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Anastasiia Vakhrusheva 1201391

A MARKET RESEARCH ON THE FISH FARMING INDUSTRY IN THE REPUBLIC
OF KARELIA, LENINGRAD OBLAST, AND MURMANSK OBLAST

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Karjalankatu 3
FIN 80200 JOENSUU
FINLAND
Tel. 358-13-260 6800

Author:

Anastasiia Vakhrusheva

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Commissioned by Savon Taimen Oy

Abstract

The aim of the report is to investigate three Russian fish farming markets: the Republic of Karelia, Leningrad Oblast, and Murmansk Oblast. The main goal is to analyze the current market situation and find potential customers and partners for the company Savon Taimen Oy and its subsidiaries.

The research is conducted by using secondary and collecting primary data via several methods: questionnaires, personal calls, e-mails and interviews with experts from the fishing field. Afterwards, information was analyzed to prepare conclusions and recommendations for further actions.

Nowadays, the border is opened for rainbow trout fingerlings. More importantly they are in demand and Russian companies are purchasing it from abroad. Therefore, company should conduct work to attract potential customers by presenting its offers via e-mail and providing flexible payment methods.

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Export, fish farming, Finland, The Republic of Karelia, Murmansk Oblast, Leningrad Oblast, market research, rainbow trout, export entry modes

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- Appendix 2 Questionnaire (English)
- Appendix 3 Fry and food fish production table
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1 INTRODUCTION

1.1 Aim of the research

A survey was designed with the recommendations from representatives of the fishing industry to study the small (3-50g) rainbow trout fry fish markets. It is based on questions received from the CEO of Savon Taimen Oy. The company is interested in the Republic of Karelia, Leningrad Oblast and Murmansk Oblast fish markets. Therefore, the history of the markets, volumes taken into production, market shares, and fry fish producers are concerned along with the companies of production.

The goals of this survey is:

- to find information on the chosen markets and evaluate opportunities for development
- to find potential customers and partners
- to research the future of trout farming, considering its possible growth, stability, or decline and what trends are going to be in the future
- to find out if there is an interest in new species such as whitefish, how farmers see this, and what the markets would be
- to determine the situation with the whitefish production: whether or not the supply of whitefish covers demand and if there is a need for additional production

1.2 Savon Taimen OY

The research is conducted for the group of fish farming companies Savon Taimen Oy and its subsidiaries. This group was established in 1967 and consists of two parent companies. The first is Savon Taimen Oy, which is targeting the rainbow trout and whitefish fry production and its further cultivation. The second is Hanka Taimen Oy, which is specializing in hatchery, fry

cultivation and fingerling production. Moreover, both companies have bred fries for maintaining fish populations in reservoirs and for the sale of fish in the food market. The whole company has 14 production units in Finland with the head office in Rautalampi (near Kuopio in Eastern Finland) and has a turnover around EUR 8.7 million (Savon Taimen Oy 2014).

In late 2009 the group established a new hatchery, Savo Lax Oy, where a method of re-circulating water was implemented. Nowadays, it produces a whitefish, and in three to four years they plan to start pike-perch breeding for the food product market (Savon Taimen Oy 2014).

1.2.1 Vision and mission

Long-term customer relationships built on trust are the value for the company. Numerous production units provide sufficient capacity, and operations close to the customer help to satisfy them with flexible deliveries (Savon Taimen Oy 2014).

The business of Savon Taimen Oy and Hanka Taimen Oy is based on the continuous improvement of cultivation methods and quality assurance, as well as long-term partnerships and collaboration with leading fish farmers, fish processing companies, wholesalers and enterprises which maintain fish populations in reservoirs (Savon Taimen Oy 2014).

1.2.2 Businesses

First of all, Savon Taimen Oy has special expertise in fingerling production using modern ways of breeding. The company's competence involves processes throughout the production chain, from caviar to fry. It produces several million pieces of rainbow trout and whitefish fingerlings for further growth in fish farms across Finland, Russia and the Baltic region. The main part of the caviar company gets healthy and vital broodstock from its fish farms (Savon Taimen Oy 2014).

Secondly, the main part of the lake trout and salmon cultivated pieces are used for the freshwater and marine areas population maintenance. Furthermore, the fingerling population is distributed across several units of the company. What is more, fries are delivered to the customers by the company's own transport, thus guaranteeing reliable deliveries and indisputable fingerling quality (Savon Taimen Oy 2014).

Thirdly, Savon Taimen Oy produces rainbow trout, whitefish and caviar for the food industry. The fish are kept in hatcheries in clean and constantly renewed water reservoirs fed by the carefully selected nutrition. Afterwards, the fish is cut in a special workshop and delivered to wholesalers and fish processing plants throughout Finland (Savon Taimen Oy 2014).

1.2.3 Research and development

“The continuous development of our competencies, quality and cultivation methods are the cornerstones of our business.” The company closely collaborates with equipment manufacturers, feed industry representatives, universities, and research institutions from Finland and abroad (Savon Taimen Oy 2014).

These collaborations in the fish industry have resulted in several doctoral dissertations and scientific articles. Moreover, practical changes for the improvement of nutrition, physiological quality, and the health of fish have been implemented (Savon Taimen Oy 2014).

The company's long-term development efforts led to the creation of their own populations of rainbow trout and whitefish to meet the customers' needs in terms of product quality. The company's latest development includes improvement in cultivation methods of pike-perch and whitefish for the food industry using water re-circulating systems (Savon Taimen Oy 2014).

1.3 Research methodology

The current market research was conducted to explore information about trout and whitefish species possibilities on the Russian fish market: in the Republic of Karelia, Leningrad Oblast, and Murmansk Oblast. The research is mainly quantitative with some inclusions of qualitative. During the research process several research methodologies were applied such as secondary data observation via the internet and printed materials, and primary data collection through questionnaires and interviews.

Secondary data was collected from news, databases from the internet, and additional literature. Potential partners'/competitors' web pages were investigated, and reports and articles about the fish farming case in the areas researched were observed. Fish farming is a tiny market; thus, it is hard to find information online or in the library.

Primary data was collected from interviews with representatives from the fish farming industry: with the head of Fish Farming Society of the Republic of Karelia, with the CEO of Savon Taimen Oy and with fish farm managers and experts. They provided useful data, statistics, production volume numbers, places of acquisition, and gave some suggestions regarding the research. Meetings allowed asking for information directly from the insider and investigating some valuable points of fish production. Thereby, this was a great opportunity to learn about the industry, get some useful information for research, and make it more detailed and realistic. Moreover, fish farms from the markets researched were contacted to conduct a survey by questionnaire. They were carried by spreading printed questionnaires in the Fish Farming Society of the Republic of Karelia and by direct calls to Leningrad and Murmansk Oblast.

Based on the collected and researched data conclusions and recommendations for the company were created.

2 CURRENT SITUATION IN RUSSIA

In August 2014 sanctions on the rainbow trout fingerlings from the US, EU countries, Canada, Australia and Norway were applied. According to the national authorities and fish farmers, it could cause serious problems for the industry in particular and the economy of the whole region: 70% of the total farmed trout in Russia is Karelian trout. Karelian fish farmers could miss at least a season of growing fish that would lead to a financial loss of about 500 million rubles and lower tax revenues. Therefore, Karelian fish farmers and regional administration worked a lot to open a board for rainbow trout fingerlings. And, finally, by the 25th of June 2015 the government crossed it out from the sanction list. (Batov 2015.)

Moreover, over the past two years in the country built and reconstructed a number of farms for the production of fingerlings of rainbow trout. This allows it to meet 90% of the needs of domestic fish farms. The missing 10% Karelian fish farmers compensated by fingerlings supplies from Finland. Moreover, the head of the Fish Farming Society of the Republic of Karelia claimed that region can support itself with 100% of fingerling trout. However, local producers cannot guarantee that grown fish will produce eggs for sale. Therefore, fingerlings from Finnish fish farms are still pending as it ensures the output of eggs up to 10%. So, the Republic of Karelia purchases around 4 million pieces from Finland when the entire number of fishes purchased per year is around 20 million. (Batov 2015.)

In 2015 one Karelian company purchased fingerlings from Savon Taimen OY. Thus, the company should improve their offer to get more Russian customers in the following years. Various points which should be improved on are discussed deeply in the Conclusions chapter.

3 THE REPUBLIC OF KARELIA AS A MARKET AREA

3.1 Region description

The Republic of Karelia has rich water resources and favorable climate conditions for the development of aquaculture. The territory of the Republic of Karelia contains 27,000 rivers (80,000 km) and 60,000 lakes (40,000 km²). Furthermore, the region covers the northern part of the largest lakes in Europe - Ladoga and Onega. Moreover, the White Sea coastline length of 630 km belongs to the Republic of Karelia. The region has a huge number of places suitable for fish farming; it has become the main trout breeding area in Russia. (Research Institute of Hunting and Fish Economy in Finland 2013.)

3.2 Production in the Republic of Karelia during 2000-2010

In the 2000s production of food fish increased almost by eight times (Figure 1), and the value of this economic sector as a food processing industry significantly grew. The fish hatchery enterprises of The Karelian Republic produced almost 13 million kg of food fish in 2009. However, because of an extremely hot summer in 2010, the fish growth slowed down and the mortality level rose. As a result, the industry produced almost 11 million kg, where 98% were rainbow trout. Moreover, whitefish, white salmon, and lake char were grown in small quantities. (Research Institute of Hunting and Fish Economy in Finland 2013.)

In the republic 49 companies, 140 production sites, and 650 workers in total operated in 2010. They primarily cultivate fish in inland waters in cages. Moreover, 3 incubators operated in 2010. They provided eggs and fry for further growth. The capacity of egg and fry production in the region was insufficient; therefore, additional deliveries from Finland, Russia, and other regions of Europe were organized. (Research Institute of Hunting and Fish Economy in Finland 2013.)

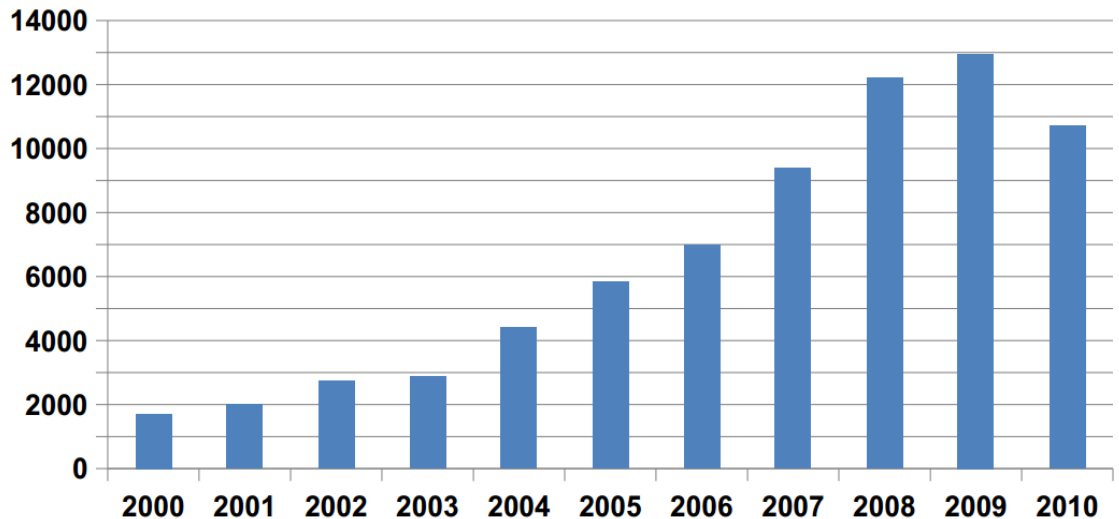


Figure 1. The volume of food fish production in the Karelia Region (in tons) in 2000-2010. (Source: Research Institute of Hunting and Fish Economy in Finland 2013.)

The main goal for the near future is to increase the production of food fish up to 25-30 million kg per year and also raise the self-sufficiency in the egg and fry production. There are plans to launch hatcheries and fish farms to grow fry in the region. In the future the plan is to increase the number of fisheries in other areas, for example, in the northern parts of Ladoga (Research Institute of Hunting and Fish Economy in Finland 2013.)

Currently in the Republic of Karelia, 57 fish farms are operating where around 1,000 people work. Moreover, there are 11 departments which process the commodity trout. Moreover, 70% of the salmon raised in Russia is cultivated in the Republic of Karelia. In 2013 the outgrowth of fish was 23.2 tons, including food fish 17.2 tons, which is 32% more than in 2012. Furthermore, in three years it is planned to increase the volume up to 30 tons. (Fishretail 2013; Karelia Official 2014.)

In 2013, in the Lahdenpohja Region, the biggest Russian incubation-growing complex LTD "VIRTA" (OOO "BIIPTA") was launched. This complex can cover the demand of the whole fish farm industry of the Republic of Karelia with planting material (fingerlings). Furthermore, the mariculture of the White Sea is developing because of the Belomorian Biological Techno Park Project implementation, which includes the cultivation of food fish and mussels, algae

harvesting, and the construction of a fish and seafood processing workshop. (Fishretail 2013.)

As a result of government policies and designed programs approved by the Government of the Republic of Karelia, the region has successfully generated a fishery complex of food fish cultivation, which includes hatcheries where fry and food fish are cultivated, and enterprises where fish is processed and retailed as finished product. (Fishretail 2013.)

3.3 Whitefish perspectives

Nowadays, the cultivation of whitefish seems to be a prospective area; therefore, several organizations are researching it and creating plans for breeding this species. For example, nowadays LTD “Kondopoga” is cultivating 80 tons of whitefish per year. The plan is to increase capacity up to 2,000 tons per year; however, the organization is not technically and financially equipped enough to be able to produce this amount these days. Therefore, this is a theoretical plan that does not have specific deadlines. (Artamonov, V. 2014)

3.4 The biggest fish farms in the Republic of Karelia

Since 2010 in the Republic of Karelia the four biggest fish farms have been producing up to 70% of the whole amount of fish breeding of the region. (Fishretail 2013.)

Ltd. “Forelevodcheskoe hozyaistvo Segozerskoe” was founded on the 29th of July in 2005 in the Karelian Region, and the main business is the raising of trout fish. (Fishretail 2013.)

Ltd. “Kala ja Marjapojat” was founded in 1992. The company is engaged in the cultivation, processing, delivery, and sale of rainbow trout. The raising of fish is carried out on 4 trout farms which are located on the cleanest lakes in Northern Karelia (Upper Kuytto and Nook). The overall performance at the moment is

1,200 tons of trout for food production. By 2015 it is planned to increase the amount to up to 2,000 tons. (Fishretail 2013.)

JSC “Kondopoga” was founded in 2008, and the main business is growing elite species of fish such as trout, whitefish, and white salmon. (Fishretail 2013.)

Ltd. “Ladozhskaya Forel” was founded on the 22nd of June, 2007. The main activities are fishing, the raising of Ladoga trout and white fish, and the provision of services in these spheres. The share capital of the company as of the 24th of July, 2012 year was EUR 610,492.90. (Central Bank 2014; Fishretail 2013.)

These organizations should be considered as the main customers, as the biggest share of the production goes through them; therefore, they require a lot of planted material.

3.5 Supply-demand of fish

The first incubator in the Republic of Karelia was opened in 1993 in Urozero and named “Urozerskii Forelevii Komplex”. There 1.5 million pieces of fry fish and 500 tons of food fish were grown. (Artamonov, V. 2014)

The second incubator was opened in 1997 by the Kondopozskii Factory and named “Konchezerskii Incubationnii Zavod”. It supplied the city of Kondopoga with 2 million pieces of fry fish and with 1,000 tons of food fish by species: whitefish, squid, and trout species. (Fishretail 2010.)

Furthermore, in the Kondopozskii District in 2008 an incubator named “Kala-Ranta” was opened. It produced 4.5 million pieces of fry fish and sold up to 3 million of them. Later, in 2013 the company built a growing-incubation complex Ltd. “Virta”, which produces 11 million pieces of fry fish per year and supplies the Republic of Karelia with them. (Fishretail 2010.)

“Karel Products” is located in Sortavala and produces 2.5 million pieces of fries per year. What is more, in the nearest 5 years they are planning to build an incubation complex in Medvezhegorsk which will grow 2 million pieces per year. Moreover, 400,000 fry fish per year were produced by PE “Butira” for its own

farm. Also, “Vigskii Rybzavod” is growing fry fish by themselves. (Karelia Official 2014.)

Considering that the demand in the Republic of Karelia is 30,000 tons of food fish, companies need 24-25 million pieces of fry fish. Nowadays, incubators in the Republic of Karelia almost cover the demand for fry fish. Therefore, mostly Karelian companies purchase fry fish from domestic producers, and only some companies are purchasing from Finland (“Arvo-Kala”, “Savon Taimen Oy”, “Hanka Taimen Oy”), Belorussia (city Brest), the USA, and North Ossetia (Ltd. “Alanya”). (Fishretail 2013., Artamonov, V. 2014)

4 LENINGRAD OBLAST AS A MARKET AREA

4.1 Region description

Leningrad Oblast has a large number of ponds suitable for aquaculture. In addition to small inland water the region covers parts of the Finnish Gulf, Ladoga Lake and Onega Lake. The advantage of Leningrad Oblast is more developed in infrastructure than other regions of the country. It has a central location with the center Saint-Petersburg, which has the benefit of its close location to the Europe's largest metropolis of Moscow, as well as good connections with European countries. (Research Institute of Hunting and Fish Economy in Finland 2013.)

4.2 Production

Production of food fish in the region since the beginning of the 2000s has increased tenfold (Figure 2). In 2010, hatcheries in Leningrad Oblast produced more than 4.5 million kg of food fish, where 96% of the production was rainbow trout. In addition a small number of sturgeon, whitefish, carp, and catfish were produced. (Research Institute of Hunting and Fish Economy in Finland 2013.)

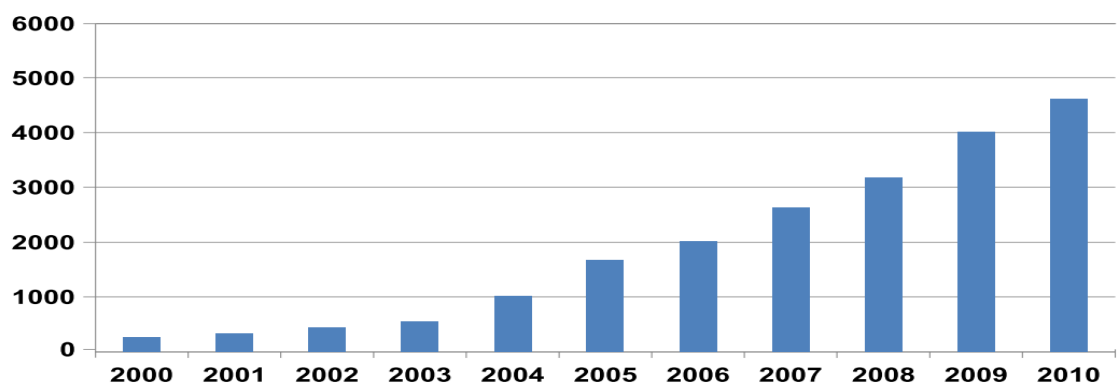


Figure 2. The volume of food fish production in Leningrad Oblast (in tons) in 2000-2010. (Source: Research Institute of Hunting and Fish Economy in Finland 2013.)

4.3 Production companies

In 2010 in the territory of Leningrad Oblast 40 fisheries with 340 workers were operating. As in the Republic of Karelia the food fish production is usually based on growing fish in cages; however, the region also has organizations which have pond foundations. In 2010, 10 hatcheries supplied fry fish for reproduction and further growth in the commodity fish farms. Altogether the 3 biggest fish hatchery enterprises produced 72% of the fries of the, equal to 3.2 million kg:

- Ltd. "Rybstandart", river "Vyoksa", near gateway "Gremuchii"
- Ltd. "SHP Kuznechnoe", Lake Ladoga
- Ltd. "Ekon", Lake Syhodol'skoe (Appendix 2).

An important role in the fish farming development is played by the Federal Center of Fish Selection and Genetic (FSUE "FCFGS") in the village "Ropsha". The company uses a new set with circulating water, which provides new opportunities for research and also makes the aquaculture industry more efficient and environmentally friendly. This enterprise is one of the largest manufacturers of fry rainbow trout in Leningrad Oblast. FSUE "FCFGS" is also one of the leading Russian companies that breeds new species of fish for aquaculture. In recent years, the center brought several new species of fish: "Rofor" (Ropshinskaya trout), "Rostal" (Ropsha steelhead salmon) and carp "Cherepetskaya". Also, the broodstocks of Baltic and Caspian salmon, Ladoga Lake char were taken into account and grown artificially to populate ponds. (Research Institute of Hunting and Fish Economy in Finland 2013.)

LTD "Forvat" is located on the Lake Sukhodolskoye and specializes in the development and study of whitefish growing. The enterprise has the fallopian herds and broodstocks for different species of whitefish. LTD "Forvat" is the major producer of eggs and fry of whitefish. (Research Institute of Hunting and Fish Economy in Finland 2013.)

4.4 Future perspectives

There is an interest to grow new species of fish. For example, the possibility of growing walleye and lake char is considered by the fish farmers. The amount of fish cultivated in inland waters can be increased up to 7 million kg per year. In Vyborg Bay of the Baltic Sea it is planned to cultivate more than one million kg yearly, and on the river Svir' more than 0.5 million kg per year. (Research Institute of Hunting and Fish Economy in Finland 2013.)

4.5 Whitefish

According to the statistics provided by the Ministry of Agriculture, the main subject of fish cultivating in Leningrad Oblast is trout which is 95% of grown fish in this area. There are also fish farms which breed whitefish. Considering that fact that Leningrad Oblast has all suitable conditions for whitefish growing, a lot of companies are planning to increase the amount of whitefish cultivated in the nearest future. (Ministry of Agriculture of the Russian Federation 2014.)

4.6 The biggest fish farms in Leningrad Oblast

Ltd. "Ribstandart" was founded on the 11th of December, 2001 in Leningrad Oblast nearby the river Vuoksa, which is one of the best for breeding salmon fish in Leningrad Oblast. The company specializing in fish release of weights ranging from 0.3-0.4 kg to 1.5 -3 kg. All products are suitable for export and conform to European and international standards and are competitive in price. At the moment the company is growing 800 tons of fish per year. In the nearest future Ltd. "Ribstandart" is planning to build its own incubation growing complex too breed fries by themselves. (Artamonov, V. 2014.)

Ltd. "SHP Kuznechnoe" is one of the biggest agricultural production companies founded in 2006 in the North-West Region which cultivates salmon. This fish is breeding in clean waters of Lake Ladoga, in the Gulf Lehmalhti. The farm specializes in growing rainbow trout, whitefish, and sturgeon.

5 MURMANSK OBLAST AS A MARKET AREA

5.1 Region description

The Murmansk Oblast is one of the most developed areas in North-West Russia. The area consists of 145,000 km² and beneficially is located in a non-freezing bay close to the European Union, making it advantageous for other Russian areas. (Barents Euro-Arctic Council official website 2014.)

Murmansk Oblast is surrounded by the Barents Sea on the north and north-east, and the south part is bordered by the White Sea. The region has over 100,000 lakes (9,000 km²) and about 18,000 rivers (63,000 km). Murmansk Oblast is mostly located within the Arctic Circle. Because of the Gulf Stream, the climate in the region is mild; therefore, in the region there is a large number of lakes, rivers, and sea areas which are suitable for aquaculture. (Research Institute of Hunting and Fish Economy in Finland 2013.)

In the north and north-east the Murmansk region is washed by the Barents Sea, in the south and east- by the White Sea. That makes Murmansk Russia's biggest ice-free port and the main base for the fishing production industry. (Barents Euro-Arctic Council official website 2014.)

5.2 Production

Growing fish in the area can be divided into three sectors: the cultivation of Atlantic salmon aimed at reviving the natural population, rainbow trout, and food fish production. In 2010 the production of trout in the region was up to 366,000 kg and the volume of Atlantic salmon grown was 4.8 million kg. In Murmansk Oblast in 2010 the fisheries sector provided work for about 150 people. (Research Institute of Hunting and Fish Economy in Finland 2013.)

5.3 Production companies

For cultivating fries of Atlantic salmon, the government agency FSI "Murmanrybvod" is responsible. Atlantic salmon as a food fish is grown at two enterprises: cultivation is carried out in cages in the "Pechengskii" Bay and "Ambarnii" Bay. In 2010 JSC "Russkii Losos" produced 4.5 million kg of food salmon and OOO "Gigante Pechenga" - about 300,000 kg. Mostly, fry fish and fish food comes from Norway. The companies are planning to increase the annual production of Atlantic salmon up to 30 million kg by 2014. (Research Institute of Hunting and Fish Economy in Finland 2013.)

Rainbow trout are grown in cages in the river Tuloma in waters of the Kola nuclear power plant in Molochnaya Bay of Imandra lake and also in the White Sea in the Palkina Bay. In 2010 production of trout in the region amounted to 366,000 kg. The region has two incubators which deliver caviar and trout fry for further cultivation: OOO "Ocean" and OOO "Barents Leasing Company". (Research Institute of Hunting and Fish Economy in Finland 2013.)

5.4 Future perspectives

Murmansk Oblast has a highly favorable climate for fishing industries: the west part of the region is appropriate for trout fish production as there are warmer waters that contribute to the fast grow of fish. Therefore, there is a big possibility to develop fisheries and increase the volumes of production as there are a lot of untapped water reservoirs and existing demand on trout fish. (The State Internet Channel "Russia" 2014.)

5.5 Whitefish

There are no farms in Murmansk Oblast which are cultivating whitefish from the caviar up to the food. Up to the data collected, "BLK-fish" is breeding the fries of whitefish for special orders. Therefore, this area should be researched deeply

due to the fact that competition is small and that demand for whitefish is existing on the market.

5.6 The biggest fish farms in Murmansk Oblast

In Murmansk Oblast 9 fish farms were operating due to the data of 2010. Moreover, 93% of the whole production is Atlantic salmon. Below is further information about the two biggest fish farms in the market. (Research Institute of Hunting and Fish Economy in Finland 2013.)

“BLK-FISH” is the biggest fish farm in Murmansk Oblast which operates year round. It is located right in the “Kola nuclear power plant” (“Kola NPP”), where the water temperature is above-zero even during the winter time. The core activity of the farm is trout and salmon breeding; however, they are additionally raising sturgeon. The farm has its own incubator that provides an opportunity to establish a complete production cycle from trout caviar cultivation to slaughter fish. In 2011 the production volume of finished goods was 110 tons; nowadays, the production capacity allows up to 300 tons per year. (Nord-news 2013.)

The fish farm “Gigante-Pechenga” is operating nearby the city of Bude and breeding up to 35 tons of salmon per year. Around 50 people are working at this farm. (Nord-news 2013.)

6 FISH FARMING IN FINLAND

6.1 Production

In 2010 in Finland 11.8 million kg of food fish were raised, a value of about 44 million euro. In the mainland of Finland 6.5 million kg of food fish were raised, from which 4.5 million was raised in marine areas. The Åland Islands has produced 5.3 million kg of food fish; therefore, the main part of Finnish production is marine fish farming. Cultivation in inland waters is about 2 million kg, mainly located in the central and eastern regions of the country. The main part of the Finnish production was rainbow trout. About 0.7 million kg of whitefish were grown. Sturgeon, brown trout and lake char were also bred in smaller amounts. The raising of walleye is just beginning. (Research Institute of Hunting and Fish Economy in Finland 2013.)

In the period between 2000 and 2010 in Finland structural changes in fisheries took place. Total production decreased by 23%, and production in mainland Finland decreased by 36%. However, production on the Åland Islands remained virtually unchanged. Many small enterprises, especially in coastal regions, closed their operations. Growing businesses acquired production facilities from the closed companies and transferred production to Sweden, where production in the Baltic Sea and its rivers is growing strongly. (Research Institute of Hunting and Fish Economy in Finland 2013.)

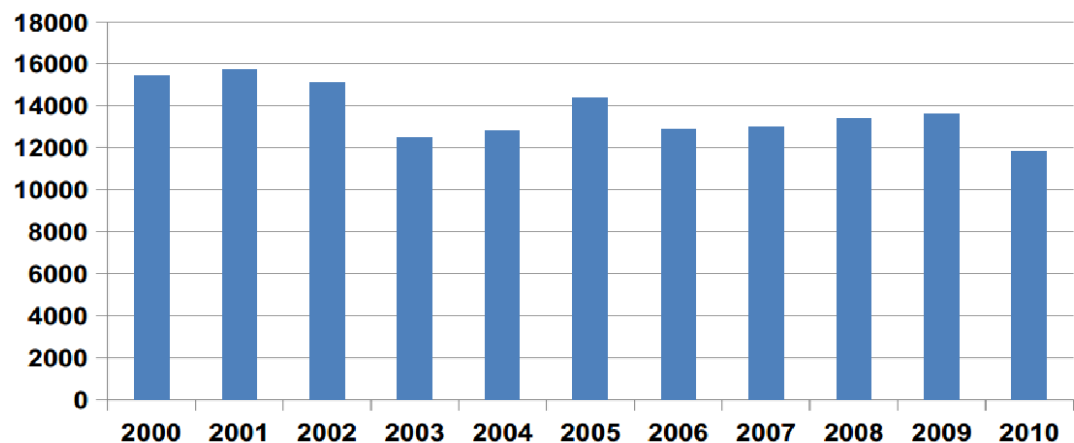


Figure 3. The volume of food fish production in Finland (in tons) in 2000-2010 (Source: Research Institute of Hunting and Fish Economy in Finland 2013.)

The stop of the growth of Finnish production in 1990s and the decrease in the 2000s was because of strict environmental standards. Finnish fish farmers were unable to meet the growing demand of products for fish, and large quantities of fish were imported to the country. Currently, more than two-thirds of the fish consumed in Finland is imported. For example, 6.3 million kg of rainbow trout were imported from Sweden to Finland in 2010. (Research Institute of Hunting and Fish Economy in Finland 2013.)

In 2010 throughout Finland about 61 million of fingerlings were produced for reproduction and commercial farming; this in addition to food fish. About 40% of these were young whitefish, most of which is released into natural waters for the purpose of the reproduction of the wild populations of this species. The rainbow trout fries were one-third of this amount and were bred for the subsequent growth in hatcheries up to the food fish. (Research Institute of Hunting and Fish Economy in Finland 2013.)

6.2 Production companies

In 2010 there were 96 companies that grew food fish in Finland. In 2010 in the mainland of Finland 152 farms for growing food fish operated; 89 of them were located in the marine and coastal regions, and in the Åland Islands there were 27 of them. The average volume of production of marine enterprises in the mainland of Finland was 51 tons, while the average number for farms in the Åland Islands was 196 tons. The average production volume of the 62 inland water enterprises amounted to 31 tons. (Research Institute of Hunting and Fish Economy in Finland 2013.)

In the fingerlings production 64 companies and 95 factories were involved. The number of fish ponds with artificial feeding is 13. The cost of fingerlings grown in 2010 amounted to 20.8 million euros. (Research Institute of Hunting and Fish Economy in Finland 2013.)

Fish farming in Finland directly provided jobs to 349 people in 2010. The turnover of aquaculture enterprises amounted to 59.8 million euro. (Research Institute of Hunting and Fish Economy in Finland 2013.)

The production of food fish in the sea areas is carried out in cages, while in inland waters fingerlings are growing mainly in artificial conditions, and food fish - in flowing ponds. They are also grown in cages in natural waters in small quantities. The majority of enterprises operating in inland waters are companies with a traditional flowing water supply. The number of operating or under construction companies using the technology of closed (circulating) water is nine, and all of them use fresh water. The volume of production issued in the licenses is about 1.6 million kg. Enterprises with circulating water grow sturgeon, whitefish and walleye, which are more expensive than rainbow trout. (Research Institute of Hunting and Fish Economy in Finland 2013.)

6.3 Future perspectives

The main point of aquaculture industry development in Finland is the coordination of economic and environmental policies. In the future the aquaculture industry in Finland will increase its volumes. The aim is to create conditions for sustainable economic and environmental developments. Growth in inland waters will be based on the use of emerging technologies, such as circulating water systems. In marine regions sustainable production growth will be based on the feeding and control of the area. Production will diversify with the new types of products and new forms of production, for example, the organic food production. (Research Institute of Hunting and Fish Economy in Finland 2013.)

7 COMPARISON OF FISH FARMING IN REGIONS

To clear up the possibilities of researched markets in Russia and in Finland, a comparative analysis was conducted. During the study weather conditions, the resources of region, and separate companies from several markets were investigated and analyzed regarding points of collaboration or partnership and the possible development. Table 1 shows the main information about the areas.

Table 1. Data about food fish production in North-East Russia and in Finland in 2010 (Source: Research Institute of Hunting and Fish Economy in Finland 2013).

Region	Companies	Places of production	Production, million, kg	Share of salmon, %
Republic of Karelia	49	140	11	98
Leningrad Oblast	40	46	4.5	96
Murmansk Oblast	9	9	5.2	7* *93% of Atlantic salmon
Finland	96	178	11.8	93

This summary of the regions has been done to clear up the most prospective regions for fish farm development. It has been evaluated by criterion: the number of existing fish farms which are planning to increase volumes and start collaborations with other fish farms or with companies.

The Republic of Karelia is the leader of trout fish production in Russia with its volume of 11 million kg/year in 2010. In the region 49 companies with 140 units operate. Therefore, this is the main perspective area where a company can develop its operations and find partners. Moreover, the area is located beneficially close to Finland, making it advantageous regarding the transportation costs. (Research Institute of Hunting and Fish Economy in Finland 2013.)

Leningrad Oblast seems to be a less prospective area in comparison with the Republic of Karelia, as production is approximately three times smaller. However, in the region the possibility of growing walleye and lake char exists, as interest in these species is growing nowadays.

In 2010 in Murmansk Oblast the number of farms operating was nine. This is a small number in comparison to the other areas researched. The explanation of this number of fish farms under favorable weather conditions of the region is simple: the companies of the region are mostly aimed at the extraction of marine products. This happens because of the fact that the region is washed by two seas: the Barents Sea and the White Sea. Thus, the prey of the marine fish is cheaper in comparison with the farm setting. Furthermore, in Murmansk Oblast there is no whitefish production nowadays. However, the demand of this species on the Russian market exists. Therefore, the topic of whitefish breeding should be comprehensively researched in this area. Local companies should be contacted about possible collaboration. (Research Institute of Hunting and Fish Economy in Finland 2013.)

Finland as a market area was investigated during the study. In this market 96 companies with 178 units of production operate. Finland has good weather conditions and water resources for the successful business operations of the fish industry. Moreover, Finland is breeding 11.8 million tons of fish per year (2010), more than in the Republic of Karelia. Therefore, active collaboration and partnership operations inside the country should take place for the active development and growth of the fishing industry. (Research Institute of Hunting and Fish Economy in Finland 2013.)

8 THEORETICAL FRAMEWORK: EXPORT-IMPORT OPERATIONS

8.1 Introduction

Export can be described as the process of selling goods and services produced in the home country to abroad.

Exporting requires a lot of preparation as it is a wide concept with a lot of details which have to be constantly monitored. The main point to success is clear knowledge of the product to be exported. Moreover, good, detailed research of the export market is not less important. Points such as design, name and a marketing campaign should be carefully prepared for the market. Otherwise, the risk of failure because of cultural or legal features is extremely high.

Price should also be taken into consideration as it is a crucial factor of success. The best solutions to minimize transaction costs should be found to avoid unnecessary middlemen who increase the cost of final product but add no value to the export process.

To start an export-import operation no experience in the field is required; however, a clever and precise preparation is needed for successful work. The ability to sell, a talent to establish the right contacts, the desire and determination to make it work, and a research of the market are essential points to make these operations profitable.

The main objective of international trade is the ability to overcome limitations of the national resource base, to expand the capacity of the external market, to link the national market with the world market, and to generate revenue through national and international differences in production costs.

8.2 The need for export

Primarily, companies are starting export operations because it is a perspective way to increase sales volume and, thereby, enlarge profitability. Moreover, when a company's sales are rising the company is growing by itself. Thus a company can lower its price per unit and create new workplaces.

Another reason for companies to go abroad is risk diversification. In other words, if operations in one market are weak, they can stay afloat by sales in another market. What is more, export operations can build a name for a company and make a brand well recognizable.

8.3 Starting export

Export operations could be started from home. All that is needed is a telephone, business cards and a filing system. Research should be conducted to find out which countries are in demand of a company's product and who is ready to import goods with the conditions the company offers. (EximGuru 2014.)

Networking is an important part in business operations because a person who is informed and aware reaches success in operations. Therefore, the next step is finding useful contacts. They can be established through the relatives, friends or from business trips to the country. Another way is to make contacts via the Chamber of Commerce of the city company is planning to expand to. (EximGuru 2014.)

Until contacts will be established letterheads represent the company; therefore, they should be designed well, look professional, and be printed on good paper. That means that a massive mail advertisement campaign should be organized. The easiest and most effective way is to print the same letters with contact information to different addresses where company and its offer described. (EximGuru 2014.)

8.4 Export entry modes

Choosing the right entry mode is highly important for product exporting as different ways can be appropriate under various circumstances. A company should have a strategy in the decision making process how to enter a market or several markets and apply the right entry mode in every single market. Expansion into foreign markets can be achieved through five main ways: exporting, licensing, direct investment, joint venture, and acquisition. (Branch 2006.)

Table 2. Export entry modes.

Mode	Pros	Cons
Exporting	<ul style="list-style-type: none"> -Fast entry -Lower risks and investments -Usage of existing models 	<ul style="list-style-type: none"> -Transportation costs -Limited access to information about the market -Company is unknown on the market -Low local knowledge, low control
Licensing and franchising	<ul style="list-style-type: none"> -Possible to overcome trade barriers -Fast entry, low costs and risks -High ROI 	<ul style="list-style-type: none"> -Company loses control over its assets -Licensee can turn up as a competitor
Direct investment	<ul style="list-style-type: none"> -Low investments -Company is known (viewed as insider) -Resources of companies combined -Ability to learn -Easy to overcome cultural aspects and ownership restrictions 	<ul style="list-style-type: none"> -Sharing of control -Higher risk than in exporting and licensing -Partner can turn up as a competitor
Joint venture	<ul style="list-style-type: none"> -Combining assets -Access to a new market -Diversification of risks 	<ul style="list-style-type: none"> -Shared control -Slower decision-making process -Shared rewards
Acquisition	<ul style="list-style-type: none"> -Fast entry -Established operations 	<ul style="list-style-type: none"> -High cost -Slow entry -Acknowledge risks

Exporting is the most common entry mode. The main idea of this market entry mode is that goods produced in one country are shipped to another for the future sale or trade. This is one of the oldest ways of economic transfer which has fewer limitations on trade.

One of the main advantages of this mode is that it enables the fast entry and comparatively low investments, as there is no need to establish a new production unit abroad. Also, the company does not need to share stakes and has full control over its know-how.

On the other side, this export mode has a high level of risk as a company does not know all the features of the target market as it has not experienced local partners in the entry market. Therefore, cultural, political, and economic issues can become reasons for failure. Moreover, one of the serious drawbacks of exporting is transportation costs; especially bulk and large scale product export can be unprofitable. Also, entry barriers by the host country can play crucial roles and make the export process risky. (Charles W. L. Hill, 2010.)

Licensing is an agreement where a licensor gives an intangible right of property to the licensee for a period of time. Afterwards, the licensor receives some fee from the licensee. For example, Fuji-Xerox paid Xerox an amount which is equal to 5 percent of the net sales Fuji-Xerox earned from the sales of photocopiers which were based on Xerox know-how. Intangible property includes copyrights, patents, inventions, processes, designs, formulas, and trademarks. (Charles W. L. Hill, 2010.)

The main benefit of licensing is that a company does not pay development costs and avoids risks related to entering the new market. Moreover, licensing is very attractive for the companies which do not have a lot of money to invest in entering the new market. Additionally, this entry mode is used when a company does not want to invest big money due to the market acknowledge, or due to the unstable political or the economic situation within the foreign market. Licensing is also used when a company wants to participate in trade but meets the barrier and prohibitions to invest. (Charles W. L. Hill, 2010.)

On the other side, licensing has several serious disadvantages. First of all, a company loses tight control over operations such as: manufacturing, marketing,

and strategy. One more serious con of this mode related to the know-how licensing to foreign companies is that a company can quickly lose control over its technology. Thus, as a result a licensee can appear as a competitor. (Charles W. L. Hill, 2010.)

There are several ways to reduce risks related to licensing. First of all, a company can enter the market with the cross-licensing agreement with a foreign firm. Under this agreement the company can license part of its important intangible property to the partner from abroad; however, in addition to the royalty payment a firm can ask the foreign partner to the licensee their important know-how. These actions can help to minimize the risks related to the licensing of technological know-how as the licensee understands that in case it will break the licensing contract by using knowledge it has to compete the licensor. These agreements help to minimize the risk that these companies will turn into competitors. (Charles W. L. Hill, 2010.)

Direct Investments is defined by the International Monetary Fund as a case where a company owns at least 10% of a foreign company's capital. In these cases all financial transactions after 10% are concerned as direct investments. Even with a 10% ownership an investor is able to have an influence on the controlling activities of the company. (About News 2014.)

There are several advantages to this entry mode. First of all, it allows money easily to go whenever a firm has the best developing perspectives. Therefore, it gives a competitive advantage for the company as it reduces the influence of political, economic, and cultural issues. Secondly, because of direct investments investors have the ability to diversify their holdings outside one country, and they can raise the return without additional risks.

In the direct investment entry mode it takes a relatively long time to set up and leave a permanent footprint on the country in comparison to short-term lenders, who invest a lot of money in a short time and sell investments quickly. Therefore, the third benefit is the decrease of influence of an unstable situation caused by "hot money". (About News 2014.)

On the other side, foreign direct investments usually take place in the developing world, where economic, political, and systems are highly unstable.

Therefore, the company will need to deal with corruption or be faced with non-compliance of the contract terms.

Joint venturing means establishing a company which is owned by at least two more independent companies. This is a common and popular way of entering the new market with the foreign company. Usually in joint venturing two firms each share half of the ownership stake to separate operating control and risk existing. However, sometimes firms share stakes unequally so one of the parties has tighter control by owning a bigger share. (Charles W. L. Hill, 2010.)

This way of entering has several advantages. First of all, a company entering the market benefits a lot from the local company-partner as it has valuable knowledge of entire market: about its competitive conditions, political, economic and cultural differences. Therefore, many US companies benefit from joint venturing as they provide know-how to the export countries and get valuable knowledge and expertise from the local companies. Moreover, this way enables companies to share costs and risks of entering a new market which are undoubtedly high. Furthermore, in some countries political policy makes joint venturing the only possible way to enter the market. (Charles W. L. Hill, 2010.)

However, several important disadvantages of joint venturing entry modes exist. To begin with, as with the case of licensing, a company also gets a risk by sharing the control of its technology with the partner. The second problem is that this entry mode does not allow a company to control subsidiaries. The third risk that is that shared ownership can lead to the conflict between the investing companies in case that its vision and mission is different. (Charles W. L. Hill, 2010.)

To avoid any possible problem with stealing technological know-how, usually a joint venture agreement is drawn up. This gives the right to the dominant partner to have bigger control over the technology. The only problem is that it is hard to find the partner who will agree to the smaller share of control. (Hill 2010.)

Acquisition is one of the ways of entering the new market. The idea of this method is that a company acquires an established company in the target market and uses its name to promote the goods or services they produce. (Hill 2010.)

In this entry mode three beneficial points exist. First of all, if a company has its competitive advantage based on its technological competence acquisition, this is a preferred way of entering the market because it helps to avoid risks related to losing control over the know-how. Secondly, this entry mode enables a company to tightly control all operations in different countries, something valuable in global strategic coordination and in creating solutions. Thirdly, this mode can be necessary in case a company tries to fully implement and try its strategies. Acquisition gives a company a high level of control, and a company has a full right to decide how, what, and where they will produce. (Hill 2010.)

To make operations profitable and beneficial a company should select distributors by themselves and not allow them to select the company, because over-jealous distributors can appear to be a wrong partner. Also, relationships with distributors should be structured over the long-term so they would like to invest in long-term market development. What is more: market entry should be supported by committing money, managers and proven marketing ideas. Additionally, distributors should be provided with correct and detailed market and financial data, and contacts with the national distributors should be made at the earliest opportunity, something that will help to establish a customer base quickly. (Branch 2006.)

8.5 Export benefits, risks and solutions

Moving from the domestic market to abroad includes a high level of responsibility which requires international and export country law regulations awareness, empathy with the buyer, internationally focused management with language knowledge, and computers and logistical equipment. Therefore, this exporting task's responsibility usually goes to the director level management. To succeed in these, skills such as innovative thinking and flexibility should be professionally applied. (Branch 2006.)

8.5.1 Export benefits

Nowadays, foreign trade plays a huge role in many companies' operations. Thus, if export operations are planned professionally and implemented correctly they can bring many benefits to the company. First of all, trade is a way to increase company turnover and make it more competitive on the market. Moreover, it might improve the image of the company and attract a high caliber staff or increase job satisfactory level inside the company. (Branch 2006.)

When a company goes international it creates opportunities and risk diversification. Thus, in case of failure or raised problems in one country a company survives because of the other markets. Exporting also helps to avoid the seasonal demand of a product or service. The main reason why companies go international is because of the increased potential levels of profitability that provide the company with a bigger income to invest in research and development activities which are held to keep a company competitive. (Branch 2006.)

8.5.2 Export risks and solutions

On the other side, foreign trade provides huge risks to a company. First of all, export markets involve long term payments which can be 90 or 180 days and sometimes several years. In comparison, on the domestic market it is usually done on a 30 days' time scale. Thus, it can be a serious cash flow problem for a small scale company. However, this risk can be possibly solved by factoring, cash in advance or by operating an open account. (Branch 2006.)

Furthermore, financial risks such as interest rates, foreign exchange and working capital exist. Economic and political risks of a foreign country might also cause serious problems for the company. For example, trade barriers can affect export operations as well as commercial risks such as buyer default and contractual dispute. These kinds of risks can be lowered by conducting a buyer status audit in the bank and by employing a lawyer who will professionally formulate an agency-distributor agreement. (Branch 2006.)

Moreover, new skills are required to deal with various issues raised when a company goes on exchange. That includes methods of financing and managing the cash and finding the right solutions to deal with foreign trade operations: exporters should make the product easy to buy, consider foreign exchange rates and make sure they receive payments. These risks can be minimized by creating a realistic business plan and consulting the company's bank. (Branch 2006.)

A product which comes from abroad is costly in comparison with what the domestic market offers. Therefore, good research about country legislation, legal environments and cultures should be conducted to overcome misunderstandings. (Branch 2006.)

Several ways to reduce export risks exist. Firstly, experienced and professionally qualified personnel who are focused internationally should be employed. Secondly, good research and a business plan, which will include highly important and risky issues such as finances, technology, production, and personnel to ensure that the company is able to go internationally, should be conducted. Moreover, monitoring systems after entry are important, in case of any problems fast solutions should be found and changes done. (Branch 2006.)

8.7 Export support

Export operations are highly important and beneficial for the country as they lead to money flow into the country, increase job placements, raise wages, and improve the standard of living. Therefore, governments support domestic producers in their export operations. There are several ways to help companies with this operation. (EximGuru 2014.)

First of all, companies use trade protectionism to save them from unfair competition from foreign enterprises. One of the ways is to set high taxes on imported goods, which will raise the price of the product and reduce the competitiveness on the market. (EximGuru 2014.)

Secondly, exports can be supported by government subsidies to the domestic producers, which can be provided by tax credits or direct payments. This way works even better because goods become cheaper by themselves even when they are shipped overseas. (EximGuru 2014.)

The third method of protectionism is establishing quotas on imported goods. This is one of the most effective ways of protection due to the fact that a foreign country is not allowed to ship more goods, no matter how low their price. (EximGuru 2014.)

The fourth method of trade protectionism used by countries is lowering its currency value. It makes exports cheaper and more effective; however, it can lead to a “currency war”. Countries can lower the value by creating huge national debt or by using a fixed-exchange rate. (EximGuru 2014.)

However, there are some disadvantages with trade protectionism. In the long-term it weakens the industry due to the fact that enterprises do not have enough competition to innovate their goods or services. Therefore, consumers will overpay for a product of lower quality than they could get from a foreign producer. (EximGuru 2014.)

9 RESULTS

9.1 Results of the Republic of Karelia

Questionnaires (Appendix 1) were spread via the Society of Fish Farmers of Karelia. Afterwards, results were collected and analyzed. The information about 57 fish farms in the Republic of Karelia was found. As a result it was found out that all fish farms are cultivating “Kamlooks” (“Rainbow trout”) and some of them are breeding Whitefish (Siga) and Nelma (Whitefish Salmon).

Nowadays, 40 fish farms out of 57 are cultivating fry fish. Some of them are growing them only for their own needs: PB Gutiro, PB Vladimirov M.V., “Konchezerskii Incubator”. Some companies are cultivating fry fish for sale: CJSC “VIRTA”, CJSC “KALA-RANTA”, LTD “AQUAresurs”, LTD “Kintisma”, LTD “Onezhksaya Forel”, LTD “Zaonezhksaya Forel”, LTD “Karelrybresurs”, LTD “Tiksha”, FF “Kedrozerskii”, and some others.

What is more, up to the data of 2012 there are several fish farms which are and planning to build new units in the near future: LTD “Forkos” is planning to build a farm in “Livojarvi” with a capacity of 500 tons per year, LTD “Kurozero” is planning to build a farm in “Kurojarvi” with a capacity of 300 tons per year, LTD “Kintizma” with a capacity of 200 tons in “Jurahma”, LTD “Pomor” capacity 300 tons, “Kalevala” capacity 300 tons. Moreover, LTD “Segozerskoye” is planning to open 2 new production units in “Vigozero” with volumes 1,400 and 600 tons per year.

Up to the data of the year 2013, eight companies stopped its operations. These companies are: APC “Salma”, APC “Varyag”, LTD “Stroi Fasad”, LTD “Sofporog”, LTD “Severnaya Midia”, LTD “Karhu-Salmo”, LTD “Naturalnii Product”, PB Dmitriev I.I.

Furthermore, companies are purchasing fry fish from domestic producers more than from abroad, as the price is lower. For example, CJSC “VIRTA” sells fish at 0,26-0,27 EUR per piece what is equal to 13 rubles per piece, including delivery, and Finnish producers sell for 0,26-0,27 EUR per piece 14 rubles per piece plus delivery (2 EUR per km). These days the ruble is volatile currency; therefore, it

is safer to buy without currency changes from domestic producers. (The exchange rate used throughout this study is based on that of 25 August 2014, according to the European Central Bank exchange rate).

Moreover, the benefit of domestic producers as CJSC “VIRTA” is that they have precise delivery schedules because of pools with water temperature control. However, the caviar output of fish purchased in the Finnish companies is better than in Russia: 10% and 8%, respectively.

9.2 Results of Leningrad Oblast

Research approach was to contact fish farmers was by email and by phone due to the fact that it is a fast and effective way to collect answers. However, according to the fact that most of the companies do not trust researches, they prefer to keep all information about the company private. Therefore, the answers were collected from 18 companies out of 40 fish farms in Leningrad Oblast.

Based on replies collected, all fish farmers in Leningrad Oblast grow rainbow trout; some of them also cultivate Whitefish and Sturgeon in addition. According to our results 70% of fish farmers grow fry fish by themselves; however from time to time they order this fish from other organizations, such as Ltd. “Alfeus Fids” and Ltd. “Ribstandart”. Only a few of these fish farmers interact not only with domestic organizations which sell fry, but also with foreign companies. For example Ltd. “Alfeus Fids” buys fry fish from the American company “Troutlodge Inc”. Fish farmers in Leningrad Oblast were cultivate fry fish mostly for their own needs: Ltd. “Kapshozero” and CJSC “Laplandia”. Also, all respondents plan to increase capacity in the next two to three years.

9.3 Results of Murmansk Oblast

For the Murmansk Oblast, the fast and effective way to collect information of direct calling was chosen. In the region nine fish farms operate nowadays. All of farms of Murmansk Oblast are collaborating with domestic companies or with

the companies from Norway. This is due to geographical factors and because of the price level. Fish farming in Norway is highly developed because of the weather conditions. Two fish farms work and purchase fry fish from one of the biggest company of salmon farming “Cermaq”. The closest to Russia company unit is operating in Norway where weather conditions are highly suitable for fish breeding. Moreover, five respondents out of nine collaborate with the domestic producer- incubation unit “VIRTA” because of the location and price, and also because the documentation process is much easier than bringing deliveries from abroad.

The only fish farm where fish is grown all year round is located right in the “Kola nuclear power plant” “(Kola NPP)”. The warm waters of NPP discharge channel provide fish with the ideal living conditions. Thus, fish are growing fast and no other farm can match this success because resource of the limited warm water. Moreover, the company diversifies species; in particular, in 2007 the farm started to breed sturgeon which was brought from a farm nearby Tver. (Miriam-tour 2014.)

9.4 The biggest fry suppliers

Ltd. “Akvaresurs” breeds fry of salmon and whitefish. “Akvaresurs” has the most powerful modern incubational growing complex for the breeding of salmon in the Republic of Karelia. This company came to the market in 1992.

Ltd. “Alfeus Fids” was founded in 2011. The company offers fish food, fertilized eggs and equipment for fish farming. Since 2009 they have been the official distributor of “Troutlodge Inc.” (USA), the leading producer of fertilized eggs of rainbow trout. The company produces 500 million eggs annually on their farms in Chile and the Isle of Man in the U.S and ship it to more than 50 countries after.

Ltd. “Virta” was founded in March of 2010 year. Currently, the company operates two plants: the incubation growing agriculture, the production capacity of 4.5 million pieces of fry of trout a year, and the incubation growing complex, where the production capacity is 11 million pieces per year of fry. One of the

distinguishing features of the plant is closed loop water, which saves energy and natural resources. It also has the advanced technology of feeding, monitoring, and a special computer program that takes into account the age, weight, number of fish, water temperature, and dissolved oxygen. The equipment allows automating the whole process of feeding fish.

9.4 Overall results of markets researched

During the research, information about the fish farming industry in the Republic of Karelia, Leningrad Oblast and Murmansk Oblast was investigated. This included the history, market shares, companies fry fish are purchased from, names, and contacts of companies. Also, the possible customers and potential directions of development were considered. Moreover, one of the targets was to find information about the future of trout fish farming and if there is a demand and development prospects of the whitefish.

As of 2010, in the Republic of Karelia, Leningrad Oblast and Murmansk Oblast are 98 companies cultivating fry fish for various needs. Some of them grow fry fish for their own farm needs, and several companies breed fish for sale to other organizations.

According to the results in the Republic of Karelia and in Leningrad Oblast all fish farms cultivate rainbow trout, and some of them also grow whitefish and nelma. In the Republic of Karelia 40 out of 57 fish farms breed fry fish. Up to the data collected by 2013, 9 companies (Appendix 3) cultivate only fry fish to supply the farm with it.

Most of the companies prefer to purchase fry fish from domestic producers due to various factors such as lower price and the instability of the ruble exchange rate. Therefore, the risk to overpay is higher. Moreover, for the reason that incubators of Russian companies such as LTD "VIRTA" and LTD "Kondopozskii zavod" are equipped with the heated pools, they do not postpone deliveries because of weather conditions. In both markets areas demand for the whitefish exists; however fish farms are not developed in this sphere yet. Therefore, competition is weak in this market area.

10 CONCLUSIONS AND RECOMMENDATIONS

The aims of the research were to find information on the chosen markets and evaluate opportunities for development, find potential customers and partners, and research the future of trout farming. Moreover, the goal was to determine situation with the whitefish production: whether or not the supply of whitefish covers the demand and if there is a need for additional production. Nowadays, the competition on the markets is tight as local producers are growing; therefore, to keep and attract customers, a company should improve its attractiveness to customers by the actions described below.

First of all, it is strongly recommended to spread the commercial offer to all companies by sending direct e-mail to the companies or through the fish farming societies. It is an effective and cheap way to make potential customers familiar with the company's offer and compare it with other possibilities.

Secondly, it is recommended to make special offers for companies, especially for those that have already worked with Savon Taimen OY. The company does not allow long-term payment by installments. At maximum it allows its customers to pay within one month. Therefore, customers which cannot pay in so short a time period choose another company which allows payments over several months. In comparison, the Karelian company Virta provides six-month installments.

It is recommended to equip pools with heating systems so the cultivating of fry fish will not depend so much on the weather conditions. Several fish farms which supply the Republic of Karelia and Leningrad Oblast markets with fry fish are equipped with heated pools which give them a big advantage because of the fact that customers can get fry fish ordered rapidly, on the day agreed in the contract, and without delays, so it makes companies more attractive to customers.

Another recommendation is to note farms near the boundary. They should be contacted and introduced with an offer: Ltd. "Kala ja marjapojat", Ltd. "Valaam", Ltd. "Kintisma", Ltd. "Loisto", "Salma", Ltd. "Sedletskie". For farms which are located close to the Finnish border it will be advantageous to purchase

fingerlings from Finland as it is closer. Therefore, the company should make these companies familiar with Savon Taimen OY and its offers.

Moreover, it is recommended to research and develop operations in the direction of whitefish and create a market for whitefish fingerlings, according to the fact that demand for this fish in the Republic of Karelia and Leningrad Oblast exists. However, fish farms in these markets are not able yet to breed it in necessary amounts. It is recommended to contact Ltd. "Kondopoga" which is working with whitefish about possible collaborations with them. Furthermore, in Murmansk Oblast there is no whitefish production nowadays, but the demand of this specie on the Russian market exists. Thus, possible collaboration with the local companies should be deeply considered and researched.

The main conclusion of this research is that Russian companies are still purchasing up to 4 million fry fish from Finland because of the good quality. The price in Finland is not much higher than in Russia, as Russian companies purchase the same fish food, which is the most important factor of pricing. Therefore, work should be done to develop this direction and to optimize operations by following the suggestions above.

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Kozyrev, A. Head of the Zaonezhskaya Forel. Personal interview in May 2014

Lankinen, Y. Biologist in Savon Taimen OY. Personal interview in June 2014

Liukkonen, M. Head of the Savon Taimen OY. Personal interview in June 2014

Questionnaire (Russian)



HANKA-TAIMEN OY

1. Название компании _____
2. Расположение компании _____
3. Объем выращивания рыбы компанией (тн): _____
4. Какие виды рыб вы выращиваете _____
5. Вы занимаетесь выращиванием:
 - Посадочного материала _____
 - Товарной рыбы _____
 - Посадочного материала и товарной рыбы _____

***Если вы занимаетесь разведением только товарной рыбы, то не отвечайте на 5,6,7,8 вопросы.

6. Выращиваете посадочный материал:
 - Самостоятельно _____
 - Приобретаете _____
7. Если закупаете, то где (компания, место расположения):

8. Если выращиваете самостоятельно, то для каких целей:
 - Для собственной компании _____
 - На продажу _____
 - Для зарыбления водоемов _____
9. Если на продажу, то куда и в какие объемах (тн/шт)

10. Какие породы форели вы разводите?

11. Планируете ли вы увеличить объем выращивания рыбы в ближайшие 2-3 года?
 - Да
 - Нет
11. Сотрудничаете ли вы с:
 - Отечественными производителями посадочного материала, какими _____
 - _____
 - С зарубежными, какими _____

Questionnaire (English)

1. Name of the company _____
2. Location of the company _____
3. Annual turnover (kg. of fish) _____
4. Which species of fish are you cultivating? _____
5. You are breeding:
 - Fry fish _____
 - Food fish _____
 - Both _____

***** If you breed only food fish do not answer 6,7,8,9 questions**
6. Breed fry fish:
 - By yourself _____
 - Purchase _____
7. If you purchase it, where(name of the company, location):

8. If you are breeding fish by yourself, for what reason:
 - For your own company
 - For selling
 - Other _____
9. If for selling, to there and in which amount (tons)? _____
10. Which species of salmon do you breed? _____
11. Are you planning to increase turnover of the company in the nearest 2-3 years?
 - Yes
 - No

12. Do you collaborate with:

National enterprises which grow fry fish and if yes with which?

Foreign enterprises which grow fry fish and if yes with which?

Fry and food fish production table

Company's name	ALTOGETHER			FRY FISH			FOOD FISH		
	2012	2013	12\13	2012	2013	12\13	2012	2013	12\13
	Tons	Tons	%	Tons	Tons	%	Tons	Tons	%
Segezhskiy District	1488	2671	2	1285	65	0	203	2606	13
Ltd. "FF"Segozerskoe"	1488	2671	2	1285	65	0	203	2606	13
Belomorskiy Districts	359	322	1	146	77	1	213	245	1
APC. "Salma"	20	0	0	3	0	0	17	0	0
APC. "Varyag"	55	0	0	0	0	0	55	0	0
Ltd. "VAK"	283	322	1	143	77	1	141	245	2
Prionezhskiy District	1034	1335	1	487	490	1	547	845	2
Ltd. "Rai Guba"	1034	1335	1	487	490	1	547	845	2
Kondopozhskiy Districts	1605	2188	1	641	671	1	964	1517	2
JCS. "Kondopoga"	708	790	1	251	281	1	457	509	1
Ltd. "Rusproektstroy"	0	157	0	0	49	0	0	108	0
Ltd. "Story Fasad"	36	0	0	0	0	0	36	0	0
Ltd. "AKVAresurs"	20	24	1	20	24	1	0	0	0
Ltd. "PARAD-Plus"	0	106	0	0	106	0	0	0	0
PB Fedorenko N. V.	472	685	1	259	75	0	213	610	3
PB. Aprodu L.G.	172	172	1	63	82	1	109	90	1
PB. Gutiro G.D.	197	254	1	48	54	1	149	200	1
Kalevalskiy District:	26	27	1	4	27	8	23	0	0
Ltd. "Kintisma"	26	27	1	4	27	8	23	0	0
Kostomuksha District:	2221	2720	1	939	621	1	1279	2098	2
Ltd. "Kala ja Marjapojat"	2184	2613	1	905	520	1	1279	2093	2
PB. Vladimirov M.V.	5	7	1	2	2	1	3	5	2
Ltd. "Forkos"	32	100	3	32	99	3	0	1	0
Lahdenpohskiy District:	3164	5036	2	1374	2606	2	1790	2430	1
PLC. "KALA-RANTA"	1226	2247	2	517	1611	3	709	637	1
Ltd. "RokFor"	1819	2671	1	818	932	1	1001	1739	2
Ltd. "Master"	80	55	1	0	0	0	80	55	1
CJSC. "VIRTA"	39	63	2	39	63	2	0	0	0
Louhskiy District:	264	377	1	154	203	1	110	174	2
Ltd. "Sofporog"	0	0	0	0	0	0	0	0	0
CJSC. "Mariproduct"	9	17	2	9	3	0	0	14	0
Ltd. "Severnaya Midiya"	0	0	0	0	0	0	0	0	0
Ltd. "Akvafor"	115	205	2	65	105	2	50	100	2
Ltd. "Sedleckie"	140	155	1	80	95	1	60	60	1
Medvezhjegorskiy District:	1163	2072	2	703	836	1	460	1236	3
Ltd. "Torpu"	190	276	1	50	8	0	140	268	2
Ltd. "Karhu-salmo"	131	0	0	62	0	0	69	0	0
Ltd. FF "Nord-Ost-Rybprom"	173	321	2	173	3	0	0	318	0

Name of the company	ALTOGETHER			FRY FISH			FOOD FISH		
	2012	2013	12\13	2012	2013	13\12	2012	2013	13\12
	Tons	Tons	%	Tons	Tons	%	Tons	Tons	%
Ltd. "Zaonezhskaya Forel"	0+B4:J34	101	0	0	101	0	0	0	0
Ltd. "Karelybresurs"	15	9	1	0	9	0	15	0	0
Ltd. "Russkaya krepost"	273	971	4	214	473	2	59	498	8
Ltd. "Semchezero"	196	227	1	96	75	1	100	153	2
Muezerskiy District:	509	547	1	152	177	1	357	370	1
Ltd. "Tiksha"	90	43	0	90	43	0	0	0	0
Ltd. "Nurdas"	181	280	2	36	70	2	145	210	1
Ltd. "Luisto"	238	224	1	26	64	2	212	160	1
Olonecki Dostrict:	110	142	1	43	47	1	68	94	1
Ltd. "Rainbow"	19	27	1	0	0	0	19	27	1
Ltd. "Vecherniy Briz"	92	115	1	43	47	1	49	68	1
Pitkyaranskiy District:	3151	3509	1	1455	423	0	1653	3085	2
Ltd. "Naturalnii Product"	3	0	0	0	0	0	3	0	0
PB. Dmitriev I.I.	0	0	0	0	0	0	0	0	0
Ltd. "Ladozhskaya Forel"	2439	2560	1	1059	92	0	1380	2468	2
Ltd. "Tur"	0	0	0	0	0	0	0	0	0
Ltd. "Forel Ladogi"	500	586	1	230	186	1	270	400	1
PB. Siroedov I.P.	132	61	0	88	23	0	0	38	0
Ltd. "IRIY"	77	301	4	77	122	2	0	179	0
Pryazhenskiy District:	1017	1185	1	535	413	1	482	772	2
Ltd. "Pomor"	172	150	1	55	28	1	117	122	1
Ltd. FF "Gongonalickoe"	172	243	1	115	0	0	57	243	4
Ltd. FF "Raduzhnaya Forel"	173	286	2	53	72	1	120	214	2
Ltd. "Ekologia-product 10"	29	72	2	0	0	0	29	72	2
Ltd. "Meliator"	471	434	1	312	313	1	159	121	1
Suoyarvskiy District:	459	358	1	5	0	0	454	358	1
Ltd. "Forel-Suoyarvi"	45	135	3	0	0	0	45	135	3
Ltd. "Suoyarvi"	370	210	1	0	0	0	370	210	1
Ltd. "Janisjarvi"	44	13	0	5	0	0	39	13	0
Sortavalskiy District:	920	679	1	515	352	1	405	327	1
Ltd. FF "Parola"	253	217	1	0	0	0	253	217	1
Ltd. "Forel Laviyarvi"	513	430	1	511	343	1	2	87	58
Ltd. "Valaam"	154	32	0	4	10	2	150	23	0
Overall:	17488	23166	1	8435	7007	1	9007	16158	2

Table with companies contacts

HE BIGGEST FISH FARMS IN KARELIA:					
Name of the company:	Adress:	Phone:	Email:	Fax:	Webpage:
Ltd. "Forelevodcheskoe hozyaistvo Segozerskoe" (ООО "Форелеводческое хозяйство Сегозерское")	185000, Petrozavodsk, st. Krasnaya, 49	(8142)74-72-81, 8(953) 531-25-51	kitashin@russiansea.ru	8(8142) 74-72-81	
Ltd. "Kala ja Marjapojat"	186930, Kostomuksha, st. Gornyakov, 17 - 15	8(812)595-18-01, 8(921)226-26-78	Manager: i.prohorova@forelevod.ru Sales manager: t.lesonen@forelevod.ru	8(812)595-18-01	http://forelevod.ru/company/
JSC "Kondopoga" (ОАО "Кондопога")	186200, Kondopoga, st. promishlennaya, 2	8(81451)406-90, 8(81451)404-19, 8(81451)432-87	kareliafish@ramler.ru	8(81451)406-90	http://www.gazbum.narod.ru
Ltd. "Ladozhskaya Forel" (ООО "Ладожская Форель")	186200, Pitkyaranta, st. Lenina, 31A	8(921)768-95-68	parshikova.galin@gmail.com	8 (812) 3349635	
THE BIGGEST FISH FARMS IN LENINGRAD OBLAST:					
Ltd. "Ribstandart" (ООО "Рыбстандарт")	188903, Vyborgskiy district, village Barishevo	8(812)314-16-81, 8(812)303-89-69	boris@rybka-fishka.ru , rstandart@mail.ru	8(812) 335-35-04	http://www.rybka-fishka.ru/
Ltd. EKON (ООО "ЭКОН")	188840, Viborg, Village Mamontovka	7-14-61, 265-26-42	-	265-26-42	-
Ltd. "SHP Kuznechnoe" (СХП "Кузнецкое")	188760, City: Priozersk, Kuznechnoe	8(911)748-69-99, 8(812)324-77-83	a.n.aksakov@gmail.com	8(812) 324-77-83	http://www.rf-milk.ru/firms/firm-detail/shp-kuznechnoe-ooo-10770
THE BIGGEST SUPPLIERS OF FRY IN KARELIA AND LENINGRAD OBLAST:					
Ltd. "Akvaesurs" (ООО "Акваресурс")	188480, Kingisepp, st. Promzona, 8	8(8142)595-550, 8(921) 702-8878	info@akvaesurs.ru	8(8142)595-550	www.akvaesurs.ru
Ltd. "Alfeus Fids" (ООО "Альфеус Фидс")	187026, Tosneskiy district, City: Nikolskoe, Ulianovskoe road, 5G	8(812)444-6017, 8(911)181-7570	alfeus@alfeus.ru bio@alfeus.ru	8(812)444-6017	www.alfeus.ru
Ltd. "Virta" (ООО "Вирта")	186734, Lahdenpohskiy district, Kurieki Village	(81450)3-44-95, 8(921)629-97-44	gazimagomedov@kalaranta.ru , info@kalaranta.ru , andronova@kalaranta.ru	3-44-95	http://www.kalaranta.ru/virtacontact/