

POSSIBILITIES OF APPLYING THE BEST PRACTICES OF FOREIGN COUNTRIES IN THE DEVELOPMENT OF FISHERIES IN CONDITIONS OF UZBEKISTAN

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Abstract

This article analyzes the fishery development of European countries such as Croatia, production indicators of fish products, and the strengths and weaknesses, opportunities and threats (SWOT analysis) of fisheries and aquaculture. In this article, the main prospects and directions of strategic development of fish-farming in European countries are considered. It is shown that the main ways to improve environmental and economic efficiency should be: the development of public policy on rational use, conservation and protection of resource potential of inland water bodies, improvement of organizational and economic mechanisms and modernization of legal framework of fish catch; strategic planning and scientific - technical support of fisheries as a whole. Therefore, suggestions and conclusions on the application of some European countries' experiences in our country are presented.

Keywords: : *fish-farming, SWOT analysis, fish farming products, cage fishing, intensive technology, fish species, fish-farming development, economic development of fisheries.*

Introduction. European countries such as Croatia has a long tradition in fisheries that enable a source of income year by year for coastal and inland communities. Additionally, to being a source of supply for healthy food, fisheries are mostly crucial for adding value of the coastal tourism. Agriculture includes forestry, hunting, and fishing, as well as the cultivation of crops and livestock production. Fishing represents a relatively small share of GDP (about 0,2 to 0,7%) in the country, but it plays main role in socio-economic lifestyle of numerous people.

Despite the low value fishery enables employment on the islands and the continent, especially in rural sides. In 2015, 1476 persons were employed in the fish processing industry of the country. The fish processing industry recorded to 31 million € (euro) which covered 3% of total food production. The major products were prepared and preserved sardines, frozen whole marine fish, dried, salted and marinated fish.

In many regions, fisheries and particularly fish farming are tighter connected to the development of rural tourism, since it is one of the big sources of high protein food which is an essential component in the human diet.

Fishing takes place mostly in the Adriatic Sea and it's characterized by multispecies fisheries. The catches consist of small pelagic species such as sardine and anchovy which are approximately 90% of the catches.

In Croatia, 72% of fish is farmed in sea and brackish waters and 28% in freshwater. The most important aquaculture methods are following:

- 67% in cages, entirely farmed in sea and brackish water;
- 25% in ponds, entirely farmed in freshwater [4].

According the source on Operational Program for fisheries [1], the main objectives of the Croatian fisheries policy are:

- strengthening and restructuring of the fishing sector as a whole;
- to provide the long-term sustainable management of fishing resources in accordance with fishing possibilities and competitiveness of producers;
- the development of aquaculture in order to research and using the marine biological capacity with the highest environmental and quality standards;
- improving the processing of fish in order to improve value and payback for the catch and cultured fish products;

- establishing an organization for trade of fish and fish products;
- development of infrastructure and logistical support of the fisheries;
- strengthening organized associations and management of fishing.

Per capita consumption of fish and seafood in Croatia is estimated at 8 kg. Total consumption of fish and fish products per capita is significantly lower than in other Mediterranean countries. Only 3% of Croatia's population eat fish every day, with the average person spending just 840 kuna (110 euros) a year on fish [3].

The market organization of fisheries products in Republic of Croatia is based on cooperatives, buy-off stations and registered first buyers. The Croatian fish & seafood market organization - by sales channel - consists of 4 main channels: retailers, HRI (hotels, restaurants and institutions), wholesalers and the traditional fish market [4].

Materials and Methods. For defining the fishery position and opportunities in Croatia we can use methods like SWOT analysis. The SWOT analysis is based on the evaluation of various factors of Croatian fisheries which present either constraints (internal – weaknesses and external – threat) or favourable factors for the sector (internal – strength and external – opportunities). According to the SWOT we may estimate Croatian fishery development, its challenges and possibilities [1, 2]. As shown in Table 2, the fish farming products of the country in 2016 consisted of 13881 tons, it was 63,1 % higher than previous results in 2013. There was a significant growth in producing of species such as Sea Bream, Sea Bass, and Common Carp: increased to 174,5%, 175,5% and 147,6% respectively in 2016 compared to 2013.

And Meagre production rose dramatically, 7 times rather than 2013. However, there was downward trend in production of some species like silver and grass carps, decreased to 94,3% and 65% relatively. Because of some new diseases and insufficient nutrition problems affected on their development (see Table 1).

Table 1.
Fish Farming Production by Croatia (ton) [10]

№	Species	Years				2016 % relatively to 2013
		2013	2014	2015	2016	
1	Sea Bream	2466	3640	4500	4304	174,5
2	Sea Bass	3014	3500	4500	5291	175,5
3	Common Carp	2100	2100	2100	3100	147,6
4	Portion Rainbow Trout	350	361	400	500	143,0
5	Silver Carp	350	350	315	330	94,3
6	Grass Carp	200	200	200	130	65,0
7	Meagre	32	50	70	225	7 times
8	Turbot	-	-	8	1	-
Total Croatia		8512	10201	12093	13881	163,1

Source: Developed by author on FEAP Production Report 2017, European Aquaculture Production Report 2008-2016.]

According to the SWOT analysis we can conclude that fishery sector has a lot of strength sides and opportunities. First of all, suitable environmental and geographical conditions for development of sector are important aspect. The second good side is that there is good cooperation with other spheres such as tourism, industry and science. Another beneficial one is that existing of operational programs which are developed for concrete periods and online platforms (e.g. EUMOFA) for prediction of production. And one of the most important opportunities is that some measures, projects regarding the fishery might be financed by EU funds (Figure 1).

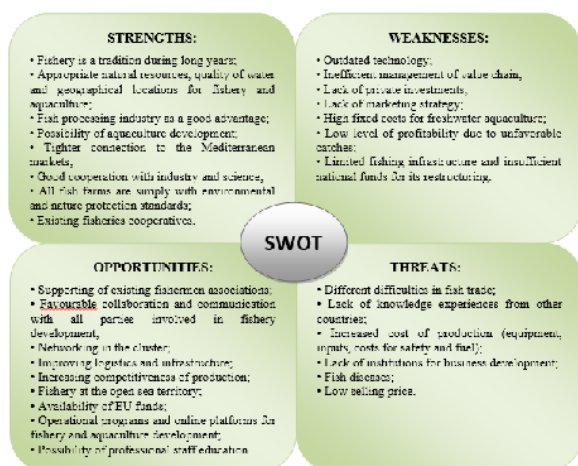


Figure 1. SWOT analysis of fishery sector in European countries [10].

On the other hand, fishery sector of the country has drawbacks like weak points and risks. For instance, outdated technology, lack of marketing strategy and private investments in the sector affect directly to the results of fish production.

Moreover, lack of knowledge experiences from other countries, increased cost of production (equipment, inputs, costs for safety and fuel) and low selling price in local markets are negative factors for the future activities of fishery. Additionally, lack of institutions for business development and existing of fish diseases influence significantly.

Results and Discussion. Croatia has huge opportunities to produce fish and fish products. Looking at this table below, we can see that catches in Croatia recorded to 72 thousand tons, it consisted of 68,8 % out of world total catches. It is shown that it was bigger percentage rather than other Balkan countries. And aquaculture reached at 17.000 tons, its share of the total world production in 2015 was 16% respectively.

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The observing of catches and aquaculture production is an important instrument for securing fish stocks available in Europe's large and rich fishing areas. According to the table 3, the total production of fishery products in 2015 recorded about 6,4 million tones. An upward trend was observed, illustrated by a 3,6 % rise of the EU total fishery production between 2008 and 2015 (see Table 2).

Table 2.
Total production of fishery products, 2008-2015 among EU countries [10]

№	Name of country	Total production (thousand tons live weight)		Share of EU-28 (%), 2015
		2008	2015	
1	Belgium	22	24	0,4
2	Bulgaria	15	19	0,3
3	Czech Republic	20	20	0,3
4	Denmark	728	905	14,1
5	Germany	251	278	4,3
6	Estonia	99	72	1,1
7	Ireland	250	272	4,3
8	Greece	199	170	2,7
9	Spain	1106	1195	18,7
10	France	728	661	10,3
11	Croatia	65	89	1,4
12	Italy	390	340	5,3
13	Cyprus	6	7	0,1
14	Latvia	158	82	1,3
15	Lithuania	160	77	1,2
16	Luxemburg	-	-	-
17	Hungary	15	17	0,3
18	Malta	8	13	0,2
19	Netherlands	422	427	6,7
20	Austria	2	4	0,1
21	Poland	152	221	3,4
22	Portugal	231	195	3,0
23	Romania	13	16	0,2
24	Slovenia	2	2	0,0
25	Slovakia	1	1	0,0
26	Finland	133	168	2,6
27	Sweden	237	215	3,4
28	United Kingdom	768	913	14,3
EU-28		6182	6404	100,0

Source: Eurostat. Agriculture, forestry and fishery statistics. 2017 edition.

Regarding to the countries: total production expanded in Spain (+8,1 %), the United Kingdom (+19,0 %), Denmark (+24,3 %), Croatia (+36,9%) and Poland (+44,8 %), while there was a decline in some EU countries such as Portugal (- 15,8 %), Greece (- 14,3 %), Italy (- 12,9 %) and France (- 9,2 %).

However, it can be seen that the four largest fishery producers of EU in 2015 were Spain (about 1,2 million tons), the United Kingdom and Denmark (approximately 0,9 million tons each) and France (0,7 million live weight tones). In previous years (2008), these four European

fishery areas accounted for more than half of the total EU production in 2015.

Based on the experience of foreign countries, taking into account the conditions that have arisen in our republic, it is advisable to analyze the significant aspects of foreign experience and, on this basis, carry out the following activities (Table 3):

- to improve the efficiency of state programs for the development of fisheries and aquaculture in the country, a special approach is advisable, taking into account the level of development of fisheries infrastructure, local demand and supply of fish and fish products, and other characteristics;

- practical and innovative projects to develop and improve the efficiency of the fishing industry and aquaculture, the deployment of scientific work on a large scale and increase their efficiency;

- widespread use of the cage (cage) method of growing fish in large reservoirs using the water resources of reservoirs, in order to improve the food supply of the population in accordance with medical standards;

Table 3.
Important aspects of foreign experience in developing and improving the efficiency of the fish farming [13]

Aspects of interest for use in fish-farming	Directions for the use of fish-farming in the republic
1). <i>In the case of fisheries reform (Turkey):</i> • Grants and subsidies have been introduced to encourage the opening of fishing farms, finding buyers and farms that have started fishing with pumps; • centralized rearing of fish fry has been established.	• Possibility to support farmers by contributing a certain amount of costs to farms that grow fish with the help of pumps. • centralized rearing of fish fry and its supply at low prices prevents the artificial rise in the cost of products in the fish industry.
2). <i>A centralized processing of marketable fish has been introduced (Turkey):</i> • centralized production and supply of fish feed has been established. • cage fish farming is widespread.	• It is desirable to establish processing and centralized production of fish feed in free economic zones (FEZs). • There are great opportunities for breeding fish species such as cage fish in cooperation with this country.
3). <i>Fisheries, as well as other branches of animal husbandry, have been allocated land for growing fodder crops (Holland, Germany).</i>	In order to minimize the cost of production in fisheries in the future, it is desirable to allocate additional land for growing fodder crops in order to improve the feed supply of fisheries.
4). <i>Marketing of fish products in the country is carried out in the following order:</i> • live, frozen and processed for local consumption; • Caught low-quality fish, both frozen and live, are used as feed in aquaculture production, including shrimp and valuable fish (Vietnam).	The maximum application of this experience in our country will achieve high economic efficiency of the fishing industry.
5). <i>Reforms in the fishing industry (Russia):</i> • widespread use of intensive technologies in the cultivation of sturgeon and cyprinids; • introduction of subsidies to cover certain production costs in the fishing industry.	It would be beneficial to introduce subsidies to cover a certain part of production costs (for example, pumping costs) based on the specifics of the fishing industry.
6). <i>In fisheries, great importance is attached to the development of aquaculture and the introduction of intensive technologies (Croatia):</i> • carp fish is considered the main export product and is exported in live and processed form; • mastered the production of granules (capsules) as feed; • Faculties and departments have been established to train ichthyologists and improve their skills in fish diseases and genetics (at the University of Zagreb).	• Centralized pellet production can give good results. • For the treatment and prevention of fish diseases, it is expedient to involve more foreign specialists and study their experience.

Source: Based on the research of the author.

- improving the food supply of the population through the processing of fish products, acclimatization and breeding of new fish species in the regions to strengthen food security, improve the welfare of the population by ensuring permanent employment and increasing its income;

- further strengthening of state support for the

development of the fishing industry and aquaculture, providing them with additional benefits in the tax, insurance, financial and credit systems, increasing food production in the regions and improving the quality of services by creating a favorable investment climate;

- it is necessary to further improve the system for improving the modern knowledge and skills of specialists and technical personnel in the field of fish farming [13].

Conclusions and suggestions. In European countries, 72% of fish is farmed in sea and brackish waters and 28% in freshwater. According to the SWOT analysis, favourable environmental and geographical conditions for development of sector are important aspect. Operational programs which are developed for concrete periods and online platforms (e.g. EUMOFA) for prediction of production are great experiences.

The observing of catches and aquaculture production is an important instrument for securing fish stocks available in Europe's large fishing areas. An upward trend was monitored, 3,6 % rise of the EU total fishery production from 2008 to 2015.

Some EU countries had significant growth in production of fish: total production expanded in Spain (+8,1 %), the United Kingdom (+19,0 %), Denmark (+24,3 %) and Croatia (+36,9%) within this period.

We can suggest the following European experiences in the fishery of our country:

1. It is absolutely vital to realize scientific-innovative projects for the development of fisheries. Implementation of scientific projects and research which are aimed at solving the problems of the sector's development (cage fishing, intensive technologies, acclimatization of new species, modernization of necessary fishing equipments).

2. Increasing the volume of production of fish products in Uzbekistan:

- Expansion of produced fish assortments through acclimatization of new fish species;

- Export of produced and processed new fish species and realization of their sales in foreign markets;

- Introduction of advanced technologies for the processing, packaging and storage of fish products in the regions;

- Improvement of food supply in the production process of fish products, establishment of feed and fertilizer production in the local conditions;

- Strengthening the role of logistics and consulting services in the supply chain;

- Creating an analytical online platform that might be observed the

price changes of fish products and enabled new information about latest technologies and equipments for fisheries;

- Further strengthening the system of personnel training on fisheries in higher education institutions, organization of seminar-trainings and internships for specialists in the foreign countries.

In general, we can conclude that by analyzing the

experience of countries with advanced fisheries, such as Vietnam, Turkey, Russia, China, Japan, Germany, Croatia, it is advisable to implement important areas for the development of fisheries in our country. Without intensive technologies and methods, it is impossible to increase the volume of fish production, therefore, the current directions of foreign experience and increasing the efficiency of their implementation are today one of the most important issues in this area [13].

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