EVALUATION OF PROBLEMS AND POSSIBILITIES OF INDUSTRIAL FISH UTILISATION FOR HUMAN CONSUMPTION

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Abctract. *Fish caught by Lithuanian Baltic Sea fishermen is used for industrial purposes to a relatively large proportion – 60–80 percent of the total volume versus 25–30 percent on the global level. There is no fully developed fishmeal industry in Lithuania, so industrial fish species are disposed of at foreign markets. The first sale prices for fish used for human consumption are higher. It is considered that saling sprats and herrings for human consumption would increase fishermen's income, create an additional profit and value added. The purpose of the study was to determine the economic reasons why a large portion of Lithuanian landings of Baltic Sea pelagic fish species are used for industrial purposes. The study has shown that the main reasons are unstable, seasonal supply of sorted and good quality raw material and the lack of production sales markets. The authors have investigated the problem and proposed possibilities to increase the use of industrial fish for human consumption in Lithuania.*

Key words: *fishery, human consumption, fish supply*

Introduction

During the period 2003–2007, catches of sprat and Baltic herring accounted for 55% in 2003 and totalled 87% in 2007. The cod resources in the Baltic Sea were decreasing in the period between 2004 and 2007, while the sprat resources and quotas were growing rapidly. From 2004 to 2007, the initial sprat fishing quota increased by 20% and that of herring by 26%. For a long time, Lithuania hardly fulfilled fishing quotas of these fish species: only 20% of the initial herring quota and 35% of the sprat quota were reached in 2005. Such a poor fulfilment is related to the lack of the market and to the fact that the Lithuanian Baltic sea fleet is aimed at cod fishing.

In 2007, indicators for sprat and herring quotas were the best: 93% of the established herring quota and 87% of the sprat quota were met in Lithuania. The Lithuanian processing industry processes only a small share of sprat and herring into products for human

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tion of fish meal, while Baltic herring is mainly used for human food, and small fish and waste might be processed into fish oil.

2. Strategic objectives and tasks in Lithuania

The National Strategic Plan of the Lithuanian Fisheries Sector for 2007–2013 indicates the following strengths of the fish processing industry and marketing: a developed network of modern fish processing enterprises that meet EU quality requirements, a high technology level in some fish processing enterprises and a good quality of products, effective marketing on the international markets and an increasing export of fish products as well as the financial potential of large-scale enterprises to invest into the production. The Strategic Plan also refers to a number of weaknesses such as underdeveloped processing of Baltic sea small pelagic fish, production of canned fish and its marketing, insufficient cooperation and association of small producers unable to protect their interests and to compete on the market, a lack of fresh and good quality raw fish and the assortment of products that fails to fully satisfy the market needs.

The National Strategic Plan of the Lithuanian Fisheries Sector for 2007–2013 indicates that the key goal of the fish processing industry and marketing is the strengthening of competitiveness, promotion of a more effective marketing and supply of good quality products to consumers. To reach this goal, the following objectives have to be implemented: to encourage the implementation of new technologies and the introduction of new products, to improve the quality of fishery products, to encourage the competition, to enrich the assortment of fishery products, to improve working and hygiene conditions in the processing enterprises, to reduce the negative impact on the environment, to increase the competitiveness of micro- and small-scale enterprises, to develop the processing of little-used fish species, to encourage the search of new markets and to improve the marketing measures, and to encourage the creation of new working places.

3. The supply of little-used fish species in Lithuania

Annual catches of Lithuanian fishing enterprises in the Baltic Sea are equal to nearly 10–27 thousand tonnes of fish, i.e. to 20–36% of the total demand for processing enterprises (the demand is 50–75 thousand t). Only minimal amounts of fish caught in the Atlantic Ocean are supplied for the processing to the Lithuanian fish industry. Therefore, Lithuanian fish processing enterprises produce fishery products from the imported frozen raw fish. In Lithuania, fish products meant for non-human consumption and waste are used for animal feeds and fish-meal. But the production of fish-meal is underdeveloped yet. Usually raw fish for the production of fish-meal is landed in foreign ports.

Until 2007, only less than 50% the fishing quotas for sprat and Baltic herring in the Baltic Sea were reached. The fishing business was mainly concentrated on the cod, the fishing fleet had no vessels for fishing small pelagic fish, and the price of these fish spe-

The results of the research showed that the assortment of live fish was the poorest, the largest share of chilled fish were Lithuanian products, while frozen products were mainly imported (Table 1, Fig. 6). Lithuanian products also dominated among salted, marinated and smoked fish products. Lithuanian and foreign products accounted for a nearly equal proportion in the group of dried fish products. The majority of ready-to-serve products were produced in Lithuania. However, the largest part of canned fish products was produced in foreign countries. This fact indicates that the Lithuanian processing industry does not use all its potential or is not competitive with foreign producers.

In Lithuania and foreign countries, considerable attention has lately been paid to cultural traditions and the national heritage. The national heritage, both in traditional crafts and culinary, is an important part of Lithuanian ethnic culture. To ensure the state protection of national heritage products, to preserve the accumulated experience of traditional crafts and national heritage products as an integral part of ethnic culture and to adapt them to the present needs, the Seimas of the Republic of Lithuania adopted the Law on Products of the National Heritage No. X-1207 on 26 June 2007. The aim of this law is to ensure the state protection of national heritage products, to preserve and disseminate the accumulated experience of traditional crafts and the culinary heritage.

On 2 September 2008, Order No. 3D-481 of the Minister of Agriculture approved the classification of traditional crafts and the procedure of their classification. Since the old times Lithuanian fishermen have been engaged in fishing business in the Curonian Lagoon and the Baltic Sea. Traditionally, a lot of fishermen used to live on the sea shore, and their main income source came from resources of the sea. Therefore, a traditional fisherman was recognised as a traditional Lithuanian craftsman. The key fish species that Lithuanian fishermen used to fish in the Baltic Sea as far back as the beginning of the last century included cod, salmon, Baltic herring and sprat. Fish of these species was smoked, salted or fried, and different other products were made.

Nowadays, the most popular products from sprat include canned smoked sprat in oil and sprat paste. In Lithuania, there are a few enterprises that have facilities to produce these products.

The supply of salted sprat, salted or marinated sprat fillet to the retail market is insufficient. These products are likely to be popular on the domestic market. Similar products are popular in Estonia and Poland.

As mentioned above, the assortment of Lithuanian canned fish is relatively poor. Sprat and Baltic herring might be processed into the following types of canned fish:

- smoked sprat in oil,
- sprat in own juice,
- sprat in tomato sauce,
- Baltic herring in own juice,
- Baltic herring in tomato sauce,
- smoked Baltic herring,
- other.