

MINISTRY OF AGRICULTURE  
REPUBLIC OF KAZAKHSTAN  
NJSC "KAZAKH AGROTECHNICAL RESEARCH UNIVERSITY named after .  
S.SEIFULLIN"

Reviewed  
at the meeting  
faculty council

Protocol No. 5 dated 26.12.23

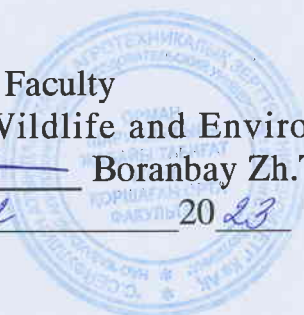
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Dean of the Faculty

Forestry, Wildlife and Environment

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PLAN  
DEVELOPMENT OF THE EDUCATIONAL PROGRAM  
for 2024-2028  
according to educational programs  
7M08401 «Intensive fish farming»

Considered at an extended meeting of the Department of Hunting and Fisheries  
Protocol No. 5 dated 1.12.2023

## Content

No.	Component name	Page
1	Passport for the development plan of educational programs ( EP)	3
2	Analytical justification for the EP	3
2.1	Information about educational programs	3
2.2	Information about students	3
2.3	Internal conditions for the development of EP	4
2.4	Characteristics of the surrounding society	5
2.5	Information about teaching staff implementing educational programs	5
2.6	Characteristics of EP achievements	6
3	Characteristics of the problems that the EP development plan is aimed at solving and justification for the need to solve them	6
4	The main goals and objectives of the EP development plan, indicating the timing and stages of its implementation	6
5	Measures to reduce the impact of risks for EP	7
6	Action plan for the development of EP	8
7	Mechanism for implementing the EP development plan	9
8	Assessment of the socio-economic efficiency of the implementation of the EP development plan	9
9	EP graduate model	9

## 1. Passport of educational program development plan (EP)

Educational program development plan - 7M08401 «Intensive fish farming» for 2024-2028

1	Reasons for developing an EP development plan	The strategy and topics of the EP development plan in accordance with the educational policy of the Republic of Kazakhstan, the purpose of which is to prepare new specialists who are competitive in the labor market, have broad fundamental knowledge and practical experience, meeting the needs of the state and stakeholders.
2	Main developers of the EP development plan	1. Aubakirova Gulzhan Amanzholovna PhD , associate professor of the Department of Hunting and Fisheries 2. Asylbekova Ainur Serikbaevna – candidate of agricultural sciences , associate professor of the Department of Hunting and Fisheries. 3. Barinova G.K. Ph.D. , Acting Associate Professor of the Department of Hunting and Fisheries. 4. Zhubaev Askhat Bakhtygalievich - Head of the Department of Reproduction of Fish Resources of the Committee of Fisheries of the Ministry of Fisheries of the Republic of Kazakhstan 5. Ayan Kairatovich Bakhiyanov – Deputy Chairman of the Fisheries Committee of the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan 6. Bazhenova Diana Alexandrovna – 3rd year of the OP "Aquaculture and aquatic bioresources"
3	Timing of EP development plan	2024-2028
4	Volume and sources of funding	Financing from the state budget, attraction of external sources of financing
5	Expected final results of the implementation of the EP development plan	Training of highly qualified specialists in the field of fisheries in accordance with the requirements of domestic and international standards

## 2. Analytical justification of the EP

Updated content of the EP; high quality of graduate training; implementation of EP with the addition of in-depth training, taking into account the cognitive ability and needs of students.

**2.1 Information about educational programs.** Educational programs 7M08401 “Intensive fish farming”\_are aimed at in-depth theoretical and practical training of specialists in the field of fisheries. The educational program is developed in accordance with the National Qualifications Framework and professional standards, aligned with the Dublin Descriptors and the European Qualifications Framework.

**2.2 Information about students.** Currently, 6 master’s students are studying in the EP 7M08401-“Intensive fish farming” (master’s degree).

Table 1 - Information about students in the 2023-2024 academic year

No.	Indicators	2023-2024
<b>7M08401-“Intensive fish farming”</b>		
1	Contingent of undergraduates, total:	6
2	Number of master's students studying on state grants	6

**2.3 Internal conditions for the development of EP.** To implement the above educational programs, the department has appropriate material and technical support, including: the research center “Fisheries”, as well as specialized audiences in the disciplines: hydrobiology, ichthyology, aquaculture, fundamentals of scientific research in fisheries, operation of recirculation systems, ethology of fish with relevant equipment, in particular microscopes, binoculars, an ultrasound machine, electronic scales, a field laboratory for the study of natural water NKV-12, a Goryaev camera, Apstein nets, etc.

Educational and methodological documents for EP have been developed in accordance with existing regulatory documents such as state compulsory education standards, working curricula, academic calendars, educational teaching materials in all areas of study, as well as relevant documentation for the preparation of bachelors and masters have been developed. The direction of preparation of master's theses corresponds to the topics of scientific research of the department (funded projects and initiative topics of scientific research).

Particular attention is paid to such issues as increasing the degree of teaching staff, their completion of advanced training courses in domestic universities, in universities near and far abroad, research institutions, as well as inviting leading specialists from the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan, scientists from higher educational institutions near and far abroad.

<b>Strengths:</b>	<b>Weak sides :</b>
1. Compliance of the content of educational programs of State Educational Standards with modern requirements of science and consumers, as well as their regular updating, due to constant changes in the needs for graduate competence, processes and economic integration. 2. Step-by-step planning of the process of mastering educational programs, according to a path independently chosen by students in accordance with the rules of the credit education system. 3. The combination of theoretical and practical training, independent work in educational programs, as well as the presence of compulsory and elective disciplines, including components for preparation for professional activity, the development of intellectual skills, creativity and personality of the student. 4. Development and implementation into the educational process of innovative forms, methods of mastering educational programs, multimedia tools that ensure the training of highly qualified specialists. 5. Interdisciplinary communication. 6. Provision of computers and Internet access, updating of the library collection.	1. Insufficient number of interuniversity student exchange programs and teacher internships.

**2.4 Characteristics of the surrounding society** . According to EP 6B08401 “Aquaculture and aquatic biological resources” and EP 7M08401 “Intensive fish farming”, employers are:

1. Northern branch of LLP "Research and Production Center of Fisheries" - Shutkaraev A.V.
2. Director of Ailand LLP Astana » – Mukhanov A.Sh.
3. Director of Maybalyk Fish Hatchery LLP - Sadykov D.M.
4. Head of the Department for the Protection of Fish Resources and Regulation of Fish catching of the Fisheries Committee - Suykpaev E.

7 agreements have been concluded with business entities where students undergo internships. Below is a list of farms:

- 1 Northern branch of LLP "Research and Production Center of Fisheries"
- 2 LLP fish hatchery " Maybalyk "
- 3 Karaganda Fish Hatchery LLP
- 4 Public association "Society of Hunters and Fishermen of Astana and Akmola Region"
- 5 KHAMIT LLP
- 6 Republican state institution " Korgalzhyn State Nature Reserve"
- 7 Poseydon LLP

Much attention is paid to dual training of students. Teachers of the department, according to the schedule of classes approved by the director of the DAV, conduct on-site classes.

Thus, 3rd year students in EP 6B08401 “Aquaculture and Aquatic Bioresources”, discipline “Technology of Cultivation of Aquatic Animals” (senior teacher Shutkaraev A.V.), conduct practical classes in the Northern branch of LLP "Research and Production Center of Fisheries". Students of the EP 7M08401 “Intensive fish farming” of the discipline “Theory and practice of acclimatization of aquatic organisms” conduct practical classes at LLP Ailand Astana".

Master's students undergo research internship at the Kazakh National Research University .

Opportunities for graduates of EP, as well as emerging threats

<p><b>Possibilities:</b></p> <ol style="list-style-type: none"> <li>1. After completing undergraduate educational programs, graduates have the opportunity to continue their education in postgraduate educational programs.</li> <li>2. The ability to bring educational programs to a new quality level, including to the international level.</li> <li>3. Cooperation of agricultural universities of the republic in the training of specialists, exchange of experience in increasing the efficiency of the implementation of educational programs.</li> </ol>	<p><b>Threats:</b></p> <ol style="list-style-type: none"> <li>1. The weakness of employers to formulate requirements for the graduate’s competence, which often differ from the content of the completed educational programs.</li> <li>2. The high cost of educational services compared to the average market price offered by competing universities.</li> </ol>
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### **2.5 Information about teaching staff implementing educational programs**

he implementation of educational programs 7M08401 “Intensive fish farming” is carried out by the university teaching staff in accordance with the cycle of general education, basic, and core disciplines.

The teaching staff of the Department of Game Science and Fisheries, which implements the EP, includes 2 associate professors; Candidates of Sciences-4, PhD-1.

Table 2 - Degree according to EP 6B08401 “Aquaculture and aquatic biological resources”, 7M08401 “Intensive fish farming”

Academic year	Degree level EP 7M08401 Intensive fish farming, %
2023-2024	100.0

The degree according to EP 7M08401 “Intensive fish farming” is 100%.

Employees of the department for the period from 2020 to 2023. underwent advanced training in the Russian Federation. The employees underwent advanced training at the M.V. Lomonosov Moscow State University on the topic “Variability of habitual , craniological and anatomical characters in fish” from August 30 to September 12, 2021. Scientific internship from November 1 to November 15, 2021 at the Novosibirsk branch of the Institute of Water and Environmental Problems of the SB RAS. Advanced training at Novosibirsk State University from June 28 to July 7, 2021 on the topic “Hydrochemical regime of water and methods for collecting and processing artemia . ”

**2.6 Characteristics of achieving EP.** The department conducts scientific research on funded projects of the Ministry of Education and Science of the Republic of Kazakhstan, as well as on initiative topics in which students and undergraduates directly participate. The topics of their diploma works and master's theses correspond to this area of scientific research.

In accordance with the requirements of the labor market and at the suggestion of employers, new elective disciplines are being introduced into work curricula and catalogs of elective disciplines.

Currently, due to the intensive development of the fisheries industry, there is a need for specialists in the field of fisheries. After graduating from the university, graduates are employed in all economic entities.

### **3. Characteristics of the problems that the EP development plan is aimed at solving, and justification for the need to solve them.**

Educational programs were created to train personnel to carry out professional activities in the field of rational use of aquatic biological resources, reproduction and cultivation of aquaculture objects. Trained personnel in these educational programs must have the skills to study the state of the number of aquatic biological resources, possess the skills of scientific-production, organizational-managerial and research work, capable of conducting experimental and theoretical research on modern problems and methods of protection and reproduction of valuable fish species, according to development of biotechnical measures for the reproduction and cultivation of commercial fish species.

**4. The main goals and objectives of the Development Plan , indicating the timing and stages of its development.** The development plan for educational programs 6B08401 “Aquaculture and aquatic biological resources” and 7M08401 “Intensive fish farming” was created based on the request of employers. The main goal of the educational program development plan is to improve the content of the educational program with the formation of professional competencies among personnel specialized in fisheries and industrial fisheries with the study of the rational use of aquatic biological resources of inland freshwater reservoirs and technological processes of reproduction and cultivation of the main objects of aquaculture. Studying the educational program allows you to master the main ways to increase catches in natural reservoirs, increase the efficiency of artificial reproduction of fish stocks and create lake-commercial fish farms for growing high-grade commercial fish.

The main objectives of the Development Plan are the following:

No.	Task name	Stages of development	Development timeframe
1	Improving of conditions for obtaining full-fledged, high-quality vocational education	The entire training period	Development of measures to improve educational services for the development of professional skills
2	Development of EP in accordance with the state mandatory standard of higher education and a classifier of areas of personnel training that form the basic professional competencies of future fishery specialists	The entire training period	During updating the content of the EP, include disciplines recommended by employers and competencies.
3	Creating prerequisites for the student's independent research activities as part of an experiment at all stages of training	The entire training period	Inclusion of search, research and experimental work in the study of EP
4	Development of activities for mastering work with scientific and technical information using domestic and foreign experience in professional activities	The entire training period	Carrying out activities to analyze and process the results obtained
5	Organization of consultations for employers and scientists of research institutes when choosing relevant and practically significant topics for diploma theses and master's theses	Beginning of training in EP 7M08401 «Intensive fish farming»	Creation of a list of relevant and practically significant topics, taking into account the proposals of employers and taking into account the research work of the department (state budget programs).
6	Involving students in the research work of the department by including them in research programs.	The entire training period	Inclusion of students in the staff of grant programs.
7	Implementation of research internships in universities of the Republic of Kazakhstan and foreign universities	The entire training period	Concluding agreements with universities

**5. Measures to reduce the impact of risks for the EP.** Increasing the number of students, fully providing educational and methodological literature, concluding agreements with business entities for internships and further employment, timely planned purchase of modern equipment necessary for growing fish. Functioning of the Research Center “Fisheries” at the department.

Currently, agreements have been concluded with universities in neighboring countries (Novosibirsk, Irkutsk, Astrakhan, etc.).

## 6. Action plan for the development of EP

Table 3 - Development plan for EP 7M08401 “Intensive fish farming”

No.	Name of events	Implementati on deadlines	responsible	Expected results	Resource support
1	Formation of an academic committee for the development of educational programs	September 2024-2025	Aubakirova G.A., Asylbekova A.S., Barinova G.K.	The team of authors will be determined by order of the university rector.	
2	Determination of competencies according to EP 6B08401 “Aquaculture and aquatic biological resources”, 7M08401 “Intensive fish farming”	October 2024- May2025	Aubakirova G.A., Asylbekova A.S., Barinova G.K.	Competencies will be determined for two EPs	
2.1	Development of a common position on the competencies of educational programs with employers	May 2025- 2028	Aubakirova G.A., Asylbekova A.S., Barinova G.K.	Common positions on EP competencies will be developed with employers	
3	Formation of an educational program in accordance with professional standards	May 2025- 2028	Aubakirova G.A., Asylbekova A.S., Barinova G.K.	The educational program is formed in accordance with professional standards	
4	Drawing up an academic calendar and a working curriculum for the EP in accordance with the developed educational programs	May 2025- 2028	Aubakirova G.A., Asylbekova A.S., Barinova G.K.	An academic calendar and curriculum for the specialty has been compiled in accordance with the developed EP	
5	Updating the educational program	May 2024- 2028	Aubakirova G.A., Asylbekova A.S., Barinova G.K.	An annual update of the educational program will be carried out	
6	Consideration of the educational program at an extended meeting of the department	May 2025- 2028	Department of Hunting and Fisheries, employers	EPs will be considered at an extended meeting of the department with the	



	with the participation of employers			participation of employers	
7	Review and approval of the educational program by the academic council of the faculty	May 2025-2028	Academic Council of the Faculty of Forestry, Wildlife and Environment, employers	The EP will be reviewed and approved by the Faculty Academic Council	

**7. Mechanism for implementing the EP development plan .** Conduct targeted work to increase the number of grants under EP 7M08401 “Intensive fish farming”. Trips for students to basic farms and higher educational institutions in neighboring countries will be organized. Leading scientists from near and far abroad will be invited to conduct lectures and practical classes for students. Dual training agreements have been signed where practical classes will be conducted (NB LLP "RPC Fisheries", LLP " Ailand Astana ").

When organizing the “Graduate Fair”, employers from various forms of business entities in the field of fisheries from other regions of the Republic of Kazakhstan will be invited.

**8. Assessment of the socio-economic efficiency of the implementation of the EP development plan.**

Socio-economic effect from the implementation of the EP development plan.

As a result of the implementation of educational programs on farms, scientific developments and recommendations of scientists from the department will be introduced, and targeted work will be carried out to implement the state program “With a diploma to the village”, i.e. explanatory work among graduates of the faculty.

**9. Graduate model for EP.**

As a result of training in EP 7M08401 “Intensive Fish Farming”, the graduate must have effective communication and social skills, including the ability to:

- work with scientists from other institutions in joint projects and participate in events (interpersonal competence);
- demonstrate teamwork skills, demonstrate competence in negotiations and the ability to demonstrate organizational ability (interpersonal competence);
- integrate with other organizations in different cultural contexts (interpersonal competence);
- present work in an accessible form (interpersonal competence);
- perceive innovations and changes positively (interpersonal competence);

*Know and understand* - organization, planning and direct implementation of a set of works on artificial breeding, cultivation and acclimatization of economically valuable species of fish and invertebrates;

- organization and planning, direct implementation of a set of works to protect and control the rational use of natural biological resources;
- biology and fishing characteristics of the main objects of fish farming and fishing, their ecology;
- the current state of aquaculture and prospects for its development;
- hydraulic structures of fish farming enterprises, their technical operation, technical justification for fishery construction;
- achievements of science and technology, advanced domestic and foreign experience in the relevant work performed, field of knowledge;

*Be able to:*

- apply the acquired knowledge to solve specific scientific, practical, information retrieval, methodological and educational problems;
- use modern methods of studying natural phenomena and processes;

- determine the **practical significance** of populations of commercial fish species;

*Acquire practical skills:*

- apply methods of field and laboratory ichthyological and hydrobiological research;

- apply methods for assessing fish stocks, grading water bodies;

- apply fishery research methods, rules and conditions for their implementation;

- artificial reproduction and commercial cultivation of hydrobionts.

Head of Department



Aubakirova G.A.