed as part of a regional or multi-lateral agreement. **Link to sampling design documentation:**

https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Compliance with international recommendations: Y

Link to sampling protocol documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Compliance with international recommendations: Y

Sampling implementation

Recording of refusal rate: NA

Monitoring of sampling progress within the sampling year:
If, due to hydrological conditions, in any of the sites it is not possible to carry out sampling in the same time at the season as previously, the sampling is performed later when conditions are suitable. If such conditions do not occur, site is not sampled.

Data capture

Means of data capture:
Stationary (SE 300; KC Denmark) or backpack-type (EFBP400) direct current electrofishing devices are used for electrofishing. For length measurements 50 cm measuring board with millimeter increments is used.

Data capture documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Quality checks documentation: Y
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Data storage

National database: The name of national database is "BIODATA" (Biological Data Information System) and it's available for institute employees.

International database:
Data that is collected through the data calls is stored in ICES WGBAST database.
https://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/Fisheries%20Resources%20Steering%20Group/2020/WGBAST_2020.pdf

Quality checks and data validation documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Sample storage

Scale samples collected are stored in scale books in the Institute's repository, access to samples is organized through staff responsible for age reading. The condition of the scale books is periodically checked.

Sea trout parr age reading is done in accordance with a guide to the interpretation of sea trout scales https://aquadocs.org/bitstream/handle/1834/25127/112_Elliott.pdf?sequence=1&isAllowed=y

Data processing

Evaluation of data accuracy (bias and precision): Y
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf
Editing and imputation methods: Y
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Quality document associated to a dataset: A

Validation of the final dataset:
Biological data are entered and compiled in Excel database format. Limits are defined for the biological parameters (minimum and maximum values). Once the data on the sea trout parr are entered, the length measurements of the fish are analysed (independently reviewed by two researchers) and, if necessary, the erroneous entries are corrected in an Excel file and in the electrofishing protocol).

LV_SAL_Smolt – QUALITY REPORT

MS: LVA

Region: Baltic Sea

Sampling scheme identifier: LV_SAL_Smolt

Sampling scheme type: Diadromous (scientific)

Observation type: Self water body

Time period of validity: 01.01.2022 – 31.12.2024

Sampling scheme aiming to annually estimate Atlantic salmon smolt production in Latvian salmon index river Salaca using partial smolt trap and mark recapture method.

Description of the population

Population targeted:
Survey targets wild Atlantic salmon Salaca River population.

Population sampled:
Wild Atlantic salmon populations in Salaca River.

Stratification: NA

Sampling design and protocols

Sampling design description:
The wild salmon smolt production in the Salaca River has been monitored since 1964 using smolt trap. Salaca is most productive wild salmon river in Latvia and has index river status. Every year the trap is installed in the Salaca River in the beginning of April, when the water temperature reaches 6-8 ºC. Taking into account that the smolt trap covers only a part of the river, in order to evaluate the efficiency (catchability) of the trap during the counting period, a sample group of caught salmon are marked with polyethylene *Streamer* tags with unique numbering. Tagged salmon are released 3 km above the smolt trap. Tag recoveries allow calculations of the total number of smolts that have migrated to the sea in the given year. For all the salmon caught smoltification stage is assessed. Only pre-smolts and smolts are taken into account in the calculation of smolt production. All salmon smolts are measured to the fork length. A sample of scales is collected from every fifth salmon and stored in the scale book for age reading, and photo fixation is performed for every tenth of the smolt.

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

Regional coordination:

Sampling design and protocols were not developed as part of a regional or multi-lateral agreement.

Link to sampling design documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Compliance with international recommendations: Y

Link to sampling protocol documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Compliance with international recommendations: Y

Sampling implementation

Recording of refusal rate: NA

Monitoring of sampling progress within the sampling year:
If, due to hydrological or weather conditions it is not possible to carry out sampling, data interpolation is used to estimate smolt numbers in-between days when sampling was performed. This method is also used, to have more accurate estimate, if a large amount of smolts is recorded in the first days of the counting, which indicates that the counting was started a little late and migration was already started.

Data capture

Means of data capture:
Salmon smolts in Salaca River are counted using a specialized smolt trap. The length of the fyke net wings and the opening of the wings are 20 m. Mesh size in the codend 10-24 mm. For trap efficiency estimates smolts are marked with *Streamer* tags. For length measurements 50 cm measuring board with millimetre increments is used. The data is entered in a special field protocol. The water temperature is measured with a *WTW* multi-parameter probe.

Data capture documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Quality checks documentation: Y
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Data storage

National database: The name of national database is “BIODATA” (Biological Data Information System) and it’s available for institute employees.

International database:
Data that is collected through the data calls is stored in ICES WGBAST database.
https://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/Fisheries%20Resources%20Steering%20Group/2020/WGBAST_2020.pdf

Quality checks and data validation documentation:

https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Sample storage

Scale samples collected are stored in scale books in the Institute's repository, access to samples is organized through staff responsible for age reading. The condition of the scale books is periodically checked.

Salmon smolt age reading is done in accordance with Atlantic salmon scale reading guidelines https://sfcc.co.uk/assets/files/Atlantic%20Salmon%20Scale%20Reading%20Guidelines.pdf

Data processing

Evaluation of data accuracy (bias and precision): Y
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Editing and imputation methods: Y
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Quality document associated to a dataset: NA

Validation of the final dataset:
Limits are defined for the biological parameters (minimum and maximum values) in Excel database. Before being provided to the end user the dataset is independently reviewed by two researchers and, if necessary, the erroneous entries are corrected.

LV_TRS_Smolt – QUALITY REPORT

MS: LVA

Region: Baltic Sea

Sampling scheme identifier: LV_TRS_Smolt

Sampling scheme type: Diadromous (scientific)

Observation type: Self water body

Time period of validity: 01.01.2022 – 31.12.2024

Sampling scheme aiming to annually estimate sea trout smolt production in Salaca River basin using partial smolt trap and mark recapture method.

Description of the population

Population targeted:
Survey targets wild sea trout populations in Salaca River basin.

Population sampled:
Wild sea trout populations in Salaca River basin.

Stratification: NA

Sampling design and protocols

Sampling design description:
The wild sea trout smolt production in the Salaca River has been monitored since 1964 using smolt trap. Every year the trap is installed in the Salaca River in the beginning of April, when the water temperature reaches 6-8 ºC. Taking into account that the smolt trap covers only a part of the river, in order to evaluate the efficiency (catchability) of the trap during the counting period, a sample group of caught sea trout are marked with polyethylene *Streamer* tags with unique numbering. Tagged sea trout are released 3 km above the smolt trap. Tag recoveries allow calculations of the total number of smolts that have migrated to the sea in the given year. For all

the sea trout caught smoltification stage is assessed. Only pre-smolts and smolts are taken into account in the calculation of smolt production. All sea trout smolts are measured to the fork length. A sample of scales is collected from every fifth sea trout smolt and stored in the scale book for age reading, and photo fixation is performed for every tenth of the smolt.

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

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

Link to sampling design documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Compliance with international recommendations: Y

Link to sampling protocol documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Compliance with international recommendations: Y

Sampling implementation

Recording of refusal rate: NA

Monitoring of sampling progress within the sampling year:
If, due to hydrological or weather conditions it is not possible to carry out sampling, data interpolation is used to estimate smolt numbers in-between days when sampling was performed. This method is also used, to have more accurate estimate, if a large amount of smolts is recorded in the first days of the counting, which indicates that the counting was started a little late and migration was already started.

Data capture

Means of data capture:
Sea trout smolts in Salaca River are counted using a specialized smolt trap. The length of the fyke net wings and the opening of the wings are 20 m. Mesh size in the codend 10-24 mm. For trap efficiency estimates smolts are marked with *Streamer* tags. For length measurements 50 cm measuring board with millimetre increments is used. The data is entered in a special field protocol. The water temperature is measured with a *WTW* multi-parameter probe.

Data capture documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Quality checks documentation: Y
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Data storage

National database: The name of national database is “BIODATA” (Biological Data Information System) and it’s available for institute employees.

International database:
Data that is collected through the data calls is stored in ICES WGBAST database.

Quality checks and data validation documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Sample storage
Scale samples collected are stored in scale books in the Institute's repository, access to samples is organized through staff responsible for age reading. The condition of the scale books is periodically checked. Sea trout smolt age reading is done in accordance with a guide to the interpretation of sea trout scales https://aquadocs.org/bitstream/handle/1834/25127/112_Elliott.pdf?sequence=1&isAllowed=y
Data processing
Evaluation of data accuracy (bias and precision): Y https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf **Editing and imputation methods:** Y https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf **Quality document associated to a dataset:** NA **Validation of the final dataset:** Limits are defined for the biological parameters (minimum and maximum values) in Excel database. Belfour being provided to the end user the dataset is independently reviewed by two researchers and, if necessary, the erroneous entries are corrected.

LV_SAL_Ad – QUALITY REPORT

MS: LVA
Region: Baltic Sea
Sampling scheme identifier: LV_SAL_Ad
Sampling scheme type: Diadromous (scientific)
Observation type: Self water body
Time period of validity: 01.01.2022 – 31.12.2024
Sampling scheme aiming to annually estimate Atlantic salmon ascending spawners in Latvian salmon index river Salaca using automatic fish counter *VAKI Riverwatcher CS*. Data will be used in population full life cycle analysis.
Description of the population
Population targeted: Survey targets wild Atlantic salmon Salaca River population. **Population sampled:** Wild Atlantic salmon population in Salaca River. **Stratification:** NA
Sampling design and protocols
Sampling design description: Salaca is most productive wild salmon river in Latvia and has index river status. For ascending spawner count every year at the beginning of July in the river Salaca fencing weir type structure with *VAKI Riverwatcher* automatic fish counter is installed. All salmon adults ascending through the scanner and photo tunnel are automatically recorded, providing information on species, sex, size and total number. Continuous survey of

spawning migration is carried out until the end of November. The ending date of the survey depends on the hydrological conditions. At least once a week, records should be downloaded and backed up to external storage. Each record is reviewed and verified by an employee of the Institute.

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

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

Link to sampling design documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Compliance with international recommendations: Y

Link to sampling protocol documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf
Compliance with international recommendations: Y

Sampling implementation

Recording of refusal rate: NA

Monitoring of sampling progress within the sampling year:
If, due to hydrological or weather conditions it is not possible to install the fencing weir type structure with *VAKI Riverwatcher* in the beginning of July, it should be done until early September (before migration intensifies) when conditions allowe it to still cover the migration peak.

Data capture

Means of data capture:
Fencing weir type structure with *VAKI Riverwatcher CS* automatic fish counter equipped scanner and photo tunnel is used to count ascending salmon adults. *Winari* software is used to analyse data from the counter.

Data capture documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf
Quality checks documentation: Y
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Data storage

National database: NA

International database: NA

Quality checks and data validation documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Sample storage

NA

Data processing

Evaluation of data accuracy (bias and precision): Y
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf
Editing and imputation methods: Y
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Quality document associated to a dataset: NA

Validation of the final dataset:
Each record of automatic counter is reviewed and verified by an employees of the Institute.

LV_TRS_Ad – QUALITY REPORT

MS: LVA
Region: Baltic Sea
Sampling scheme identifier: LV_TRS_Ad
Sampling scheme type: Diadromous (scientific)
Observation type: Self water body
Time period of validity: 01.01.2022 – 31.12.2024
Sampling scheme aiming to annually estimate Sea trout ascending spawners in Salaca River basin using automatic fish counter *VAKI Riverwatcher CS*. Data will be used in population full life cycle analysis.
Description of the population
Population targeted: Survey targets wild sea trout Salaca River basin populations. **Population sampled:** Wild sea trout populations in Salaca River basin. **Stratification:** NA
Sampling design and protocols
Sampling design description: For ascending spawner count every year at the beginning of July in the river Salaca fencing weir type structure with *VAKI Riverwatcher* automatic fish counter is installed. All sea trout adults ascending through the scanner and photo tunnel are automatically recorded, providing information on species, sex, size and total number. Continuous survey of spawning migration is carried out until the end of November. The ending date of the survey depends on the hydrological conditions. At least once a week, records should be downloaded and backed up to external storage. Each record is reviewed and verified by an employee of the Institute. **Is the sampling design compliant with the 4S principle?:** Y **Regional coordination:** Sampling design and protocols were not developed as part of a regional or multi-lateral agreement. **Link to sampling design documentation:** https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf **Compliance with international recommendations:** Y **Link to sampling protocol documentation:** https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf **Compliance with international recommendations:** Y

Sampling implementation
Recording of refusal rate: NA **Monitoring of sampling progress within the sampling year:** If, due to hydrological or weather conditions it is not possible to install the fencing weir type structure with *VAKI Riverwatcher* in the beginning of July, it should be done until early September (before migration intensifies) when conditions allowe it to still cover the migration peak.
Data capture
Means of data capture: Fencing weir type structure with *VAKI Riverwatcher CS* automatic fish counter equipped scanner and photo tunnel is used to count ascending sea trout adults. *Winari* software is used to analyse data from the counter. **Data capture documentation:** https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf **Quality checks documentation:** Y https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf
Data storage
National database: NA **International database:** NA **Quality checks and data validation documentation:** https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf
Sample storage
NA
Data processing
Evaluation of data accuracy (bias and precision): Y https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf **Editing and imputation methods:** Y https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf **Quality document associated to a dataset:** NA **Validation of the final dataset:** Each record of automatic counter is reviewed and verified by an employees of the Institute.

LV_SAL_COM – QUALITY REPORT

MS: LVA
Region: Baltic Sea
Sampling scheme identifier: LV_SAL_COM
Sampling scheme type: Diadromous (commercial)
Observation type: Self water body
Time period of validity: 01.01.2022 – 31.12.2024

Sampling scheme aiming to gather Atlantic salmon length, weight, sex ratio and age structure data from commercial fisheries in Daugava River.

Description of the population

Population targeted:
Survey targets Atlantic salmon population in Daugava River.

Population sampled:
Atlantic salmon population in Daugava River.

Stratification: NA

Sampling design and protocols

Sampling design description:
As landings are low contract fisherman collect biological data from all salmon caught. Scale samples are collected in scale books for age reading. In the scale books length, weight, sex and origin (adipose fin clipped or fish with adipose fin) is registered.

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

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

Link to sampling design documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Compliance with international recommendations: Y

Link to sampling protocol documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Compliance with international recommendations: Y

Sampling implementation

Recording of refusal rate: NA

Monitoring of sampling progress within the sampling year:
Fishermen submit scale books with biological data during all fishing season. Institute staff can control the amount of biological data and samples collected.

Data capture

Means of data capture:
For length measurements measuring board with millimetre increments is used and electronic scales for weight measurements.

Data capture documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Quality checks documentation: Y
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Data storage

National database: The name of national database is "BIODATA" (Biological Data Information System) and it's available for institute employees.

International database: NA

Quality checks and data validation documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Sample storage

Scale samples collected are stored in scale books in the Institute's repository, access to samples is organized through staff responsible for age reading. The condition of the scale books is periodically checked.

Salmon age reading is done in accordance with Atlantic salmon scale reading guidelines https://sfcc.co.uk/assets/files/Atlantic%20Salmon%20Scale%20Reading%20Guidelines.pdf

Data processing

Evaluation of data accuracy (bias and precision): Y
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf
Editing and imputation methods: Y
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf
Quality document associated to a dataset: NA

Validation of the final dataset:
Limits are defined for the biological parameters (minimum and maximum values) in Excel database. Before being provided to the end user the dataset is independently reviewed by two researchers and, if necessary, the erroneous entries are corrected.

LV_TRS_COM – QUALITY REPORT

MS: LVA

Region: Baltic Sea

Sampling scheme identifier: LV_TRS_COM

Sampling scheme type: Diadromous (commercial)

Observation type: Self water body

Time period of validity: 01.01.2022 – 31.12.2024

Sampling scheme aiming to gather sea trout length, weight, sex ratio and age structure data from commercial fisheries in Daugava River.

Description of the population

Population targeted:
Survey targets sea trout populations in Daugava River.

Population sampled:
Sea trout populations in Daugava River.

Stratification: NA

Sampling design and protocols

Sampling design description:
As landings are low, contract fisherman collect biological data from all sea trout caught. Scale samples are collected in scale books for age reading. In the scale books length, weight, sex and origin (adipose fin clipped or fish with adipose fin) is registered.

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

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

Link to sampling design documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Compliance with international recommendations: Y

Link to sampling protocol documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf
Compliance with international recommendations: Y

Sampling implementation

Recording of refusal rate: NA

Monitoring of sampling progress within the sampling year:
Fishermen submit scale books with biological data during all fishing season. Institute staff can control the amount of biological data and samples collected.

Data capture

Means of data capture:
For length measurements measuring board with millimetre increments is used and electronic scales for weight measurements.

Data capture documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Quality checks documentation: Y
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Data storage

National database: The name of national database is “BIODATA” (Biological Data Information System) and it’s available for institute employees.

International database: NA

Quality checks and data validation documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Sample storage

Scale samples collected are stored in scale books in the Institute's repository, access to samples is organized through staff responsible for age reading. The condition of the scale books is periodically checked.

Sea trout age reading is done in accordance with a guide to the interpretation of sea trout scales https://aquadocs.org/bitstream/handle/1834/25127/112_Elliott.pdf?sequence=1&isAllowed=y

Data processing

Evaluation of data accuracy (bias and precision): Y
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf
Editing and imputation methods: Y
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Quality document associated to a dataset: NA

Validation of the final dataset:
Limits are defined for the biological parameters (minimum and maximum values) in Excel database. Befour being provided to the end user the dataset is independently reviewed by two researchers and, if necessary, the erroneous entries are corrected.

LVriverY – QUALITY REPORT

MS: LVA

Region: Baltic Sea

Sampling scheme identifier: LVriverY

Sampling scheme type: Diadromous (scientific)

Observation type: Self water body

Time period of validity: 01.01.2022 – 31.12.2024

Sampling scheme aiming to collect length, weight and yellow eel abundance data from LV_Latv EMU rivers using electrofishing method.

Description of the population

Population targeted:
Survey targets yellow eels in LV_Latv EMU rivers.

Population sampled:
Yellow eels in LV_Latv EMU rivers with no migration obstacles where restocking was carried out.

Stratification: NA

Sampling design and protocols

Sampling design description:
Each year 20 sites are sampled in the rivers with no downstream migration obstacles for eel. For sampling electrofishing method is used. Electrofishing sites are established in representative river sections – mostly streams with moderately dense to dense vegetation and coarse substrate. One pass electrofishing is conducted in monitoring sites from June to the end of August. All yellow eel caught are measured, and density of individuals per area unit is calculated. Two eels from length group are collected for detailed analyses (length, weight, sex, eye diameter, length of pectoral fin and presence of *Anguillicola crassus* in swimming bladder) and otolith extraction for age reading.

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

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

Link to sampling design documentation:
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Compliance with international recommendations: Y

Link to sampling protocol documentation:
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Compliance with 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:
Stationary direct current electrofishing device (SE 300 or KC Denmark) is used for electrofishing. For length measurements measuring board with millimeter increments is used and electronic scales for weight measurements. Eye diameter and pectoral fin length is measured with electronic caliper. Otolith thin-slices for age reading are prepared with Accutom 100 cut-off machine from Struers.

Data capture documentation:
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Quality checks documentation: Y
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Data storage

National database: NA

International database: NA

Quality checks and data validation documentation:
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Sample storage

Otolith samples collected are stored in Ziplock bags (with accompanying biological information) in the Institute's repository until preparation of thin-slices for age reading. Access to samples is organized through staff responsible for age reading.

Eel age reading is done in accordance with a manual for the ageing of eel https://www.ices.dk/sites/pub/CM%20Doccuments/CM-2009/ACOM/ACOM4809_Manual.pdf
Eel maturity is determined according to method described in Durif et al 2009.

Data processing
Evaluation of data accuracy (bias and precision): Y https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf **Editing and imputation methods:** Y https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf **Quality document associated to a dataset:** NA **Validation of the final dataset:** Limits are defined for the biological parameters (minimum and maximum values) in Excel database. Before being provided to the end user the dataset and determined age is independently reviewed by two researchers and, if necessary, the erroneous entries are corrected.

LVlakeY – QUALITY REPORT

MS: LVA
Region: Baltic Sea
Sampling scheme identifier: LVlakeY
Sampling scheme type: Diadromous (scientific)
Observation type: Self water body
Time period of validity: 01.01.2022 – 31.12.2024
Sampling scheme aiming to collect length, weight and yellow eel abundance data from LV_Latv EMU lakes using electrofishing method.
Description of the population
Population targeted: Survey targets yellow eels in LV_Latv EMU lake. **Population sampled:** Yellow eels in LV_Latv EMU lakes with no migration obstacles where restocking was carried out. **Stratification:** NA
Sampling design and protocols
Sampling design description: Each year 7 lakes with no downstream migration obstacles for eel are sampled (two at least 200 m long transects in each lake). For sampling electrofishing method is used. Electrofishing sites are established in the coastal zone with vegetation and depth no deeper than 1 m. Monitoring is conducted from June to the end of August. All yellow eel caught are measured, and density of individuals per area unit is calculated. Two eels from length group are collected for detailed analyses (length, weight, sex, eye diameter, length of pectoral fin and presence of *Anguillicola crassus* in swimming bladder) and otolith extraction for age reading. **Is the sampling design compliant with the 4S principle?:** Y **Regional coordination:** Sampling design and protocols were not developed as part of a regional or multi-lateral agreement.

Link to sampling design documentation:
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Compliance with international recommendations: Y

Link to sampling protocol documentation:
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Compliance with 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:
Stationary direct current electrofishing device (SE 300 or KC Denmark) is used for electrofishing. For length measurements measuring board with millimetre increments is used and electronic scales for weight measurements. Eye diameter and pectoral fin length is measured with electronic caliper. Otolith thin-slices for age reading are prepared with Accutom 100 cut-off machine from Struers.

Data capture documentation:
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Quality checks documentation: Y
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Data storage

National database: NA

International database: NA

Quality checks and data validation documentation:
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Sample storage

Otolith samples collected are stored in Ziplock bags (with accompanying biological information) in the Institute's repository until preparation of thin-slices for age reading. Access to samples is organized through staff responsible for age reading.

Eel age reading is done in accordance with a manual for the ageing of eel https://www.ices.dk/sites/pub/CM%20Doccuments/CM-2009/ACOM/ACOM4809_Manual.pdf
Eel maturity is determined according to method described in Durif et al 2009.

Data processing

Evaluation of data accuracy (bias and precision): Y
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Editing and imputation methods: Y
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Quality document associated to a dataset: NA

Validation of the final dataset:
Limits are defined for the biological parameters (minimum and maximum values) in Excel database. Before being provided to the end user the dataset and determined age is independently reviewed by two researchers and, if necessary, the erroneous entries are corrected.

DaugY – QUALITY REPORT

MS: LVA
Region: Baltic Sea
Sampling scheme identifier: DaugY
Sampling scheme type: Diadromous (scientific)
Observation type: Self water body
Time period of validity: 01.01.2022 – 31.12.2024
Sampling scheme aiming to collect length, weight and yellow eel abundance data from four scientific fyke nets in Daugava River.
Description of the population
Population targeted: Survey targets yellow eel in Daugava River basin. **Population sampled:** Yellow eel in Daugava River basin. **Stratification:** NA
Sampling design and protocols
Sampling design description: In the Daugava estuary area, in the period from May to November, four small-sized (mesh size 8 - 10 mm) fyke nets are installed in one line for registration of yellow eels. The total number of fishing days are recorded. All eels caught are kept alive in a cage until tagging and biological sampling procedure. Total length, weight, length of pectoral fin, eye diameter is measured, to determine the maturity according to Durif et al. 2009. **Is the sampling design compliant with the 4S principle?:** Y **Regional coordination:** Sampling design and protocols were not developed as part of a regional or multi-lateral agreement. **Link to sampling design documentation:** https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf **Compliance with international recommendations:** Y **Link to sampling protocol documentation:**

https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Compliance with 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:
Four small-sized (mesh size 8 - 10 mm) fyke nets are used for collecting eel samples. For length measurements measuring board with millimetre increments is used and electronic scales for weight measurements. Eye diameter and pectoral fin length is measured with electronic caliper.

Data capture documentation:
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Quality checks documentation: Y
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Data storage

National database: NA

International database:
Data that is collected through the data calls is stored in ICES WGEEL database.

Quality checks and data validation documentation:
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Sample storage

NA

Data processing

Evaluation of data accuracy (bias and precision): Y
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Editing and imputation methods: Y
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Quality document associated to a dataset: NA

Validation of the final dataset:
Limits are defined for the biological parameters (minimum and maximum values) in Excel database. Before being provided to the end user the dataset is independently reviewed by two researchers and, if necessary, the erroneous entries are corrected.

MS: LVA

Region: Baltic Sea

Sampling scheme identifier: DaugS

Sampling scheme type: Diadromous (scientific)

Observation type: Self water body

Time period of validity: 01.01.2022 – 31.12.2024

Sampling scheme aiming to collect length, weight and silver eel escapement data from four scientific fyke nets in Daugava River.

Description of the population

Population targeted:
Survey targets silver eel in Daugava River basin.

Population sampled:
Silver eel in Daugava River basin.

Stratification: NA

Sampling design and protocols

Sampling design description:
In the Daugava estuary area, in the period from May to November, four small-sized (mesh size 8 - 10 mm) fyke nets are installed in one line for registration of silver eel escaping to the Gulf of Riga. The total number of fishing days are recorded. All eels caught are kept alive in a cage until tagging and biological sampling procedure. Total length, weight, length of pectoral fin, eye diameter is measured, to determine the silvering stage according to Durif et al. 2009.

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

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

Link to sampling design documentation:
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Compliance with international recommendations: Y

Link to sampling protocol documentation:
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Compliance with 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:

Four small-sized (mesh size 8 - 10 mm) fyke nets are used for collecting eel samples. For length measurements measuring board with millimetre increments is used and electronic scales for weight measurements. Eye diameter and pectoral fin length is measured with electronic caliper. **Data capture documentation:** https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf **Quality checks documentation:** Y https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf
Data storage
National database: NA **International database:** Data that is collected through the data calls is stored in ICES WGEEL database. **Quality checks and data validation documentation:** https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf
Sample storage
NA
Data processing
Evaluation of data accuracy (bias and precision): Y https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf **Editing and imputation methods:** Y https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf **Quality document associated to a dataset:** NA **Validation of the final dataset:** Limits are defined for the biological parameters (minimum and maximum values) in Excel database. Before being provided to the end user the dataset is independently reviewed by two researchers and, if necessary, the erroneous entries are corrected.

LilY – QUALITY REPORT

MS: LVA
Region: Baltic Sea
Sampling scheme identifier: LilY
Sampling scheme type: Diadromous (scientific)
Observation type: Self water body
Time period of validity: 01.01.2022 – 31.12.2024
Sampling scheme aiming to collect length, weight and yellow eel abundance data from scientific fyke net in Lilaste River that connects Lake Lilastes with the Gulf of Riga.

Description of the population

Population targeted:
Survey targets yellow eel in Lilaste River basin.

Population sampled:
Yellow eel in Lilaste River basin.

Stratification: NA

Sampling design and protocols

Sampling design description:
In the Lilaste River, a full inventory of migrating yellow eels is carried out in the period from April to November by installing one small mash size (14 - 20 mm) fyke net with wings in the width of the Lilaste River. The total number of fishing days are recorded. All eels caught are kept alive in a cage until tagging and biological sampling procedure. Total length, weight, length of pectoral fin, eye diameter is measured, to determine the maturity according to Durif et al. 2009.

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

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

Link to sampling design documentation:
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Compliance with international recommendations:
Y

Link to sampling protocol documentation:
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Compliance with 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:
One small mash size (8 - 10 mm) fyke net is used for collecting eel samples. For length measurements measuring board with millimetre increments is used and electronic scales for weight measurements. Eye diameter and pectoral fin length is measured with electronic caliper.

Data capture documentation:
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Quality checks documentation: Y
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Data storage

National database: NA

International database:
Data that is collected through the data calls is stored in ICES WGEEL database.

Quality checks and data validation documentation:
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Sample storage

NA

Data processing

Evaluation of data accuracy (bias and precision): Y
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Editing and imputation methods: Y
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Quality document associated to a dataset: NA

Validation of the final dataset:
Limits are defined for the biological parameters (minimum and maximum values) in Excel database. Before being provided to the end user the dataset is independently reviewed by two researchers and, if necessary, the erroneous entries are corrected.

LilS – QUALITY REPORT

MS: LVA

Region: Baltic Sea

Sampling scheme identifier: LilS

Sampling scheme type: Diadromous (scientific)

Observation type: Self water body

Time period of validity: 01.01.2022 – 31.12.2024

Sampling scheme aiming to collect length, weight and silver eel escapement data from scientific fyke net in Lilaste River that connects Lake Lilastes with the Gulf of Riga.

Description of the population

Population targeted:
Survey targets silver eel in Lilaste River basin.

Population sampled:
Silver eel in Lilaste River basin.

Stratification: NA

Sampling design and protocols

Sampling design description:

In the Lilaste River, a full inventory of escaping silver eels is carried out in the period from April to November by installing one small mash size (14 - 20 mm) fyke net with wings in the width of the Lilaste River. The total number of fishing days are recorded. All eels caught are kept alive in a cage until tagging and biological sampling procedure. Total length, weight, length of pectoral fin, eye diameter is measured, to determine the maturity according to Durif et al. 2009.

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

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

Link to sampling design documentation:
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Compliance with international recommendations: Y

Link to sampling protocol documentation:
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Compliance with 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:
One small mash size (8 - 10 mm) fyke net is used for collecting eel samples. For length measurements measuring board with millimeter increments is used and electronic scales for weight measurements. Eye diameter and pectoral fin length is measured with electronic caliper.

Data capture documentation:
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Quality checks documentation: Y
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Data storage

National database: NA

International database:
Data that is collected through the data calls is stored in ICES WGEEL database.

Quality checks and data validation documentation:
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Sample storage

NA

Data processing

Evaluation of data accuracy (bias and precision):
Y
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Editing and imputation methods:
Y
https://bior.lv/sites/default/files/inline-files/Eel_data_collection_methodology.pdf

Quality document associated to a dataset: NA

Validation of the final dataset:
Limits are defined for the biological parameters (minimum and maximum values) in Excel database. Before being provided to the end user the dataset is independently reviewed by two researchers and, if necessary, the erroneous entries are corrected.

BAL_RECR (SelfAtSea) – QUALITY REPORT

MS: LVA
Region: Baltic Sea
Sampling scheme identifier: BAL_RECR
Sampling scheme type: Biological parameters specific
Observation type: SelfAtSea
Time period of validity: 01.01.2022 – 31.12.2024
This sampling scheme aims to register detailed catch and bycatch information in trolling which is the most important segment of salmon and trout recreational fishery in the Baltic Sea. The information is collected by a contracted NGO and is representing most of the Latvian trolling activities in SD 26 and 28.
Description of the population
Population targeted: Primary sampling unit for this sampling scheme is vessel*trip. **Population sampled:** Landings, bycatch and discards. **Stratification:** Sampling is covering the main Latvian trolling area in SD 26 and 28.
Sampling design and protocols
Sampling design description: Samples are collected according to fishing activities which is yearly specific. Due to the small boat sizes involved in trolling (< 10 m) number of fishing trips is heavily impacted by weather conditions. Sampling design is covering contracted NGO fishermen representing most trolling activities in Latvia. Additional information about other anglers outside the NGO, the number of boats and their effort are also obtained from contracted NGO. **Is the sampling design compliant with the 4S principle?:** N **Regional coordination:** This sampling scheme is not regionally coordinated. **Link to sampling design documentation:** Sampling design documentation is described in "Guidelines for the information collecting in marine recreational fisheries": (https://bior.lv/sites/default/files/inline-files/Atputas_zvejas_uzskaite_jura.pdf). **Compliance with international recommendations:** N Samples are collected according to special agreements with the contracted NGO covering the main fishing area and effort.

Link to sampling protocol documentation: Sampling protocol documentation is available in "Guidelines for the information collecting in marine recreational fisheries": (https://bior.lv/sites/default/files/inline-files/Atputas_zvejas_uzskaite_jura.pdf).

Compliance with international recommendations: N
During the fishing trip information about all fish species and all catch fractions are collected separately (landings, discards). Additionally, information about incidental by-catch (including PETS) is collected. For salmon and sea trout the presence of adipose fin is registered to distinguish wild and reared specimens.

Sampling implementation

Recording of refusal rate: N
Sample collection is based on agreement with the contracted NGO.

Monitoring of sampling progress within the sampling year: Sampling progress is checked periodically during the active fishing season.

Data capture

Means of data capture: For data capture on board measuring board and scales are used.

Data capture documentation: Description of data capture is available in "Guidelines for the information collecting in marine recreational fisheries": (https://bior.lv/sites/default/files/inline-files/Atputas_zvejas_uzskaite_jura.pdf).

Quality checks documentation: Y
Quality check procedure is similar as described in the document "Guidelines for Observers Working on Latvian Fishing Vessels in the Baltic Sea": (https://bior.lv/sites/default/files/inline-files/Guidelines_observer_Baltic_0.pdf).

Data storage

National database: The name of the national database is "**BIODATA**" (Biological Data Information System) and it's available for institute employees.

International database: NA

Quality checks and data validation documentation: Quality checks and data validation is implemented in the database mentioned above to avoid input and many logical mistakes and errors.

Sample storage

Collected scales are processed and stored in paper envelopes for each specimen. Scales are grouped by years, trips and fish species and stored in specific scales archive permanently.

Data processing

Evaluation of data accuracy (bias and precision): Y
The evaluation of the data accuracy (precision levels) manual is found: https://bior.lv/sites/default/files/inline-files/Precizitate_rezultati_2017.pdf, document language Latvian.

Editing and imputation methods: During the data entry, biological data are checked for minimal and maximal values. Once the data for the respective trip has been entered, the length & weight relationship is analysed by a linear regression model and Fulton's coefficient. Outliers are marked, re-checked and if necessary, corrected. If data errors are found, original data and outputs, including all relevant databases, are corrected.

Quality document associated to a dataset: N

Validation of the final dataset: Data from the fishing trip are prepared in national databases format. All data before entering the database have to pass an extensive quality check.

BAL_RECR_FLE – QUALITY REPORT

MS: LVA

Region: Baltic Sea

Sampling scheme identifier: BAL_RECR_FLE

Sampling scheme type: Biological parameters specific

Observation type: SciObsOnShore

Time period of validity: 01.01.2022 – 31.12.2024

This sampling scheme aims to register flounder recreational angling fishing activity to obtain detailed catch and bycatch information from the most popular recreational fishery for Latvian anglers in the open part of Baltic Sea and Irbe Strait (Subdivision 28).
The primary purpose of the survey is to identify a fishing community engaged in flounder angling from the coast in the Baltic sea open shore of the Baltic Sea. Other species are also investigated to support ecosystem analyses.

Description of the population

Population targeted: Primary sampling unit for this sampling scheme is site*trip.

Population sampled: Landings, bycatch and PETS.

Stratification: Sampling is covering the most popular Latvian angling area in Baltic Sea open shore and Irbe Strait in SD 28.

Sampling design and protocols

Sampling design description:
The flounder recreational angling survey will be conducted in September-December. For the survey is selected 10 most popular places along the coast line from the Northern pier of Liepaja to Kolka. Twice per month two sites (PSU) from the list will be randomly selected by using Excel function “RANDBETWEEN”.

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

Regional coordination: This sampling scheme is not regionally coordinated.

Link to sampling design documentation:
https://bior.lv/sites/default/files/inline-files/plekstes%20no%20krasta.docx

Compliance with international recommendations: N
The information is collected for the national interest using the best international practices for the collecting data from recreational fishery.

Link to sampling protocol documentation:
https://bior.lv/sites/default/files/inline-files/plekstes%20no%20krasta.docx

Compliance with international recommendations: N
During the survey information about all fish species and all catch fractions are collected separately (landings and bycatch). Additionally, information about incidental by-catch (including PETS) is collected.

Sampling implementation

Recording of refusal rate: Y
Information about the refusal rate (individual angler on shore line) will be collected during the survey.

Monitoring of sampling progress within the sampling year:
Sampling progress is checked periodically during the active fishing season.

Data capture
Means of data capture: For data capture measuring board is used. **Data capture documentation:** https://bior.lv/sites/default/files/inline-files/plekstes%20no%20krasta.docx **Quality checks documentation:** N Quality check document will be developed in the first part of 2022.
Data storage
National database: The name of the national database is "**BIODATA**" (Biological Data Information System) and it's available for institute employees. Database will be modified to provide the possibility to register such type of information. **International database:** NA **Quality checks and data validation documentation:** Quality checks and data validation is implemented in the database mentioned above to avoid input and many logical mistakes and errors.
Sample storage
No samples are stored from this survey. All fishes are measured and immediately returned to the anglers.
Data processing
Evaluation of data accuracy (bias and precision): N **Editing and imputation methods:** During the data entry, length information by species is checked for minimal and maximal values. **Quality document associated to a dataset:** N **Validation of the final dataset:** Data from the survey will be prepared in national databases format. All data before entering the database have to pass an extensive quality check.

LV_FW_SAL_REC– QUALITY REPORT

MS: LVA
Region: Baltic Sea
Sampling scheme identifier: LV_FW_SAL_REC
Sampling scheme type: Diadromous (recreational)
Observation type: SelfOnShore
Time period of validity: 01.01.2022 – 31.12.2024
Sampling scheme aiming to gather data on number of salmon kelts caught in the salmon rivers where licensed angling is organized. In two rivers (Gauja and Salaca) additional data on length, sex ratio, origin (wild or hatchery) and age structure are gathered by local NGO's.
Description of the population
Population targeted: Survey targets salmon populations in Latvian AU5 salmon river. **Population sampled:** Salmon populations in Salaca and Gauja River (including the lower part of its tributary Brasla). **Stratification:** NA.

Sampling design and protocols
Sampling design description: Anglers are allowed to catch one salmon per day per one license and have to report to organizers each fish. At the end of the year, organizers of licensed angling are reporting to Institute angling data by fish species. Two NGO's collecting additional data collect scale samples from kelts in scale books for age reading. In the scale books length, sex and origin (adipose fin clipped or fish with adipose fin) is registered. **Is the sampling design compliant with the 4S principle?:** Y **Regional coordination:** Sampling design and protocols were not developed as part of a regional or multi-lateral agreement. **Link to sampling design documentation:** https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf **Compliance with international recommendations:** Y **Link to sampling protocol documentation:** https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf **Compliance with international recommendations:** Y
Sampling implementation
Recording of refusal rate: NA **Monitoring of sampling progress within the sampling year:** At the end of the year, organizers of licensed angling are reporting to Institute angling data by fish species. Two NGO's collecting additional data submit scale books at the end of the angling season.
Data capture
Means of data capture: For length measurements measuring board with millimetre increments is used. **Data capture documentation:** https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf **Quality checks documentation:** Y https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf
Data storage
National database: The name of the national database is "**BIODATA**" (Biological Data Information System) and it's available for institute employees. **International database:** ICES WGBAST database (available on ICES SharePoint) **Quality checks and data validation documentation:** https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf
Sample storage
Scale samples collected are stored in scale books in the Institute's repository, access to samples is organized through staff responsible for age reading. The condition of the scale books is periodically checked. Salmon age reading is done in accordance with Atlantic salmon scale reading guidelines https://sfcc.co.uk/assets/files/Atlantic%20Salmon%20Scale%20Reading%20Guidelines.pdf
Data processing
Evaluation of data accuracy (bias and precision): Y https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Editing and imputation methods: Y
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Quality document associated to a dataset: NA

Validation of the final dataset: Limits are defined for the biological parameters (minimum and maximum values) in Excel database. Before being provided to the end user the dataset is independently reviewed by two researchers and, if necessary, the erroneous entries are corrected.

LV_FW_TRS_REC– QUALITY REPORT

MS: LVA
Region: Baltic Sea
Sampling scheme identifier: LV_FW_TRS_REC
Sampling scheme type: Diadromous (recreational)
Observation type: SelfOnShore
Time period of validity: 01.01.2022 – 31.12.2024
Sampling scheme aiming to gather data on number of sea trout kelts and skippers caught in the rivers where licensed angling for salmon and sea trout is organised. In two rivers (Gauja and Salaca) additional data on length, sex ratio, origin (wild or hatchery) and age structure are gathered by local NGO's.
Description of the population
Population targeted: Survey targets sea trout populations in the rivers of Baltic Sea eastern assessment area (East). **Population sampled:** Sea trout populations in Salaca and Gauja River basins. **Stratification:** NA.
Sampling design and protocols
Sampling design description: Anglers are allowed to catch one sea trout per day per one license and have to report to organizers each fish. At the end of the year, organizers of licensed angling are reporting to Institute angling data by fish species. Two NGO's collecting additional data collect scale samples from kelts in scale books for age reading. In the scale books length, sex and origin (adipose fin clipped or fish with adipose fin) is registered. **Is the sampling design compliant with the 4S principle?:** Y **Regional coordination:** Sampling design and protocols were not developed as part of a regional or multi-lateral agreement. **Link to sampling design documentation:** https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf **Compliance with international recommendations:** Y **Link to sampling protocol documentation:** https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf **Compliance with international recommendations:** Y
Sampling implementation
Recording of refusal rate: NA

Monitoring of sampling progress within the sampling year: At the end of the year, organizers of licensed angling are reporting to Institute angling data by fish species. Two NGO's collecting additional data submit scale books at the end of the angling season.

Data capture

Means of data capture: For length measurements measuring board with millimetre increments is used.

Data capture documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Quality checks documentation: Y
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Data storage

National database: The name of the national database is "**BIODATA**" (Biological Data Information System) and it's available for institute employees.

International database: ICES WGBAST database (available on ICES SharePoint)

Quality checks and data validation documentation:
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Sample storage

Scale samples collected are stored in scale books in the Institute's repository, access to samples is organized through staff responsible for age reading. The condition of the scale books is periodically checked.

Sea trout age reading is done in accordance with sea trout scale reading guidelines https://aquadocs.org/bitstream/handle/1834/25127/112_Elliott.pdf?sequence=1&isAllowed=y

Data processing

Evaluation of data accuracy (bias and precision): Y
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Editing and imputation methods: Y
https://bior.lv/sites/default/files/inline-files/Salmon_and_Sea_trout_data_collection_methodology.pdf

Quality document associated to a dataset: NA

Validation of the final dataset: Limits are defined for the biological parameters (minimum and maximum values) in Excel database. Before being provided to the end user the dataset is independently reviewed by two researchers and, if necessary, the erroneous entries are corrected.

ANNEX 1.2 - QUALITY REPORT FOR SOCIOECONOMIC 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, 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'. Use this annex to describe quality aspects of the data collection process (design, sampling implementation, data capture, data storage and data processing etc.). The annex should be filled for each sampling scheme. Where applicable, use the handbook on sampling design (Deliverable 2.1 from MARE/2016/22 SECFISH study), available on the DCF website.

FLEET (ECONOMIC) – QUALITY REPORT

Survey Specifications
'Sector name' refers to socio economic data on fisheries, aquaculture and any complementary data collection for fishing activities and processing, as in the EU MAP Delegated Decision annex. *'Sampling scheme' refers to the 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): ***Fleet (economic)***
Sampling scheme: *Census*
Variables: *Fleet economic variables from* ***Table 7*** *of EU MAP Delegated Decision 2021/1167*
Supra region(s): *All Supra regions*
Survey planning: *Quarterly*
Provide a short description of the population the sampling scheme applies to; e.g. '*less active vessels using passive gears*'. *The* ***population*** *is all vessels from the Union Fishing Fleet Register belonging to the economically active enterprises engaged in fishery and corresponding to the Statistical Classification of Economic Activities in the European Community NACE Rev 2. code 03.1. Fishery data are acquired in full survey of economically active individual entrepreneurs, fishing companies and farms engaged in commercial fishing, which should comply with catch limits as well as obtain licenses.*
Survey design and strategy

List data sources; e.g. interviews, registers, log books, sales notes, VMS, financial accounts etc.
Describe how the sample sizes were determined.
Describe survey methods and distribution; e.g. questionnaire forms by post, by email, on website, by phone etc. access to other datasets etc.
Describe the role of auxiliary information, if any, in the strategy: e.g. for validation, cross referencing, fall back data source etc.

Data source *is Central Statistical Bureau of Latvia (CSB) questionnaire statistical form "1-Fishery" https://www.csb.gov.lv/lv/respondentiem/veidlapas/2021/1-zvejnieciba. The questionnaire form "1-Fishery" is approved for mandatory completion by the legal act of the Cabinet of Ministers of the Republic of Latvia Nr. 812 section 2.71 at 20.12.2016. (MK noteikumi Nr. 812 "Oficiālās statistikas veidlapu paraugu apstiprināšanas un veidlapu aizpildīšanas un iesniegšanas noteikumi" https://m.likumi.lv/doc.php?id=287576).*

The CSB is a direct administration body subordinated to the Latvian Republic Ministry of Economics and acting as the main performer and coordinator of the official statistical work in the country. The CSB is responsible for organisation of the statistical work and authenticity of the data it has produced by summarising the information obtained from respondents.

Sample size *is full coverage of the population described in previous section due to the survey is based on Census sampling scheme.*

Survey method *is web census survey with individual automatically generated access to the online questionary (https://e.csb.gov.lv/portal/Account/Login?ReturnUrl=%2fportal%2f). However, the questionnaire form in the case of necessity could be available in the MS Word format or pdf format for Adobe Acrobat Reader.*

The separate document with ***auxiliary information*** *which provide a complete description about survey aims, the needs of data provision by the enterprises, legal base, use of the administrative data, survey sample, publications of data and data key users is available and can be downloaded in the CSB web site under the bottom "Apsekojuma mērķis un datu izmantošana" (https://www.csb.gov.lv/lv/respondentiem/veidlapas/2021/1-zvejnieciba). The phone numbers for consultation about questionnaire form fulfilment are provided in the bottom of the webpage.*

Estimation design

Describe method of calculating population estimate from sample.
Describe method of calculating derived data: e.g. imputed values.
Describe treatment of non-response.

Survey is based on Census sampling scheme. There is no need for additional ***estimation****. If the necessity for estimation will arise, the variety of* ***methods*** *depend on the concrete case can be applied and described (as deviation) after the data collection implementation. The* ***treatment of non-response*** *is handling by sending reminders. The survey Response rate in 2020 was from 97.6% till 98.8% after the reminder.*

Error checks

Describe potential errors and how and where in the process these are detected, avoided or eliminated e.g., data; duplication, double counting, respondent error, upload error, processing error etc.

The collected data are systematically checked, and potential ***errors*** *are eliminated. When entering the data of the submitted surveys in the Integrated Statistical Data Management IT System (ISDMS), the logical and arithmetic verification of the primary data is performed according to the validation algorithms.*
If any indicator in the full survey is missing or is incorrect, the statistician shall contact the respondent and shall carry out the necessary corrections.

Data storage and documentation

Describe how the data is stored.
Provide link to webpage where additional methodological documentation can be found, if any.

All collected data are ***stored*** *in the data Integrated Statistical Data Management IT System (ISDMS) CASIS. This system was designed in 2010 to harmonise data collection, processing and storage in the Central Statistics Bureau. The interviews were based on software developed by Informatics Department of the Central Statistical*

*Bureau of Latvia and data are stored in Microsoft (MS) SQL **database**. For the web questionnaires the CSB common system CASIS CAWI version was used.*

*The **additional methodological documentation** for the **survey "1-Fishery"** can be found by the following link: https://stat.gov.lv/en/metadata/2682-fishery-and-aquaculture*

*The **additional methodological documentation** about general **CSB quality assurance framework** can be found by the following links:*
https://www.csb.gov.lv/en/documents/official-statistics-system/quality-framework/documents
https://www.csb.gov.lv/en/documents/official-statistics-system/quality-framework/compliance

Revision

Describe the frequency of the methodology review e.g., revision of; segmentation, survey method per segment, per variable etc.

*The methodology used as well as the published data are final, and **revisions** are not applicable. Data adjustments could be made during the collection period, if the respondent updates the data for one of the previous periods of the reporting year, but not more frequently than once a quarter.*

Confidentiality

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

*In enterprise statistics cells are defined as **confidential** according to threshold rule and dominance rule (n,k). Cells are safe to be published if contributed by at least 4 respondents (n=4) as well as share of a single contributor is less than 80% (1,80) or two contributors share is less than 90% (2,90).*
***Confidentiality** of the information provided by respondents is **protected by the Section 17 of the Statistics Law** stipulating rights and obligations of the Central Statistical Bureau of Latvia and other state authorities producing official statistics (https://likumi.lv/ta/en/en/id/274749-statistics-law).*

AQUACULTURE (ECONOMIC) – QUALITY REPORT

Survey Specifications

'Sector name' refers to socio economic data on fisheries, aquaculture and any complementary data collection for fishing activities and processing, as in the EU MAP Delegated Decision annex.
'Sampling scheme' refers to the 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): ***Aquaculture (economic)***

Sampling scheme: *Census*

Variables: *Fleet economic variables from **Table 10** of EU MAP Delegated Decision 2021/1167*

Supra region(s): *not applicable*

Survey planning: *Annually*

Provide a short description of the population the sampling scheme applies to; e.g. '*less active vessels using passive gears*'.

*The **population** is all economically active enterprises engaged in aquaculture and corresponding to the Statistical Classification of Economic Activities in the European Community NACE Rev 2. code 03.2. Aquaculture data are acquired in full survey of aquaculture enterprises that are approved by the Food and Veterinary Service.*

Survey design and strategy

List data sources; e.g. interviews, registers, log books, sales notes, VMS, financial accounts etc.
Describe how the sample sizes were determined.
Describe survey methods and distribution; e.g. questionnaire forms by post, by email, on website, by phone etc. access to other datasets etc.
Describe the role of auxiliary information, if any, in the strategy: e.g. for validation, cross referencing, fall back data source etc.

***Data source** is Central Statistical Bureau of Latvia (CSB) questionnaire statistical form "1-Aquaculture" https://www.csb.gov.lv/lv/respondentiem/veidlapas/2021/1-akvakultura. The questionnaire form "1-Aquaculture" is approved for mandatory completion by the legal act of the Cabinet of Ministers of the Republic of Latvia Nr. 812 section 2.1 at 20.12.2016. (MK noteikumi Nr. 812 "Oficiālās statistikas veidlapu paraugu apstiprināšanas un veidlapu aizpildīšanas un iesniegšanas noteikumi" https://m.likumi.lv/doc.php?id=287576).*

The CSB is a direct administration body subordinated to the Latvian Republic Ministry of Economics and acting as the main performer and coordinator of the official statistical work in the country. The CSB is responsible for organisation of the statistical work and authenticity of the data it has produced by summarising the information obtained from respondents.

***Sample size** is full coverage of the population described in previous section due to the survey is based on Census sampling scheme.*

***Survey method** is web census survey with individual automatically generated access to the online questionary (https://e.csb.gov.lv/portal/Account/Login?ReturnUrl=%2fportal%2f). However, the questionnaire form in the case of necessity could be available in the MS Word format or pdf format for Adobe Acrobat Reader.*

*The separate document with **auxiliary information** which provide a complete description about survey aims, the needs of data provision by the enterprises, legal base, use of the administrative data, survey sample, publications of data and data key users is available and can be downloaded in the CSB web site under the bottom "Apsekojuma mērķis un datu izmantošana" (https://www.csb.gov.lv/lv/respondentiem/veidlapas/2021/1-akvakultura). The phone numbers for consultation about questionnaire form fulfilment are provided in the bottom of the webpage.*

Estimation design

Describe method of calculating population estimate from sample.
Describe method of calculating derived data: e.g. imputed values.
Describe treatment of nonresponse.

*Survey is based on Census sampling scheme. There is no need for additional **estimation**. If the necessity for estimation will arise, the variety of **methods** depend on the concrete case can be applied and described (as deviation) after the data collection implementation. The treatment of **non-response** is handling by sending reminders. The survey Response rate in 2020 was from 97.6%.*

Error checks

Describe potential errors and how and where in the process these are detected, avoided or eliminated e.g., data; duplication, double counting, respondent error, upload error, processing error etc.

*The collected data are systematically checked, and potential **errors** are eliminated. When entering the data of the submitted surveys in the Integrated Statistical Data Management IT System (ISDMS), the logical and arithmetic verification of the primary data is performed according to the validation algorithms.*
If any indicator in the full survey is missing or is incorrect, the statistician shall contact the respondent and shall carry out the necessary corrections.

Data storage and documentation
Describe how the data is stored. Provide link to webpage where additional methodological documentation can be found, if any. *All collected data are **stored** in the data Integrated Statistical Data Management IT System (ISDMS) CASIS. This system was designed in 2010 to harmonise data collection, processing and storage in the Central Statistics Bureau. The interviews were based on software developed by Informatics Department of the Central Statistical Bureau of Latvia and data are stored in Microsoft (MS) SQL **database**. For the web questionnaires the CSB common system CASIS CAWI version was used.* *The **additional methodological documentation** for the **survey "1-Aquaculture"** can be found by the following link: https://stat.gov.lv/en/metadata/2682-fishery-and-aquaculture* *The **additional methodological documentation** about general **CSB quality assurance framework** can be found by the following links:* *https://www.csb.gov.lv/en/documents/official-statistics-system/quality-framework/documents* *https://www.csb.gov.lv/en/documents/official-statistics-system/quality-framework/compliance*
Revision
Describe the frequency of the methodology review e.g., revision of; segmentation, survey method per segment, per variable etc. *The methodology used as well as the published data are final, and **revisions** are not applicable.*
Confidentiality
Are procedures for confidential data handling in place and documented? Are protocols to enforce confidentiality between DCF partners in place and documented? Are protocols to enforce confidentiality with external users in place and documented? Are there any issues with publication of data due to confidentiality reasons? Provide an explanation. *In enterprise statistics cells are defined as **confidential** according to threshold rule and dominance rule (n,k). Cells are safe to be published if contributed by at least 4 respondents (n=4) as well as share of a single contributor is less than 80% (1,80) or two contributors share is less than 90% (2,90).* ***Confidentiality** of the information provided by respondents is **protected by the Section 17 of the Statistics Law** stipulating rights and obligations of the Central Statistical Bureau of Latvia and other state authorities producing official statistics (https://likumi.lv/ta/en/en/id/274749-statistics-law).*

FLEET AND AQUACULTURE (SOCIAL) – QUALITY REPORT

Survey Specifications
'Sector name' refers to socio economic data on fisheries, aquaculture and any complementary data collection for fishing activities and processing, as in the EU MAP Delegated Decision annex. *'Sampling scheme' refers to the 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): ***Fleet and Aquaculture (social)***
Sampling scheme: *non-Probability Sample Survey*

Variables: *Social variables from **Table 9** of EU MAP Delegated Decision 2021/1167*
Supra region(s): *All supra regions*
Survey planning: *Triennially*
Provide a short description of the population the sampling scheme applies to; e.g. '*less active vessels using passive gears*'. *The **population** is all economically active enterprises engaged in fishing and aquaculture activity and corresponding to the Statistical Classification of Economic Activities in the European Community NACE Rev 2. codes 03.1. and 03.2.* *Fishery data are acquired in full survey of economically active individual entrepreneurs, fishing companies and farms engaged in commercial fishing, which should comply with catch limits as well as obtain licenses.* *Aquaculture data are acquired in full survey of aquaculture enterprises that are approved by the Food and Veterinary Service.*
Survey design and strategy

List data sources; e.g. interviews, registers, log books, sales notes, VMS, financial accounts etc.
Describe how the sample sizes were determined.
Describe survey methods and distribution; e.g. questionnaire forms by post, by email, on website, by phone etc. access to other datasets etc.
Describe the role of auxiliary information, if any, in the strategy: e.g. for validation, cross referencing, fall back data source etc.

Data source *is questionnaire statistical form developed by the fisheries and social experts in collaboration with the leading research and consulting company in Latvia – Kantar.*

Kantar brand in Latvia was founded in 1993 and represents one of the world's largest and leading data, knowledge and consulting companies. The company is one of the leaders among full-service market, social and media research agencies in Latvia, which constantly introduces research innovations in its practice (https://www.kantar.lv/kas-mes-esam/darbiba/).

Even though the implementation of the survey is supported by the Latvian Ministry of Agriculture, participation in it is volunteering and not enshrined in legislation.

The survey is conducted by the company that is selected in the process of Open Tender procedure according to the rules listed in the Latvia Republic Public Procurement Law (https://likumi.lv/ta/id/287760-publisko-iepirkumu-likums) and Regulation (EU) 1025/2012 (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32012R1025).

The specification for the Open Tender procedure with detailed description how survey should be implemented and included questionnaire form, also was developed by Kantar. According to the rules, for the survey implementation should be chosen the company specialising in social inquiries declared about their desire to participate in the task and which can provide service according with the criteria listed in the specification.

Sample size *is planned around 15% from the total population in each sector due to the survey is based on non-Probability Sample Survey sampling scheme. For the determination of the sample size is planned to apply the following strategy:*

Stage I: recruiting of the respondents using the short phone interview questionnaire "Respondent recruitment". Time period for the implementation of the first stage of survey 2-3 weeks. The respondents' recruitment is carried out at different working days and different working hours in order to reach the target group as much as possible. The interviewers also provide the detailed description to the respondents about the aim of the social survey and use of collected information after the survey. The minimum attempt to reach each contact is 10 times. In the result, the 100% of companies in each sector are covered and the target group (respondents agreed to participate in the social survey) is determined.

Stage II: the link to the online questionnaire statistical form for the social survey is provided to the target group of respondents.

Survey method *is web non-Probability Sample Survey with personalised individually automatically generated access for respondents to the online questionnaire. However, the questionnaire form in the case of necessity could be available in the MS Word format and send by email. The survey is conducted in period of five weeks using the questionnaire "Fisheries workers". The computerized questionnaires on web or by mail are available to respondents who agreed to participate in the survey during the first stage (recruiting) in both target groups (fishing industry and fish processing).*

The ***auxiliary information*** *which provides a complete description about survey aims, the needs of data provision by the enterprises, legal base, use of the data, publications and data key users can be available after the special request in case of necessity.*

In order to ensure the quality of the survey, the briefing for the interviewer's is conducted before the survey. During the briefing the detailed description of the aims and methods of the survey, as well as the questionnaire form are presented. Also, test interviews are conducted on language of respondent.

Estimation design

Describe method of calculating population estimate from sample.
Describe method of calculating derived data: e.g. imputed values.
Describe treatment of nonresponse.

The ***estimation is applied*** *to rise the survey data from sample to the total population reported annually by the*

Central Statistical Bureau (CSB) for official statistics. The calculation is based on the ratio to the total population of employee in each sector. The survey Response rate in 2021 was 24% in fishing and 21% in aquaculture sectors.

The Response rate, Achieved coverage and Updated planned sample rate/ Planned sample rate in % for collected data calculated separately for each sector and each variable according to the requirement proposed by STECF SGECA 09-02 Barcelona report.

*The **treatment of non-response** is handling by sending three electronic reminders provided to the respondents with the invitation to participate the survey if the questionnaires are not filled in at the indicated stage of the survey.*

Error checks

Describe potential errors and how and where in the process these are detected, avoided or eliminated e.g., data; duplication, double counting, respondent error, upload error, processing error etc.

*The collected data are systematically checked, and potential **errors** are eliminated. The logical and arithmetic verification of the primary data is performed according to the validation algorithms.*

If any indicator in the full survey is missing or is incorrect, the statistician shall contact the respondent and shall carry out the necessary corrections.

The recalculated results for some variables such as "Employment by gender" are cross checked with the data collected by Central Statistical Bureau (CSB).

Data storage and documentation

Describe how the data is stored.
Provide link to webpage where additional methodological documentation can be found, if any.

*All collected data will be **stored** in the database belonged to the company specialising in social inquiries and chosen by Open Tender procedure.*

*The common **methodology** recommended by PGECON are considered in the social data collection process: https://datacollection.jrc.ec.europa.eu/guidelines/socioeco/social.*

Revision

Describe the frequency of the methodology review e.g., revision of; segmentation, survey method per segment, per variable etc.

*The **methodological revisions** related to the questionnaire structure can be applied before the implementation of new survey if such needs exist. The main efforts are aimed at making the data collection process clear to respondents from the outset and avoiding frequent changes in methodology.*

Confidentiality

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

*The data **confidentiality** of the information provided by respondents is protected by the Section 17 of the Statistics Law (https://likumi.lv/ta/en/en/id/274749-statistics-law). If the collected data are marked as confidential the information cannot be provided or, in some cases, could be provided in the grouped format where the individual data cannot be determined.*