

CHALLENGES IN THE CULTURE OF DIADROMOUS FISH SPECIES IN POLAND ON THE EXAMPLE OF *salmonidae*. CS TROUT

INTRODUCTION

The main *Salmonidae* commercial fish species farmed in Northern Europe are salmon and rainbow trout.

World Atlantic salmon (*Salmo salar*) production has been growing constantly for years. 99,9% of production comes from aquaculture, of which over a half is from Norway. EU production systems need to be adapted to strict environmental regulations and increasing competition from countries with lower labor and management costs and environmental conditions. Therefore, it is highly important to find new innovative solutions to enable environmentally and economically sustainable production growth in the EU aquaculture sector.



Due to environmental conditions on the Polish coast, which is a shallow sandy open sea area, *Salmonidae* production is held onshore and focused mostly on trout. The case study is conducted within the framework of the SUCCESS (Strategic Use of Competitiveness towards Consolidating the Economic Sustainability of the European Seafood Sector)/H2020 project and focuses on the analyses of the environmental and economic sustainability of rainbow trout farming and management systems.

PRODUCTION

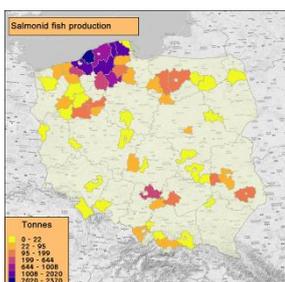
Poland is important producer at European trout market. Total supply of trout on Polish market amounts to 20,5 th. tons in 2015. It supplies 15,8 th. tons trout in 2015. The table presents the supply of trout on domestic market in years 2011-2015 (th tons).

Type of activity	2011	2012	2013	2014	2015
national supply of trout	13,3	17,1	19,4	21,2	20,5
herein from the fish farm	12,9	14,6	13,7	16,1	15,8
herein export	7,4	6,3	7,8	9,5	9,4
import	7,8	8,9	13,5	14,6	14,1

Source: Fish Market No 25 2016.

There is estimated about 150 trout farm in Poland. Monoculture is the most common practice, and intensive systems are considered necessary in most situations to make the operation economically attractive. The average farm produces about 82 kg from 1 m³.

Trout farms are placed mostly in northern area, but there is no connection to the sea.



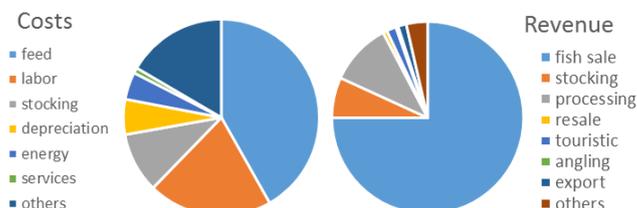
Source: InFish report for SUCCESS project

Intensive aquaculture is a modern, environmentally balanced branch focused on economic efficiency and production growth.

Strategy of development of Polish aquaculture predict that trout production may be doubled up to 2020. Producer seen the biggest potential in RAS (Recirculating Aquaculture System).

COSTS AND REVENUES STRUCTURE

Trout producers main costs are feeding, labor costs and purchase of stocking material. Main revenues comes from fish sale, sale of stocking material, processing and resale of purchased fishes.



This both structures shows specialization of intensive aquaculture and their dependency to any changes on food prices, wages of employers as well as fish prices.

CHALLENGES

Due to potential threat of fish illness the area of intensive aquaculture farm is closed to the public access. This awareness is a factor of isolation of production from local society.

Plans of production increase will affect local society, who even now complain on area use for production reason and restriction in development of other activities.



Source: www.skolysz.pl Trout Farm in Poland

Another challenge which producer have to force is impacts from flow-through systems are largely from disease treatment chemicals, uneaten feed and fish excreta, which can alter water and sediment chemistry downstream of the farm. Elevated nutrients reduce water quality (increasing biological oxygen demand, reducing dissolved oxygen and increasing turbidity) and increase the growth of algae and aquatic plants.

CONCLUSION FOR FURTHER DEVELOPMENT

- finding balance between farm protection and social integration
- development of RAS systems as pollution control need
- investments in productivity (new innovative technologies)
- waste management (pro-environment activities)

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