

**The title of the project topic is:** Development of biotechnical methods for artificial reproduction of pikeperch in a recirculating aquaculture systems (RAS).

**Relevance:** Pikeperch is a valuable object of fishing in the fisheries reservoirs of Kazakhstan. With the increase in the export of pikeperch to Europe, there is a commercial pressure on the population of pikeperch in all reservoirs of Kazakhstan and a sharp decrease in its number. Currently, it is extremely important to breed pikeperch in aquaculture. At the same time, one of the primary tasks is to develop the technology of artificial reproduction at fish-breeding enterprises in Kazakhstan in the conditions of the RAS in order to further obtain fish-planting material. The existing high prices for pikeperch landing material from the near abroad are formed by high demand and are associated with its acute shortage.

**Purpose:** Our goal is to develop biotechnical techniques for artificial reproduction of pikeperch in a recirculating aquaculture system.

**Expected and achieved results:**

1) Based on the results of scientific research on the project, 2 articles will be published in peer-reviewed scientific publications indexed in the Science Citation Index Expanded database of Web of Science with a CiteScore percentile in the Scopus database of at least 35; at least 3 articles in a peer-reviewed foreign or domestic publication recommended by COXON.

2) A collection of recommendations will be developed in the form of a book publication on artificial reproduction of pikeperch in the RAS, aimed at the development of this direction in fish farms in Kazakhstan.

3) Scientific and technical solutions available in published sources for artificial reproduction of pikeperch will be analyzed, then a patent search will be conducted and 1 application for a Kazakhstan patent will be submitted on the topic applied for the grant.

In the course of expedition trips to the reservoirs of the Akmola region, the breeding population of pike perch was caught. The sexual structure, fertility, linear and weight indicators were studied. The formation of a repair and brood stock of pikeperch spawners during cultivation in the RAS was continued. The determination of optimal conditions for the reproduction of zander in RAS was continued. The optimal conditions for the reproduction of pike perch in RAS were determined depending on external factors, such as light conditions, temperature conditions, hydrochemical composition, the size of the pools for reproduction, feeding regime, etc. The selection of optimal conditions for growing pike perch seed stock, taking into account their biological, and technological features. Researches of the combined method of cultivation are carried out. Research has begun to determine the optimal conditions for obtaining marketable pike perch products, depending on growing conditions. The features of feeding with artificial compound feeds are determined and alternative feeds for growing pike perch are selected.

3 articles were published in a peer-reviewed domestic publication recommended by COXON.

1 patent application has been submitted for the technology of artificial reproduction of pike perch.

2 articles were submitted to peer-reviewed publications included in the Scopus database.

A practical recommendation has been developed on the technological aspects of pike perch reproduction under RAS conditions.

1. К.Н. Сыздыков , Ж.Б. Куанчалеев, Г.А. Аубакирова, С.Е. Мусин. ОПЫТ ВЫРАЩИВАНИЯ СУДАКА В УСЛОВИЯХ НИЦ «РЫБНОЕ ХОЗЯЙСТВО». Вестник КазНУ. Серия биологическая: Том 88 № 3 (2021)

<https://doi.org/10.26577/eb.2021.v88.i3.13>

2. К.Н. Сыздыков, Ж.Б. Куанчалеев, Г.А. Аубакирова, С.Е. Мусин, А. Д. Мусина. ОПЫТ ИСКУССТВЕННОГО ВОСПРОИЗВОДСТВА СУДАКА (SANDER LUCIOPERCA) В УСЛОВИЯХ УЗВ // Вестник науки Казахского агротехнического университета им. С.Сейфуллина (междисциплинарный). - 2022. - №3 (114). –Ч.2. - С. 17-27.

<https://bulletinofscience.kazatu.edu.kz/index.php/bulletinofscience/article/view/1163>

3. К.Н. Сыздыков , Ж.Б. Куанчалеев, Г.А. Аубакирова, С.Е. Мусин, А.Д. Мусина. ВЫРАЩИВАНИЕ СУДАКА ЕВРОПЕЙСКОГО SANDER LUCIOPERCA (L.) В СИСТЕМЕ ЗАМКНУТОГО ВОДОСНАБЖЕНИЯ. Вестник науки Казахского агротехнического исследовательского университета им. С. Сейфуллина (междисциплинарный). – Астана: 2023. -№ 3(118). - С.214-226.

[https://doi.org/10.51452/kazatu.2023.3\(118\).1511](https://doi.org/10.51452/kazatu.2023.3(118).1511)

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**Information for potential users:** The main competitive advantage of the technology of artificial reproduction of pikeperch in RAS will be that when using this method, it is possible to fully control all technological processes and external factors, as well as eliminate the seasonal nature of reproduction. Reproduction of pikeperch in the RAS in comparison with the pond method allows you to get fish planting material at any time, regardless of such external factors as: hydrochemical mode, temperature mode, light mode, weather conditions, development of forage organisms in the pond, etc. In view of the fact that modern technologies of RAS allow you to control absolutely all growing conditions, this technology is more promising both in terms of obtaining fish planting material, and in terms of selling these products at the optimal time for producers.

**Additional information:** Pikeperch, as one of the most valuable types of commercial fish, is an export item of Kazakhstan. High taste qualities of this fish, high protein content with a small amount of fat in the meat make it a desirable object of fishing and fish farming.

Due to over-intensive industrial and commercial fishing, the number of pikeperch in the natural reservoirs of Kazakhstan is rapidly decreasing. The reduction of pikeperch stocks in the country's fisheries reservoirs dictated the need to implement measures to reproduce the commercial stocks of this object.