



PROFESSIONAL STANDARD

A professional standard is a document which describes professional activities and competency requirements, i.e. the set of knowledge, skills and attitudes necessary to engage successfully in professional activities.

Application areas of professional standards:

- 1) compilation of the curricula and training programmes that conform with the labour market requirements
- 2) assessment of competencies of persons, including self-assessment and conformity assessment when awarding professional qualifications
- 3) description and introduction of occupations
- 4) career planning and creating a basis for lifelong learning
- 5) identifying training needs and planning of training
- 6) compilation of job descriptions and recruitment of employees
- 7) comparison of professional qualifications and qualifications

This first-level professional standard serves as a basis for the respective vocational education curricula.

Professional title	Estonian Qualifications Framework (EstQF) level
Fish farmer	4

Part A DESCRIPTION OF A PROFESSION

A.1 Work description

A fish farmer is a skilled worker whose objective is to produce aquaculture products and participate in the marketing of these products. The main tasks of a fish farmer include ensuring a growth medium necessary for the production of fish. In performing his/her work a fish farmer will follow and aim to achieve the best quality and productivity. Working as a fish farmer requires a respectful attitude towards wildlife.

A fish farmer understands the specificity of water as a habitat and fisheries as an economic sector. He/she knows the production processes of aquaculture products, uses the resources with a sense of

awareness and responsibility and acts in an environmentally sound manner. A fish farmer will work independently, adapting according to the situation. A fish farmer will follow established rules of operation and safety requirements.

A.2 Parts of work

Applicants for this professional qualification are required to give proof of all competencies (B.2.1–B.2.9). When applying for this professional qualification it is possible to choose and give proof of an additional competency, B.2.10.

MANDATORY PARTS OF WORK

- A.2.1 Maintaining the growth medium for fish
- A.2.2 Feeding fish
- A.2.3 Reproduction of fish
- A.2.4 Monitoring the health status of fish, detecting abnormalities and treatment under the supervision of a specialist
- A.2.5 Transportation of live fish
- A.2.6 Sorting of fish
- A.2.7 Maintaining inventory
- A.2.8 Preliminary handling of fish

OPTIONAL PARTS OF WORK

When applying for this professional qualification it is possible to choose and give proof of the following competence:

- A.2.9 Farming of crustaceans

A.3 Work environment and the specific character of work

A fish farmer's work is directly linked to the aquatic environment which is characterised by higher levels of humidity and temperature variation than in normal conditions.

The work may be specifically seasonal; fish farmers will also work on the weekends, national holidays and at night, if necessary. The main occupational safety hazards involve the use of machinery.

A.4 Working equipment

The main working equipment a fish farmer uses are fishing tackle (including nets, seines, electrical fishing devices, etc), equipment for monitoring water oxygen content, temperature and other physicochemical properties; fish pumps, sorting equipment, scales, counters, means of transport (containers), incubation devices, laboratory equipment (syringes, microscope, bowls, etc.), software necessary for operating a fish farm, cutting equipment for initial handling of fish, stunning devices and packaging devices.

A.5 Personal characteristics necessary for the work: abilities and personality traits

A fish farmer's work requires a sense of responsibility, precision and punctuality, coping with the environment and routine activities, persistence, self discipline and the ability to understand numerical and quantitative links.

A.6 Documents required for working in the profession

A health certificate for handling food pursuant to § 28 of the Estonian Food Act.

A.7 Possible professional titles

Fish farmer, aquafarmer.
A.8 Vocational training
Normally, persons having the appropriate vocational education and/or professional skills obtained at workplace work as fish farmers.

Part B COMPETENCY REQUIREMENTS

B.2 Competences	
B.2.1 Maintaining the growth medium for fish	EstQF level 4
<p>Performance criteria:</p> <ol style="list-style-type: none"> 1) Checks and documents fish habitat parameters according to instructions given and predefined optimal indicators, using water testing and measuring tools. 2) Adjusts the fish habitat by influencing the water flow using water handling equipment and aeration according to the species and size of the fish by ensuring the necessary conditions (temperature, oxygen content, pH and ammonium content) based on the situation and season. 3) Cleans the growing area (pool, grid, etc.) by removing manure, dead fish, residues from feeding and other unnecessary substances with regard to waste treatment requirements and conditions. 	
<p>Knowledge:</p> <ol style="list-style-type: none"> 1) knowledge of the physicochemical properties of water; 2) knowledge of the use of equipment used for measuring water properties; 3) knowledge of the principles of waste treatment; 4) knowledge of the operating principles of water treatment equipment (water level regulators, pumps, biofilter, mechanical filter). 	
<p>Assessment method(s): performance criteria shall be assessed, if possible, in the course of practical work and via an oral interview or a simulation assignment and an oral interview. If necessary, knowledge shall be assessed with a written assignment or test.</p>	
B.2.2 Feeding fish	EstQF level 4
<p>Performance criteria:</p> <ol style="list-style-type: none"> 1) Compiles feeding rations based on the feed producer's recommendations and by monitoring the aquatic environment status (temperature, oxygen content, etc.) and fish quantity, etc. 2) Installs, adjusts, monitors and maintains feeders according to needs and feeder type. 3) Feeds the fish according to instructions given. 4) Stores and transports feed and monitors the expiry of feeds, considering the storing conditions. 5) Performs test catches (catches, counts, weighs and determines the average weight and volume) in order to determine the feed rations. 	

<p>Knowledge:</p> <ol style="list-style-type: none"> 1) knowledge of the feeding principles of different species; 2) knowledge of the principles of feed rationing; 3) knowledge of fish feed ingredients (use of nutrients and energy, pigments, medicinal products, etc.); 4) and feeding methods. 	
<p>Assessment method(s): performance criteria shall be assessed, if possible, in the course of practical work and via an oral interview or a simulation assignment and an oral interview. If necessary, knowledge shall be assessed with a written assignment or test.</p>	
B.2.3 Reproduction of fish	EstQF level 4
<p>Performance criteria:</p> <ol style="list-style-type: none"> 1) Selects brood fish under a specialist's supervision, considering the species, water temperature, season and instructions given. 2) Collects roe and milt and fertilises eggs, considering the species, water temperature and instructions given. 3) Operates hatching equipment and maintains them according to instructions given, regulating water temperature, flow, oxygen content and other essential indicators when necessary. 4) Separation of larvae and nursing fry, considering the species, water temperature and other water properties. 5) Employs biosafety measures (such as disinfection and quarantine) at the hatchery. 6) Stocks larvae and fry into second-stage station depending on the rearing technique of the species. 	
<p>Knowledge:</p> <ol style="list-style-type: none"> 1) knowledge of the physicochemical properties of water; 2) knowledge of the reproduction methods of fish. 	
<p>Assessment method(s): performance criteria and knowledge shall be assessed, if possible, in the course of practical work and via an oral interview or a simulation assignment and an oral interview. If necessary, knowledge shall be assessed with a written assignment or test.</p>	
B.2.4 Monitoring the health status of fish, noticing abnormalities and treatment under the supervision of a specialist	EstQF level 4
<p>Performance criteria:</p> <ol style="list-style-type: none"> 1) Monitors the behaviour of fish, detects abnormalities, records them into the journal and informs the manager. 2) Tries to identify the reasons for abnormalities by checking the growth medium of fish, and takes measures and influences the medium if required and possible. 3) Treats fish diseases by following the treatment scheme provided by a specialist. 	
<p>Knowledge:</p> <ol style="list-style-type: none"> 1) fish biology; 2) the most common fish diseases and parasites; 3) requirements to the environment of different species; 4) substances, tools and technology used for disinfecting and vaccination. 	
<p>Assessment method(s): performance criteria shall be assessed, if possible, in the course of practical work and via an oral interview or a simulation assignment and an oral interview. If necessary, knowledge shall be assessed with a written assignment or test.</p>	
B.2.5 Transportation of live fish	EstQF level 4
<ol style="list-style-type: none"> 1) Catches fish from ponds, pools, ditches or any other containers, considering the requirements of 	

<p>fish to the medium and monitoring the temperature and oxygen content suitable for handling fish.</p> <p>2) Monitors fish status during transportation by checking the water temperature and oxygen contents and harmonises the temperature for release of fish into water depending on the species and size of the fish.</p>	
<p>Knowledge:</p> <p>1) fish biology;</p> <p>2) transportation technologies;</p> <p>3) knowledge of the gaseous conditions of the aquatic environment.</p>	
<p>Assessment method(s): performance criteria shall be assessed, if possible, in the course of practical work and via an oral interview or a simulation assignment and an oral interview. If necessary, knowledge shall be assessed with a written assignment or test.</p>	
<p>B.2.6 Sorting of fish</p>	<p>EstQF level 4</p>
<p>Performance criteria:</p> <p>1) Catches fish from ponds, pools, ditches or any other containers, considering the specificities of the species and monitoring the temperature and oxygen content suitable for handling fish.</p> <p>2) Sorts fish by size and/or species, considering the purpose.</p> <p>3) Counts and weighs fish by size groups, following the instructions given.</p> <p>4) Relocates the fish according to the production technology and needs.</p>	
<p>Knowledge:</p> <p>1) knowledge of the reasons for sorting fish;</p> <p>2) knowledge of the tools used for catching and sorting fish;</p> <p>3) knowledge of the technologies of counting and keeping records of fish.</p>	
<p>Assessment method(s): performance criteria shall be assessed, if possible, in the course of practical work and via an oral interview or a simulation assignment and an oral interview. If necessary, knowledge shall be assessed with a written assignment or test.</p>	
<p>B.2.7 Maintaining inventory</p>	<p>EstQF level 4</p>
<p>Performance criteria:</p> <p>1) Maintains inventory according to the needs and instructions given.</p> <p>2) Detects and eliminates simple malfunctions of equipment and inventory; repairs them based on instructions given.</p> <p>3) Constructs simpler tools used in fisheries, such as nets, traps, cages, etc based on instructions given.</p>	
<p>Knowledge:</p> <p>1) Most common equipment and tools used in fisheries.</p>	
<p>Assessment method(s): performance criteria and knowledge shall be assessed in the course of practical work.</p>	
<p>B.2.8 Preliminary handling of fish</p>	<p>EstQF level 4</p>
<p>Performance criteria:</p> <p>1) Catches fish and performs a visual and organoleptic inspection of the quality of the production, considering the growth medium.</p> <p>2) Performs preliminary processing of fish according to the technological scheme used in the company.</p> <p>3) Sorts the production based on the size and quality groups.</p>	
<p>Knowledge:</p> <p>1) quality standards for fish;</p>	

<ul style="list-style-type: none"> 2) principles and methods of preliminary processing; 3) HACCP; 4) Estonian Food Act.
Assessment method(s): performance criteria and knowledge shall be assessed in the course of practical work.

OPTIONAL COMPETENCES

When applying for this professional qualification it is possible to choose and give proof of the following competence:

B.2.9 Farming of crustaceans	EstQF level 4
Performance criteria:	
<ul style="list-style-type: none"> 1) Performs reproduction of crustaceans based on the production methods used in the company. 2) Prepares ponds for stocking with crustaceans (cleaning and disinfection of ponds, installation of crustacean holes, stone columns and an aeration system, etc.) 3) Stocks ponds with crustaceans based on stocking norms and the purpose of farming. 4) Feeds crustaceans according to instructions given and maintains crustacean ponds by checking the aquatic environment status, including removal of <i>Cladophora</i> spp. 5) Catches and sorts crustaceans based on the purpose and organises the pre-sale storage of crustaceans. 6) Packages crustaceans for marketing based on the order. 	
Knowledge:	
<ul style="list-style-type: none"> 1) crustacean biology, farmed and banned species; 2) knowledge of the production technology of crustaceans; 3) methods and tools for catching crustaceans; 4) biosafety (e.g. disinfection of traps). 	
Assessment method(s): performance criteria shall be assessed, if possible, in the course of practical work and via an oral interview or a simulation assignment and an oral interview. If necessary, knowledge shall be assessed with a written assignment or test.	

B.2.10 Competences necessary throughout all stages of the profession of fish farmers	EstQF level 4
Performance criteria:	
<ul style="list-style-type: none"> 1) A fish farmer will make an efficient use of his/her time and work in a systematic and methodological manner. He/she will adhere to the dates, schedule and stages set throughout the working process. 2) A fish farmer will follow and maintain quality and productivity throughout his/her work and follow the requirements of hygiene and biosafety (cleaning and disinfection of hands, clothing, inventory, ponds, pools, etc.) Uses recourses necessary for performing his/her duties in an optimal manner. 3) Follows the procedures and instructions given and does not question these when there is no material need for it. 4) Bases on his/her competences and necessary information when making decisions. Proposed alternative solutions if necessary. 5) A fish farmer will use area-specific knowledge in his/her work and shares this knowledge with his/her colleagues, works with dedication. 6) Understands the causes of problems and possible solutions. If necessary, is able to act in a crisis (break-up of installations, power failure, equipment failure, etc.) He/she is capable of solving problems in a creative manner and learning from the mistakes made. 	

7) In achieving his/her work-related objectives he/she will use the necessary technological possibilities and learn and acquire new techniques and methods, if necessary.

Knowledge necessary throughout the work process:

- 1) biology of common aquaculture species (including crustaceans);
- 2) physicochemical properties of water necessary for fish;
- 3) legal acts that regulate the environmental use of aquaculture;
- 4) principles and legal norms for waste treatment;
- 5) Estonian Fisheries Market Organisation Act;
- 6) Estonian Food Act;
- 7) HACCP;
- 8) working environment safety requirements;
- 9) cleaning and disinfection products and methods.

Assessment method(s): subject to integrated assessment involving other competences

Part C
GENERAL INFORMATION AND ANNEXES

C.1 Information on the compilation of the professional standard and the awarding body and link to the location of the professional standard among classifications	
1. Identifier of the professional standard in the register of professions (profession code)	
2. Domain	Fisheries
3. Profession and professional qualifications of the profession	Profession: fish farmer; professional qualifications Fish farmer
4. Related professions (<i>professional qualifications of the profession can also be listed</i>)	
5. Compiler of the professional standard: names of persons and organisation (<i>the name of the coordinator shall not be listed here</i>)	Heiki Jaanuska, <i>Ministry of Agriculture</i> Riina Kalda, <i>Kalamajand Carpio (Carpio Fishery)</i> Rain Kimer, <i>Kalakasvatajate Ühistu Ecofarm (Ecofarm, Union of Fish Farmers)</i> Aarne Liiv, <i>Kalatalu Härjanurmes (Fish Farm in Härjanurme)</i> Küllli Marrandi, <i>Järvamaa Vocational Education Centre</i> Aita Sauemägi, <i>Estonian National Examinations and Qualifications Centre</i> <u>Experts:</u> Ants Kikas, PhD, <i>OÜ TP Invest</i> Tiit Paaver, <i>Estonian University of Life Sciences</i>
6. The professional standard was approved by (name of the professional council)	Professional Council of Food Industry and Agriculture
7. Professional Council Decision No.	
8. Date of the Professional Council Decision	
9. The professional standard is valid until (date)	
10. Professional standard version No.	1.
11. <i>Link to Classification of Occupations (ISCO 08) (min 2, max 4 digits)</i>	62 Market-oriented skilled forestry, fishery and hunting workers; 6221 Aquaculture workers
12. Link to the European Qualifications Framework (EQF)	
C.2 Professional title in foreign languages	
In English	Fish farmer
In Russian	Рыбовод
In Finnish	Kalanviljelijä
C.3 Terms specific to professional qualifications used in the professional standard	
HACCP (<i>Hazard Analysis Critical Control Point</i>) – management of hazards via the HACCP system for companies handling food in order to identify each step in their operation that is critical in terms of food	

safety and ensure that adequate safety procedures have been created, implemented, are in force and subject to regular review.

C.4 Annexes
Annex 1: Parts of work and duties
1. Maintaining the growth medium for fish
Duties: 1.1. Checking the fish habitat. 1.2. Adjusting the fish habitat. 1.3. Cleaning the growing area of fish.
2. Feeding fish
Duties: 2.1. Compiling feed rations. 2.2. Installation, adjustment, monitoring and maintenance of feeders. 2.3. Feeding the fish. 2.4. Storage and transportation of feeds and monitoring their expiry. 2.5. Performs test catches in order to determine the feed rations.
3. Reproduction of fish
Duties: 3.1. Selection and sorting of brood fish. 3.2. Collection of roe and milt and fertilising eggs. 3.3. Incubation and maintenance of roe according to instructions provided. 3.4. Separation of larvae and nursing fry. 3.5. Stocking larvae and fry into second-stage stations.
4. Monitoring the health status of fish, detecting abnormalities and treatment of fish
Duties: 4.1. Monitoring the behaviour of fish and detecting abnormalities. 4.2. Finding the causes of abnormalities. 4.3. Treatment of fish diseases.
5. Transportation of live fish
Duties: 5.1. Catching fish from ponds, pools, ditches or any other fish farming installations. 5.2. Monitoring the habitat and status of fish during transport. 5.3. Monitoring and adjusting the temperature during stocking.
6. Sorting of fish
Duties: 6.1. Catching fish from ponds, pools, ditches or any other fish farming installations. 6.2. Sorting fish by size and/or species. 6.3. Counting and weighing of fish. 6.4. Relocation of fish.
7. Maintaining inventory
Duties: 7.1. Managing equipment 7.2. Eliminating simple malfunctions; repair and construction of inventory. 7.3. Construction of simpler tools used in fisheries.
8. Preliminary handling of fish
Duties: 8.1. Checking the quality of production. 8.2. Preliminary processing of production.

8.3. Sorting of production.

Optional parts of work and duties

9. Farming of crustaceans

Duties:

- 9.1. Reproduction of crustaceans.
- 9.2. Preparation of ponds for the stocking with crustaceans.
- 9.3. Stocking the ponds with crustaceans.
- 9.4. Feeding of crustaceans and maintenance of the ponds.
- 9.5. Catching and sorting of crustaceans.
- 9.6. Packaging crustaceans for marketing.