

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.

During expedition trips to the reservoirs of the Akmola region, a breeding stock of pike perch was caught. Studied the sex structure, fertility, linear and weight indicators. For the first time in Kazakhstan, the formation of a replacement brood herd of pike perch breeders when reared in RAS has begun. Determination of optimal conditions for reproduction of pike perch in RAS has begun. The optimal size and age groups of pike perch, most adapted for reproductive purposes in RAS, have been determined. The selection of optimal conditions for the cultivation of fish stocking material for pike perch, taking into account their biological, physiological and technological characteristics, has begun. Research has been carried out on the pond cultivation method. Published 1 (one) article in a domestic edition recommended by KOKSON.

К.Н. СЫЗДЫКОВ, Ж.Б. Куанчалеесев, Г.А. Аубакирова, С.Е. Мусин. ОПЫТ ВЫРАЩИВАНИЯ СУДАКА В УСЛОВИЯХ НИЦ «РЫБНОЕ ХОЗЯЙСТВО» // Вестник КазНУ. Серия биологическая. – 2021. - №4. – С. 130-140.
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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.