PROBLEMS OF FISHERY IN LATVIAN PORTS AND ITS DEVELOPMENT PERSPECTIVES

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Abstract. The research deals with the identification and analysis of the factors influencing fishing development at the ports of Latvia, aimed at discovering the prospects of fishing development and types of European Maritime and Fisheries Fund support for the next planning period from 2014 to 2020. Various research methods were applied to achieve the research aim. The obtained results show that several variable factors influence the volume of unloaded fish at Latvian ports, and consequently, the prospects of fishing development at the ports of Latvia are unclear. Therefore, fishing limits and fishermen diversification, further investments into the fishing development at Latvian ports should be made taking into account the number of enterprises.

Key words: cohesion policy, fisheries sector, Latvian ports.

JEL code: O13

Introduction

One of the main problems the fishing industry faces globally is that there are too many fishing boats and ships for too little fish resources (The European Commission, 2012). Fish stocks have high natural productivity but it is not unlimited. If people catch more fish than the natural surplus of the stock, the future production potential reduces (The European Commission, 2012) which may have a global impact on the environment and the fisheries sector as a whole. In order to prevent running out of fish reserves of the EU Member States, including Latvia, it is necessary to implement a range of measures to ensure sustainable fishing within the framework of the Common Fisheries Policy.

The overall objective of the reformed Common Fisheries Policy is to make fishing sustainable - environmentally, economically, and socially. The new policy will bring fish stocks back to sustainable levels and will stop wasteful fishing practices. It will provide the EU citizens with a stable, secure, and healthy food supply for a long term. It seeks to bring new prosperity to the fishing sector, create new opportunities for jobs and growth in coastal areas, and put an end to dependence on subsidies. The EU financial assistance through the proposed European Maritime and Fisheries Fund (hereinafter − EMFF) will be available to support the sustainability objectives of the new policy (The European Commission, 2013).

Research hypothesis − several variable social and economic, political and environmental factors influence fishing development at Latvian ports.

Research aim − to analyse fishing development and factors influencing it at Latvian ports to discover the future prospects of fishing at the ports' areas and kinds of the EMFF support for the next planning period. Well-planned investments and their efficient use for fishing development at Latvian ports would facilitate not only the development of the sector but also would advance the social and economic development of seaports and whole regions.

Research tasks:

1) to acquaint the activity of Latvian ports and fishing development at the ports;

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2) to identify the factors influencing fishing development at Latvian ports;

3) to define the necessary types of support for the next planning period.

Research object – fishing development at Latvian ports.

The research includes the statistical data on the fish caught in the Baltic Sea and the Gulf of Riga and unloaded at the area of Latvian ports, constituting on average 92% of total amount of unloaded fish (The Institute of Food Safety, Animal Health and Environment "BIOR", 2013). The research does not deal with the analysis of statistical data regarding the amounts of unloaded fish outside Latvian ports.

Methods used within the research: descriptive, document, and statistical analysis method.

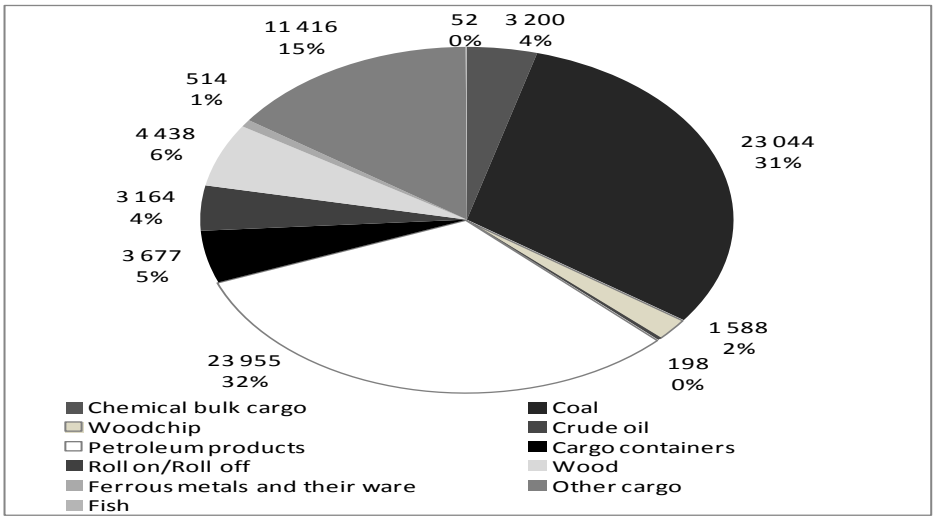
Novelty – this is the first broad summary and analysis of the information on fishing development at Latvian ports and the factors influencing it.

Fisheries' development at Latvian ports

In Latvia, there are ten ports: three of them are large ports (Riga, Ventspils, and Liepaja) and seven - smaller ports (Skulte, Mersrags, Salacgriva, Pavilosta, Roja, Engure, and Lielupe), located along the whole Latvian sea border.

One can see a gradual growth of the Latvian ports' activity. During the period from 2004 to 2012, the turnover of cargo at Latvian ports grew by 32%: from 56 780 thousand tonnes in 2004 up to 75 188 thousand tonnes in 2012 per year (Latvian ports, 2013).

The total cargo turnover in 2012 mostly consisted of transportation of petroleum products (32%), coal and wood (31% un 6% respectively): woodchip, cargo containers, chemical bulk cargo, RO-RO cargo, ferrous metals and their ware, as well as transportation of crude oil (31%) and the unloaded fish (only 0.1%) (Figure 1).



Source: author's calculations based on the Ministry of Transport of the Republic of Latvia (2013); The Institute of Food Safety, Animal Health and Environment "BIOR" (2013)

Fig 1. **Cargo turnover typical of Latvian ports in 2012 (thousand tonnes, %)**

The large ports mostly deal with processing of transit cargoes, while the small ports having local importance mostly are engaged in shipping timber and accepting fishing products; in summer season, they also act as ports for yachts (Ministry of Transport of the Republic of Latvia, 2004).

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All the ports in Latvia are used for the fishing needs, except Lielupe port which is closed for cargo service.

On the one hand, the impact of fishing on the development of Latvian ports is not strong, since the amounts of fish unloaded at areas of the ports do not constitute a significant proportion (Table 1). However, the only turnover of cargoes is fish at Engure and Pavilosta ports, and consequently, the impact of fishing on these ports is big.

Table 1

The amount of the unloaded fish at large and small Latvian ports and other cargoes' turnover from 2008 – 2012 (thousand tonnes, %)

Name of port	2008		2009		2010		2011		2012	
	fish	other	fish	other	fish	other	fish	other	fish	other
TURNOVER (THOUSAND TONNES)										
Pavilosta	4.4	-	3.3	-	2.9	-	2.5	-	1.9	-
Skulte	0.8	450.1	1.8	497.1	2.5	647.1	2.2	687.4	2.3	587.4
Roja	11.3	21.3	10.0	14.4	8.0	38.0	11.2	46.4	9.1	31.3
Mersrags	3.9	496.6	4.7	389.0	4.7	398.6	3.3	431.7	3.3	440.6
Riga	2.2	29 564.4	1.6	29 715.2	2.1	30 466.9	2.0	34 070.8	2.6	36 046.1
Liepaja	19.2	4 187.7	15.1	4 381.3	12.5	4 383.7	11.3	4 856.8	12.7	7 431.3
Salacgriva	2.5	333.5	2.2	318.4	1.1	381.6	1.1	277.4	0.8	284.5
Engure	0.2	-	0.1	-	0.3	-	0.4	-	0.1	-
Ventspils	36.1	28 570.0	27.9	26 640.0	26.6	24 815.0	19.5	28 452.0	19.5	30 346.0
Large ports	**57.5**	**62 322.1**	**44.6**	**60 736.5**	**41.3**	**59 665.6**	**32.9**	**67 379.6**	**34.8**	**73 823.4**
Small ports	**23.2**	**1 301.5**	**22.2**	**1 218.9**	**19.5**	**1 465.3**	**20.7**	**1 442.9**	**17.6**	**1 343.8**
Total:	**80.7**	**63 623.6**	**66.8**	**61 955.4**	**60.8**	**61 130.9**	**53.6**	**68 822.5**	**52.4**	**75 167.2**
PROPORTION (%)										
Pavilosta	100.00	-	100.00	-	100.00	-	100.00	-	100.00	-
Skulte	0.19	99.81	0.37	99.63	0.39	99.61	0.32	99.68	0.40	99.60
Roja	34.74	65.26	41.04	58.96	17.39	82.61	19.40	80.60	22.57	77.43
Mersrags	0.79	99.21	1.20	98.80	1.16	98.84	0.77	99.23	0.75	99.25
Riga	0.01	99.99	0.01	99.99	0.01	99.99	0.01	99.99	0.01	99.99
Liepaja	0.46	99.54	0.34	99.66	0.28	99.72	0.23	99.77	0.17	99.83
Salacgriva	0.74	99.26	0.70	99.30	0.28	99.72	0.39	99.61	0.28	99.72
Engure	100.00	-	100.00	-	100.00	-	100.00	-	100.00	-
Ventspils	0.13	99.87	0.10	99.90	0.11	99.89	0.07	99.93	0.06	99.94
Large ports	**0.09**	**99.91**	**0.07**	**99.93**	**0.07**	**99.93**	**0.05**	**99.95**	**0.05**	**99.95**
Small ports	**1.75**	**98.25**	**1.79**	**98.21**	**1.32**	**98.68**	**1.41**	**98.59**	**1.29**	**98.71**
Total:	**0.13**	**99.87**	**0.11**	**99.89**	**0.10**	**99.90**	**0.08**	**99.92**	**0.07**	**99.93**

Source: author's calculations based on Latvian ports (2013); The Institute of Food Safety, Animal Health and Environment "BIOR" (2013)

On the other hand, the existence of the fishing sector and its development is impossible without Latvian ports, their infrastructure and services. Latvian ports offer infrastructure suitable for the needs of fishermen and services for fishing ships (including those for fish unloading and storing) and their maintenance. In addition, there are processing and trade companies located near the ports for mobile sales. In addition, the inhabitants of the local county/civil parish and demand from abroad facilitate the consumption of the caught fish.

Within the last eight years, there have been significant changes in the structure of fish unloading amounts at Latvian ports (Table 2). From 2005 to 2012, the proportion of fish unloading reduced at the Freeport of Ventspils (from 41.4% to 37.2%), at Pavilosta port (from 6.9% to 3.7%), Liepaja port (from 27% to 24.2%), Salacgriva port (from 4.4% to 1.5%), and Engure port (from 1.6% to 0.1%). On the contrary, the proportion of unloaded fish gradually increased at Skulte port (from 1.1% to 4.5%), at the Freeport of Riga (from 2.3% to 5%), and Mersrags port (from 4.2% to 6.4%).The proportion of the

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unloaded fish significantly increased at Roja port (increase of 6 percentage points) where it increased from 11.2% to 17.4%.

The most constant proportion varies at the level of 41.4% to 37.2% (coefficient of variation Vσ = 7%) – at the Freeport of Ventspils. In 2005, the proportion of the unloaded fish was one fourth of the total amount of the unloaded fish at the port; whereas, in 2012 – already one third of the total amount of the unloaded fish, indicating that fish unloading has concentrated at the Freeport of Ventspils already since 2005.

Basing on the data analysis, it is evident that the fish unloading amounts at the ports of Roja, Skulte, Riga, and Mersrags tend to grow. However, the tendency is negative at the other ports – the amounts of unloaded fish decrease. Only the Freeport of Ventspils has had the smallest fluctuations of unloaded fish volumes, indicating that unloading dominates at this port.

Table 2

Structure of unloaded fish amounts at Latvian ports from 2005 – 2012 (%)

Name of port	2005	2006	2007	2008	2009	2010	2011	2012	Percent points	Coefficient of Variation - Vσ	Rank	
											Place in 2005	Place in 2005
Ventspils	41.4	43.3	40.3	44.7	41.8	43.8	36.5	37.2	-4	7	1	1
Skulte	1.1	1.5	1.1	1.0	2.7	4.2	4.1	4.5	3	60	9	6
Roja	11.2	10.9	12.4	14.1	15.0	13.2	20.8	17.4	6	24	3	3
Pavilosta	6.9	5.2	5.4	5.4	4.9	4.8	4.7	3.7	-3	18	4	7
Mersrags	4.2	3.7	4.1	4.9	7.1	7.7	6.2	6.4	2	28	6	4
Riga	2.3	3.9	2.6	2.8	2.4	3.5	3.8	5.0	3	28	7	5
Liepajas	27.0	26.1	28.1	23.8	22.6	20.6	21.2	24.2	-3	11	2	2
Salacgriva	4.4	4.3	4.7	3.1	3.4	1.8	2.0	1.5	-3	40	5	8
Engure	1.6	1.3	1.3	0.2	0.1	0.5	0.7	0.1	-2	82	8	9
Large ports	**71**	**73**	**71**	**71**	**67**	**68**	**61**	**66**	**-4**	**5**	**-**	**-**
Small ports	**29**	**27**	**29**	**29**	**33**	**32**	**39**	**34**	**4**	**12**	**-**	**-**
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**-**	**-**	**-**	**-**

Source: author's calculations based on the Institute of Food Safety, Animal Health and Environment "BIOR" (2013)

At the Freeport of Ventspils, mostly sprat (59%) are unloaded, at Liepaja port – codfish (84%) and salmon (56%), and at Roja port – smelt (84%) and Baltic herring (39%). A big proportion (64%) of the other fish species is unloaded at Liepaja port. The fish unloaded at the rest of ports constitute a minor proportion (Table 3).

Table 3

Average proportion of the unloaded fish species at Latvian ports from 2005 – 2012 (%)

Name of port	Fish species name					
	Sprat	Salmon	Cod	Herring	Smelt	Other
Engure	0.2	-	-	2	0.2	-
Liepaja	29	56	84	3	-	64
Mersrags	1	-	-	16	11	0.1
Pavilosta	7	24	0.4	1	-	4
Riga	0.2	-	-	11	3	0.01
Roja	3	-	0.01	39	84	2
Salacgriva	1	-	-	10	1	0.0002
Skulte	0.3	-	-	8	1	-
Ventspils	59	20	16	9	0.1	30
Total:	**100**	**100**	**100**	**100**	**100**	**100**

Source: author's calculations based on the Institute of Food Safety, Animal Health and Environment "BIOR" (2013)

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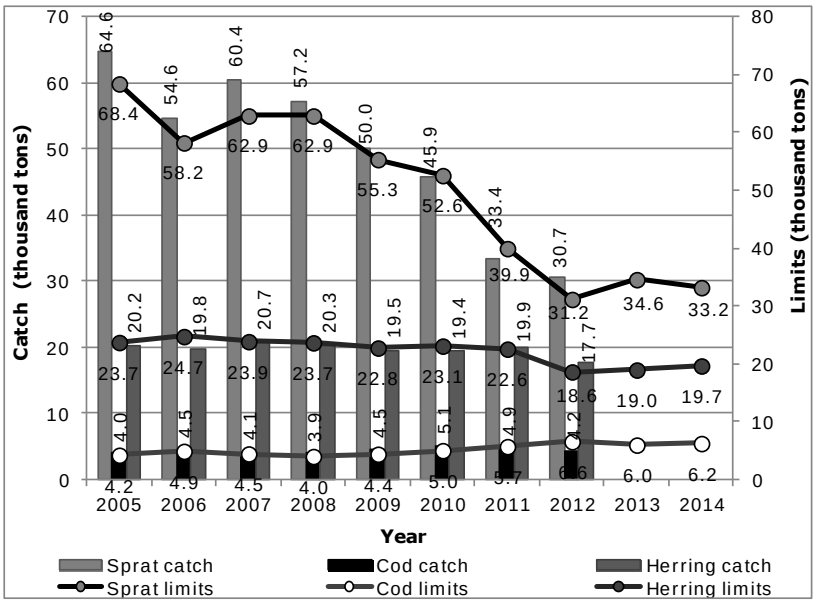
An important factor, influencing the volume of fish unloaded at Latvian ports, is the distance from a fishing place to the closest port where to unload the caught fish. Taking into account the fact that sprats are generally caught in the Baltic Sea and the closest unloading places are Ventspils and Liepaja ports, naturally, the biggest unloaded amounts take place exactly at these ports. Similar is the situation with other fish species and ports.

The amount of catches of commercially significant and internationally regulated species depends on the quota annually allocated to Latvia (Figure 2), which in their turn depends on the fish present in the stock. The fishing opportunities available to Latvia in the Baltic Sea are distributed individually for each fishing merchant, allowing mutual exchange and transferring of these fishing opportunities, resulting in more efficient use of the resources accessible to Latvia. However, due to the fluctuations of stocks and the changes in fishing opportunities annually allocated at the level of the EU, the fishing companies cannot fully plan their future actions.

Available fishing opportunities vary from year to year and already several years there has been a decrease of the common opportunities of fishing available to Latvia - from 96.4 thousand tonnes (in 2005) to 59.1 thousand tonnes (in 2014).



Source: author's calculations based on the Institute of Food Safety, Animal Health and Environment "BIOR" (2013); Ministry of Agriculture of the Republic of Latvia (2013)

Fig. 2. Fishing limits and amounts of catches from 2005 – 2014 (thousand tonnes)

Note:

Salmon:	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Limits (thousand pieces):	59.5	59.5	56.5	48.0	40.8	38.7	33.0	16.2	14.3	14.0
Catch (thousand pieces):	5.1	3.2	4.4	1.4	2.3	1.1	1.2	1.5	-	-
Catch (tonnes):	24.7	13.8	21.3	4.8	8.7	3.6	4.4	4.9	-	-

The data analysis shows that the fishing quotas are not fully used. The main obstacles for the utmost use of quotas are:

- fishes periodically disperse due to the hydrometeorological conditions and do not form industrial concentrations, consequently, it is not gainful for the fishermen to go fishing due to the small catches;

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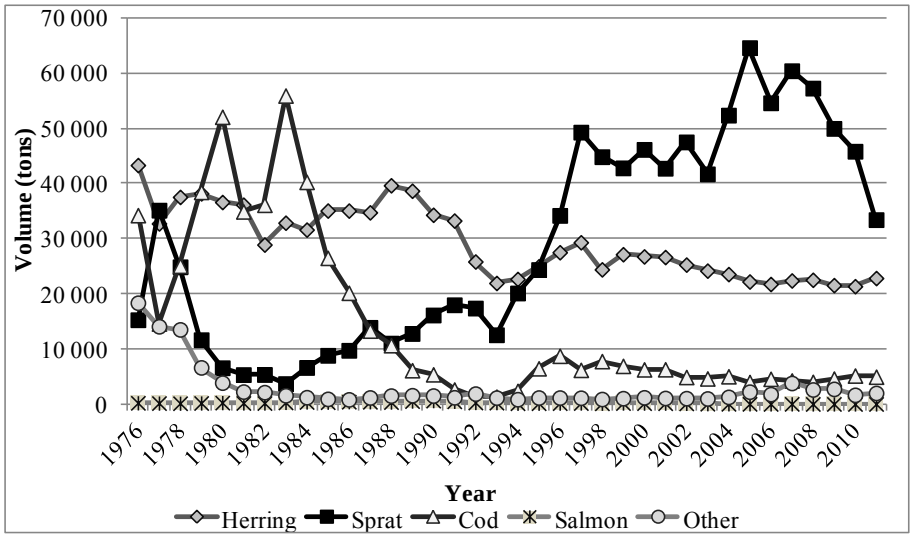
- unsuitable seasonal weather (strong wind, ice etc.) impeding fishing or making it impossible;
- salmon quota is not reached, since the drift-net fishing is forbidden and hook fishing is not developed well enough (salmon is caught by stationary fishing tools).

The EU quotas allocated for fishing vary depending on the amounts of fish present in stock, which in their turn depend on the productivity of the generations of the corresponding fish species and the supply with nourishment available to them (Figure 3).



Source: author's calculations based on The Institute of Food Safety, Animal Health and Environment "BIOR" (2013)

Fig. 3. Latvian catches in the Baltic Sea and the Gulf of Riga by species from 1976 – 2011, tonnes

During the period from 1976 to 2011, cod has been the most changing and unpredictable fish species (variation coefficient Vσ = 106%). Its amount varies from 1 250 tonnes (in 1992) up to 55 956 tonnes (in 1983).

The second most changeable fish species is salmon (variation coefficient Vσ = 81%); its amount varies from 4 tonnes (in 2010) even up to 607 tonnes (in 1990).

The third most fluctuating fish species is sprat (variation coefficient Vσ = 65%), the amount of which varies from 3 695 tonnes (in 2003) up to 64 646 tonnes (in 2005).

In turn, the fourth least fluctuating fish species is Baltic herring (variation coefficient Vσ = 22%), the amount of which varies from 21 365 tonnes (in 2010) even up to 43 342 tonnes (in 1976).

Fluctuations of the rest fish species are also important (variation coefficient Vσ = 139%), their amounts vary from 833 tonnes (in 1986) up to 18 368 tonnes (1976).

Analysing the amounts of the fish catches within the past decade, one can see significant changes in catches of cod: the amounts of cod catches stabilised (variation coefficient Vσ = 9%) in the period from 2002 to 2011 having a positive impact on the cod quotas and the unloaded fish amounts at Latvian ports. As a result of cod population stabilisation, the largest amounts of unloaded cod were at Liepaja port (on average 84% of total unloaded cod at Latvian ports), wherewith, the amounts of unloaded fish at this port to a great extent depend on the cod population fluctuations and the cod quotas established by the EU.

Within the last 10 years the Baltic herring catches were the most stable (variation coefficient Vσ = 5%); its biggest unloaded amounts were at Roja port (on average 39% of total unloaded volumes of

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Baltic herring at Latvian ports). Swift changes in Baltic herring population and the Baltic herring quota established by the EU may considerably influence the volumes of unloaded fish at Roja port.

In contrast, the amounts of sprat, salmon and other fish species catches within the past decade have not considerably stabilised (variation coefficient Vσ: 18%, 121%, and 43% respectively), thus, causing problems to plan quota and predict fish unloading amounts at the Freeport of Ventspils (amounts of unloaded sprat constitute on average 59% of total unloaded sprat at Latvian ports) and at Liepaja port (amounts of unloaded salmon and other fish species constitute correspondingly 59% and 64% of total unloaded amount of the species at Latvian ports).

Taking into account that it is complicated to predict changes in fish population depending on the productivity of the generations of the corresponding fish species and the supply with nourishment available to them, it is hard to predict the unloaded fish amounts at Latvian ports.

Moreover, meteorological conditions have a significant impact on the amounts of unloaded fish at Latvian ports. During the cold winter months (especially in January and February), the Gulf of Riga often freezes up, consequently, the ports located at the coast of the Gulf of Riga (ports of Riga, Salacgriva, Skulte, Engure, Mersrags, and Roja) become unavailable to fishermen. The only ports that do not freeze up in the cold winter months are Ventspils, Liepaja, and Pavilosta ports. Hence, at the time when the Gulf of Riga is frozen up and a great part of Latvia's ports is unavailable to fishermen, in order to sell the caught fish products, they unload the fish at the ports of Ventspils and Liepaja (much less at Pavilosta port), as a result of what, the unloaded fish amounts at the other port areas decrease.

Purchasing price plays the decisive role in the amounts of unloaded fish. In general, the fish purchasing prices at Latvian ports are similar and they do not influence unloading amounts. However, fish purchasing price has a great importance at the international level – if the price offered abroad is higher and more gainful than the one offered at Latvian ports, fishermen will gladly sell their fish abroad, consequently, the volume of fish unloaded at Latvian ports decreases. The biggest amounts of unloaded fish of late years (2009-2012) were registered in Nekso (Denmark), Vladislavovo (Poland), and Karlskrona (Sweden) (The Institute of Food Safety, Animal Health and Environment "BIOR", 2013).

The amounts of unloaded fish at Latvian ports are also influenced by the concentration of the fishing fleet. As a result of the fleet balancing measures, the number of fishing ships in the fishing sector has decreased by 20% since 2004, consequently, providing fishing ships a freer access to Latvian ports and facilitating an increase in average catch per ship (Ministry of Agriculture of the Republic of Latvia, 2013). Latvian big ports, with maximum draught at 9.5-15.0 m (Liepaja port, 2013; Freeport of Riga, 2013; Freeport of Ventspils, 2013), mostly are attended by fishing ships having a big carrying capacity. In their turn, the small ports of Latvia, with maximum draught at 2.2–6.5 m (Mersrags port, 2013; Pavilosta, 2013; Roja port, 2008; Salacgriva port, 2013; Skulte port, 2012), do not receive and service fishing ships with big carrying capacity, since the draught of these ports does not allow it. Therefore, the small ports of Latvia provide service for the fishing ships with small carrying capacity.

Furthermore, reserves of the caught fish appear when fish are caught but they are not sold because of inadequate purchasing prices or too big and unpredicted amounts of catch. Specific fishing equipment is needed (freezing, storing, and other equipment) to ensure and keep the high quality of the caught fish in a long term. Not only availability of various services but also infrastructure (wharves, breakwaters, driveways etc.) and its quality influence the amounts of unloaded fish at Latvian ports. From 2007 to 2013, eight Latvian ports received investments in the amount of LVL 13.94 million aimed at the fishing

development (Rural Support Service, 2013) to ensure various service and improve infrastructure. The author has researched the impact of financing on the fishing development at Latvian ports and reflected it in her previous publications (Project Report "Return on Investment of the 3rd Prior Direction Activities No 301 "Measures of Joint Action" and No 303 "Investments into the Fishing Ports and Fish Unloading Places").

All-in-all it is evident that the volumes of unloaded fish at Latvian ports are influenced by several variable factors: amount of fish in stock, peculiarities of fish distribution and industrial concentration formation, distance from fishing places and location of a port, fish purchasing price on the market, fleet concentration, meteorological weather, infrastructure and services available at ports, as a result it is complicated to predict fishing development at Latvian ports. Consequently, the EMFF support within the next planning period should be allocated to fishing development at all the Latvian ports, emphasising as a priority projects involving a greater number of fishing enterprises with bigger total limit of haul as well as the projects involving fishermen with a diversified fishing approach (those who do both the sea and coastal fishing).

Conclusions, proposals, recommendation

1. In Latvia, there are ten ports: three of them are large ports (Riga, Ventspils, and Liepaja) and seven smaller ports (Skulte, Mersrags, Salacgriva, Pavilosta, Roja, Engure, and Lielupe). Nine of the ports are related with fishing (Lielupe port is closed for cargo service). During the period from 2005 to 2012, the amount of the unloaded fish at Latvian ports has decreased from 80.7 thousand tonnes in 2005 to 52.4 thousand tonnes in 2012. The biggest amounts of unloaded fish took place at large Latvian ports (61-73%), and the smallest amounts – at small Latvian ports (27-39%).

2. Taking into account that the volume of the unloaded fish does not form a significant proportion of the common turnover of ports, fishing influence on the Latvian ports' development is not very strong. As an exception can be mentioned the port of Engure as well as Pavilosta port where the only turnover of cargoes consists of fish, consequently, fishing has a great impact on these ports. In turn, the existence of fishing sector and its development without Latvian ports is not possible. Latvian ports provide infrastructure corresponding to the fishermen's needs, services and processing, and trade enterprises are located nearby, ensuring unloading, storing and further sales of the caught fish.

3. Several variable factors (amount of fish in stock, peculiarities of fish distribution and industrial concentration formation, distance from fishing places and location of a port, fish purchasing price in the market, fleet concentration, meteorological weather, infrastructure and services available at ports) influence the volume of unloaded fish at the Latvian ports, making it difficult to predict the fishing development; consequently, the future prospects of fishing at Latvian ports are unclear. Therefore, the EMFF support within the next planning period should be allocated to fishing development at all Latvian ports, providing support to the projects involving a greater number of fishing companies having bigger total limit of haul as well as the ones involving fishermen with the diversified fishing approach.

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