



**Section of Agriculture
Department of Animal Production**

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

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

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

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

**Slovakian Work Plan for data collection in
the fisheries and aquaculture sectors**

2020-2021

Version 1 – 2019

CONTENTS

SECTION 1: BIOLOGICAL DATA	3
Pilot Study 1: Relative share of catches of recreational fisheries compared to commercial fisheries	3
SECTION 1: BIOLOGICAL DATA	4
Text Box 1E: Anadromous and catadromous species data collection in fresh water	4
SECTION 1: BIOLOGICAL DATA	5
Pilot Study 2: Level of fishing and impact of fisheries on biological resources and marine ecosystem	5
SECTION 1: BIOLOGICAL DATA	6
Text Box 1G: List of research surveys at sea	6
SECTION 2: FISHING ACTIVITY DATA	7
Text Box 2A: Fishing activity variables data collection strategy	7
SECTION 3: ECONOMIC AND SOCIAL DATA	8
Text Box 3A: Population segments for collection of economic and social data for fisheries	8
SECTION 3: ECONOMIC AND SOCIAL DATA	9
Pilot Study 3: Data on employment by education level and nationality	9
SECTION 3: ECONOMIC AND SOCIAL DATA	10
Text Box 3B: Population segments for collection of economic and social data for aquaculture	10
SECTION 3: ECONOMIC AND SOCIAL DATA	11
Pilot Study 4: Environmental data on aquaculture	11
SECTION 3: ECONOMIC AND SOCIAL DATA	13
Text Box 3C: Population segments for collection of economic and social data for the processing industry	13
SECTION 4: SAMPLING STRATEGY FOR BIOLOGICAL DATA FROM COMMERCIAL FISHERIES.....	14
Text Box 4A: Sampling plan description for biological data.....	14

SECTION 1: BIOLOGICAL DATA

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

General comment: This Box fulfills paragraph 4 of Chapter II of the Implementing Decision (EU) 2019/909 on the multi-annual Union programme.

1. Aim of pilot study

Not applicable – Slovakia is a landlocked country.

2. Duration of pilot study

3. Methodology and expected outcomes of pilot study

(max 900 words)

SECTION 1: BIOLOGICAL DATA

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

General comment: This Box fulfills paragraph 2 points (b) and (c) of Chapter III of the Delegated Decision (EU) 2019/910 on the multi-annual Union programme.

Method selected for collecting data.

Not applicable. Slovakia has no relevant stocks for Anadromous and Catadromous species in Slovak fresh water bodies.

(max 250 words per Area)

SECTION 1: BIOLOGICAL DATA

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

General comment: This Box fulfills paragraph 3 point (c) of Chapter III of the Delegated Decision (EU) 2019/910, on the multi-annual Union programme.

1. Aim of pilot study

Not applicable – Slovakia is a landlocked country.

2. Duration of pilot study

3. Methodology and expected outcomes of pilot study

(max 900 words)

SECTION 1: BIOLOGICAL DATA

Text Box 1G: List of research surveys at sea

General Comment: This Box fulfills Chapter I in the Annex of the Implementing Decision (EU) 2019/909, on the list of mandatory research surveys and thresholds. It is intended to specify which research surveys at sea set out in the Implementing Decision on the multi-annual Union programme will be carried out. Member States shall specify whether the research survey is included in the Chapter I in the Annex of the Implementing Decision on the multi-annual Union programme or whether it is an additional survey.

1. Objectives of the survey

Not applicable – Slovakia is a landlocked country.

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

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

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

5. Explain where thresholds apply

(max 450 words per survey)

SECTION 2: FISHING ACTIVITY DATA

Text Box 2A: Fishing activity variables data collection strategy

General comment: This Box fulfills paragraph 4 of Chapter III of the Delegated Decision (EU) 2019/910 on the multi-annual Union programme. It is intended to describe the method used to derive estimates on representative samples where data are not to be recorded under Regulation (EU) No 1224/2009 or where data collected under Regulation (EU) No 1224/2009 are not at the right aggregation level for the intended scientific use.

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

Not applicable – Slovakia is a landlocked country.

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

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

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

(max 900 words per Region)

SECTION 3: ECONOMIC AND SOCIAL DATA

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

General comment: This Box fulfills paragraph 5 points (a) and (b) of Chapter III of the Delegated Decision (EU) 2019/910 on the multi-annual Union programme. It is intended to specify data to be collected under Tables 5(A) and 6 of the Delegated Decision on the multi-annual Union programme.

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

Not applicable – Slovakia is a landlocked country.

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

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

4. Description of methodologies used for estimation procedures

5. Description of methodologies used on data quality

(max 900 words per Region)

SECTION 3: ECONOMIC AND SOCIAL DATA

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

General comment: This Box fulfills paragraph 5 point (b) and paragraph 6 point (b) of Chapter III of the Delegated Decision (EU) 2019/910 on the multi-annual Union programme. It is intended to specify data to be collected under Table 6 of the Delegated Decision (EU) 2019/910 on the multi-annual Union programme.

1. Aim of pilot study

Data collection on employment by education level and nationality is not scheduled for coming period 2020-2021.

2. Duration of pilot study

3. Methodology and expected outcomes of pilot study

(max 900 words)

SECTION 3: ECONOMIC AND SOCIAL DATA

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

General comment: This Box fulfills paragraph 6 points (a) and (b) of Chapter III of the Delegated Decision (EU) 2019/910 on the multi-annual Union programme. It is intended to specify data to be collected under Tables 6 and 7 of the multi-annual Union programme.

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

Data collection of economic and social data for aquaculture is not scheduled for coming period 2020-2021.

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

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

4. Description of methodologies used for estimation procedures

5. Description of methodologies used on data quality

(max 1000 words)

SECTION 3: ECONOMIC AND SOCIAL DATA

Pilot Study 4: Environmental data on aquaculture

Pilot study: Environmental data on pond aquaculture in Slovakia

General comment: This Box fulfills paragraph 6 point (c) of Chapter III of the Delegated Decision (EU) 2019/910 on the multi-annual Union programme; and Article. It is intended to specify data to be collected under Table 8 of the multi-annual Union programme.

1. Aim of pilot study

Proposal for a pilot study on collecting environmental data and analysis of micropollutants in pond aquaculture in Slovakia

The main objectives of the proposed project, corresponding with the global developments in this area, are:

- *monitoring the occurrence of microplastics, pesticides, hormones, toxic metals, pharmaceuticals, drugs and their metabolites in water and sediments of selected ponds in Slovakia*
- *monitoring the possible distribution of micropollutants from water and sediments of selected ponds into fish*
- *evaluating the possible occurrence of selected types of micropollutants, the description of their dominant sources, their distribution into fish and the environmental risk for the aquatic ecosystem in Slovakia and the on consumer.*

Based on these findings, a detailed report with recommendations, a map of analyses and a electronic brochure for fish farmers and pond owners will be produced.

Aquatic ecosystem contains many different micropollutants, such as pesticides, pharmaceuticals and drugs, which may have a dangerous impact on the aquatic environment and the organisms living there. Some types of pharmaceuticals, drugs and their metabolites are capable of affecting the behaviour, reproductive capacity and other properties of aquatic organisms even in small quantities. Currently, a significant portion of foreign studies focuses on the behaviour of these micro pollutants in the environment. Scientific studies over the past five years have indicated the presence of particular drugs not only in wastewater, surface water or groundwater, but also in the bodies of aquatic organisms. In addition, some of these substances are able to accumulate in the environment as well as in the bodies of aquatic organisms and get into the food chain.

In this pilot study, we would like to contribute not only to the most recent scientific findings, but also to their practical use and greater protection of the environment and also get information about final fish product produced in pond environment.

However exist few data about this problematic, proposed pilot study is first and unique project in Slovakia that covers all the pond-aquaculture's sector. Pilot project on the collection of environmental data and assessing the risk of micropollutant distribution into the pond aquaculture environment, a comprehensive picture of data regarding the Slovak pond aquaculture sector is to be created.

The aim of the proposed pilot study is to create a suitable starting point to ensure an optimal response for landlocked countries that are subject to mandatory environmental data collection in the future, including monitoring of the occurrence of micropollutants in water and sediments.

2. Duration of pilot study

2020-2021 (24 months)

The project will proceed in two stages. In the first stage sampling and analysis will be carried out (18 months), followed by an evaluation of results, creation of a report and a sampling map (4 months).

3. Methodology and expected outcomes of pilot study

In the proposed pilot study, we will investigate the occurrence and possible penetration of selected species of aquatic ecosystem micro pollutants into common carp (carp) in production ponds in Slovakia using highly sensitive analytical instruments and methods. Specifically, it will be the monitoring of the occurrence and possible penetration of groups of micropollutants such as pesticides, hormones, pharmaceuticals, drugs and their possible metabolites, toxic metals or compounds from the PCB group. The monitoring will be carried

out on 60 to 100 production ponds, the water of individual ponds (dominantly decanted samples), sediment below 5 mm and selected fish species (carp) will be analysed. During the pilot study, 100 samples of water (the volume of one sample will be 2 liters), 100 samples of pond sediments (the dry weight of the sediments will be 100 g), and 300 pieces of selected fish (a sample of 100 g of muscle from each subject) will be analysed. The environmental impact will be compared with possible impact on carp muscle and on the consumer.

Carp will be collected in live weight range 2-3 kg. From one production pond 3 carps will be collected. (approx. 300 fish to be examined). The carp will be subjected to analytical methods to evaluate the occurrence of selected specific groups of micropollutants (hormones, pharmaceuticals, drugs and their metabolites, pesticides, PCBs, toxic metals and microplastics) which can enter into fish from pond environment.

From a scientific point of view, it is essential that the method development and data collection on Slovak production ponds is subject at least 60 ponds to make a relevant statistical statement. Because of the different nature conditions, there are influences on the results of the survey, which cannot be determined in advance. These factors can only be determined and taken into account adequately when interpreting data in a statistically sufficiently secure data situation. Data sets from less than 60 ponds cause higher statistical uncertainties and may therefore lead to misinterpretation of data and results.

The analysis of individual types of micropollutant groups will be carried out using several analytical techniques:

- GC and LC-MS / MS (analysis of pesticides, hormones, pharmaceuticals, drugs and their metabolites or compounds of the PCB group),
- UV-VIS spectrophotometer (selected metals, some PCBs),
- Atomic absorption spectroscopy (AAS) (selected toxic metals)
- FTIR / Raman spectroscopy, fluorescence and SEM electron microscopy (microplastics and nanoplastics),

Also the possible hormonal (estrogen) activity of the obtained samples will be investigated.

SECTION 3: ECONOMIC AND SOCIAL DATA

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

General comment: This Box fulfills paragraph 1.1(d) of Chapter III and Table 10 of the Delegated Decision (EU) 2019/910 on the multi-annual Union programme, and Article 2, Article 4 paragraphs (1) and (5). It is intended to specify data to be collected under Table 10 of the multi-annual Union programme.

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

Data collection of economic and social data for the processing industry is not scheduled for coming period 2020-2021.

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

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

4. Description of methodologies used for estimation procedures

5. Description of methodologies used on data quality

(max 1000 words)

SECTION 4: SAMPLING STRATEGY FOR BIOLOGICAL DATA FROM COMMERCIAL FISHERIES

Text Box 4A: Sampling plan description for biological data

General Comment: This Box fulfills Article 3, Article 4 paragraph (4) and forms the basis for the fulfilment of paragraph 2 point (a)(i) of Chapter III of the Delegated Decision (EU) 2019/910 on the multi-annual Union programme. This Table refers to data to be collected under Tables 1(A), 1(B) and 1(C) of the multi-annual Union programme.

Description of the sampling plan.

Not applicable – Slovakia is a landlocked country.

(max 900 words per Region)