

State Organization «Institute of Market and Economic&Ecological Researches of the National Academy of Sciences of Ukraine»

Summary of the implementation of scientific research results «Organizational and economic mechanisms of aquaculture market formation (by the example of the Ukrainian Black Sea region)»

(Registration No.0122U002395, performance period: 01.01.2022 - 30.06.2024)

Based on the results of applied developments, positive feedback and implementation information were received, in particular:

1. The Ministry of Agrarian Policy and Food of Ukraine (outgoing letter No. 21-1210-09/8895 dated 17.06.2022) reviewed and approved the analytical note *«Methodological Support for Determining the Extent of Damage to Agricultural Lands Caused by the Armed Aggression of the Russian Federation»*. The document was coordinated with State Secretary V.V. Kantsurak and seven officials at the levels of department directors, division heads, and chief specialists, namely O.V. Kryvoruchko, O.S. Pazynich, V.D. Shumeyko, S.V. Rudenko, V.M. Sushak, S.L. Makovetsky, and M.V. Makashin. The Ministry of Agrarian Policy proposed communication with the Ministry of Environmental Protection and Natural Resources, the developer of the corresponding regulatory legal act.

2. The Ministry for the Reintegration of Temporarily Occupied Territories of Ukraine (outgoing letter No. 22/32-3246-22 dated 15.06.2022) positively assessed the analytical note *«Methodological Support for Determining the Extent of Damage to Agricultural Lands Caused by the Armed Aggression of the Russian Federation»*. The Ministry addressed the Ministry of Agrarian Policy and the Ministry of Environmental Protection, as developers of regulatory legal acts in the relevant fields, suggesting the use and further elaboration of the presented work during the development of the Methodology for Assessing Damage and Losses in the respective areas.

3. The Ministry of Environmental Protection and Natural Resources of Ukraine (outgoing letter No. 28842/1/4-22 dated 23.05.2022) reviewed the work *«Methodological Support for Determining the Extent of Damage to Agricultural Lands Caused by the Armed Aggression of the Russian Federation»* and forwarded it to the State Environmental Inspection for processing. The Institute was informed through an outgoing letter, confirming the use of materials for the final version of the Methodology for Determining the Extent of Damage to Agricultural Lands Caused by the Armed Aggression of the Russian Federation. Gratitude was expressed for their dedication to environmental concerns.

4. The Department of Ecology and Natural Resources of the Odesa Regional Military Administration (outgoing letter No. 2577/06/06-17/2-22/4049 dated 25.11.2022) positively evaluated the scientific report *«Conceptual Foundations of Environmentally Safe Aquaculture Development in Market Conditions and Post-War Economic Recovery»*. It noted the model for sustainable aquaculture development, which simulates sustainable development processes to minimize the sector's environmental impact. The department emphasized the feasibility of studying the practical implementation of tools for environmentally safe aquaculture development

proposed by the authors, particularly the concept of eco-industrial parks in the Odesa region.

5. The Department of Economic Policy and Strategic Planning of the Odesa Regional State Administration (outgoing letter No. 2160/02/02.1-14/2-22/6645 dated 15.07.2022) reviewed the work *«Implementation of International Experience in Institutional Support for the Development of Mariculture»*. The work focuses on developing institutional support for the mariculture sector, forming a market for marine products, implementing standards and requirements for Ukraine's integration into the EU, and adopting principles of sustainable development in mariculture activities. The provided materials can be utilized by the department, particularly recommendations on developing Ukraine's mariculture sector, especially in maritime spatial planning (zoning), which remains an urgent issue for sustainable development and the leasing of water bodies.

6. The State Environmental Inspection of Ukraine (outgoing letter No. 3612/2.1/7-22 dated 06.07.2022 and No. 2884/2.1/4-22 dated 23.05.2022) positively evaluated the analytical note *«Methodological Support for Determining the Extent of Damage to Agricultural Lands Caused by the Armed Aggression of the Russian Federation»*. It was noted that within its authority, the provisions of the developed methodological support were reviewed, processed, and taken into account in the preparation of proposals for amendments to the Methodology for Determining Damage to Land and Soil due to Emergencies and/or Armed Aggression and Combat Actions during Martial Law, approved by Order No. 167 of the Ministry of Environmental Protection and Natural Resources of Ukraine dated 04.04.2022. The provisions will be used by the State Environmental Inspection to improve Methodology 167.

7. The State Statistics Service of Ukraine (outgoing letter No. 06.2-07/138-22 dated 07.12.2022) reviewed the work *«State and Prospects for Information and Monitoring Support of the Aquaculture Sector in the Context of National Practices and European Requirements»*. It was noted that the topic is relevant and significant, particularly in addressing the compliance of fisheries and aquaculture statistics with international recommendations, including European regulations and the Food and Agriculture Organization under the United Nations (FAO). The research reveals potential directions for developing fisheries and aquaculture statistics.

8. The State Agency for Land Reclamation and Fisheries of Ukraine (outgoing letter No. 3-6.2.3-17/5515-22 dated 19.12.2022) reviewed and positively evaluated the analytical note *«Organizational and Economic Support of Business Processes in the Aquaculture Sector Considering Best Practices»*. It was noted that the report could serve as a basis for a detailed analysis of business processes in the aquaculture sector.

9. The State Agency for Land Reclamation and Fisheries of Ukraine (outgoing letter No. 3-6.2.3-17/5468-22 dated 16.12.2022) reviewed and positively evaluated the analytical note *«State and Prospects for Information and Monitoring Support of the Aquaculture Sector in the Context of National Practices and European Requirements»*. The analysis of primary statistical information sources on information and monitoring support for aquaculture and fisheries allows for an objective assessment of the utilization of Ukraine's fishery capacities, the country's food security level, and the need for state fiscal regulation to prevent negative trends in the fish product market. The provided proposals enable forecasting the development of the fisheries sector and

analyzing the current state of fishery production to determine the potential and main goals for the sector's further development.

10. **The State Agency of Water Resources of Ukraine** (outgoing letter No. 5415/4/1/11-22 dated 30.12.2022) reviewed and positively evaluated the analytical note «*The State and Prospects of Information-Monitoring Support for the Aquaculture Sector in the Context of National Practices and European Requirements*». It was noted that the authors' proposed ways to improve information support for the aquaculture sector are relevant and will positively impact not only the fisheries sector but also the environment in general and water resources in particular. Reliable and comprehensive information about fish farming in water bodies, including leased ones, will enable local communities to manage water bodies on their territory more effectively.

11. **The State Institution «Office for Attracting and Supporting Investments» of the Cabinet of Ministers of Ukraine** (outgoing letter No. 08-02/1121 dated 04.12.2023) reviewed and positively evaluated the analytical note «*Organizational and Economic Mechanisms for Attracting Investments in the Aquaculture Sector of the Ukrainian Black Sea Region*». It was noted that the analytical note has been added to the Institution's database of analytical materials and will be considered in its work to promote investment opportunities, with a wish expressed for further cooperation.

12. **The Ministry of Agrarian Policy and Food of Ukraine** (outgoing letter No. 21-1210-05.1/18428 dated 23.06.2023) reviewed and positively evaluated the scientific-analytical report «*Organizational and Economic Measures and Tools for the Multifunctional Use of Aquaculture Facilities*». In particular, it was noted that the report provides proposals for developing multifunctional aquaculture facilities as innovative recreational centers that will contribute to the development of the economy, science, and education. Among the key ideas of the report are justifications for the role, functions, and economic benefits of aquaculture, particularly in preserving and restoring aquatic ecosystems. The significance of aquaculture in education, cultural and recreational enlightenment, and increasing inclusiveness in economic relations is outlined. The key ideas described in the report generally align with the goals of the Strategy for the Development of Ukraine's Fisheries Sector until 2030, approved by the Cabinet of Ministers of Ukraine on May 2, 2023 (No. 402-r), which focuses on creating conditions for the development of aquaculture, recreational fishing, science, and education in the sector. Considering the above, the report was sent to the State Fisheries Agency for further consideration and use.

13. **The State Agency for the Development of Land Reclamation, Fisheries, and Food Programs** (outgoing letter No. 3-6.2.1-16/7542-23 dated 11.12.2023) reviewed and positively evaluated the analytical note «*Organizational and Economic Mechanisms for Attracting Investments in the Aquaculture Sector of the Ukrainian Black Sea Region*». It was noted that the studies and proposals presented in the analytical note are relevant and useful for developing the blue economy and gradually bringing Ukraine closer to the EU. The analytical note may serve as a foundation for further cooperation.

14. **The State Agency for the Development of Land Reclamation, Fisheries, and Food Programs** (outgoing letter No. 3-6/2/2-16/3174-23 dated 06.06.2023) reviewed and positively evaluated the analytical report «*Institutional Support for the Development of Mariculture in Ukraine: Implementation of International Experience*». It was noted that the focus of the analytical report aligns with the priority directions for implementing the scientific and technical policy for developing fisheries, including

mariculture. The State Fisheries Agency remains open to interaction and sincerely hopes for fruitful cooperation among science, business, and government bodies to successfully address the complex problems in developing mariculture in Ukraine.

15. The State Agency for the Development of Land Reclamation, Fisheries, and Food Programs (outgoing letter No. 3-6.2.2-16/5234-23 dated 07.09.2023) (Ministry of Agrarian Policy outgoing letter dated 27 July 2023, No. 21-1210-05.1/18412) reviewed and positively evaluated the scientific-analytical report «*Organizational and Economic Measures and Tools for the Multifunctional Use of Aquaculture Facilities*». It was noted that the author's proposed approaches to developing national aquaculture through the implementation of multifunctional aquaculture facilities aimed at creating environmentally safe areas, integrating aquaculture into tourism, developing recreational aquaculture, aquatic gardening, etc., are important and relevant. It was emphasized that this topic is promising for further research.

16. The State Agency for the Development of Land Reclamation, Fisheries, and Food Programs (outgoing letter No. 3-6.2.1-16/4172-23 dated 20.07.2023) (Ministry of Agrarian Policy outgoing letter No. 21-1230-09/20237 dated 21.08.2023) reviewed and positively evaluated the analytical note «*The State and Prospects for the Development of the Organic Aquaculture Sector*». It was noted that the research conducted to provide a strategic assessment of the development of the aquaculture sector in Ukraine, based on an analysis of national opportunities, the feasibility of organic production, existing infrastructure conditions, and demand, is relevant and practically necessary. The state and trends in the organic aquaculture sector, as well as development priorities globally, were examined. The impact of aquaculture on the environment was highlighted, responsible development directions for aquaculture were justified, barriers and prospects for the development of the organic aquaculture sector in Ukraine were identified, and a roadmap for the development of organic aquaculture in Ukraine was developed.

17. The State Agency for the Development of Land Reclamation, Fisheries, and Food Programs (outgoing letter No. 3-6.2.2.2-16/7062-23 dated 23.11.2023) reviewed the scientific-analytical report «*Organizational and Economic Measures and Tools for the Multifunctional Use of Aquaculture Facilities*». It was noted that the research and proposals presented in the scientific-analytical report are relevant. The use of recirculating aquaculture systems (RAS) is identified as a modern type of industrial aquaculture that is actively developing and represents a promising step toward ensuring sustainable industry development, reducing environmental impact, and producing high-quality products. The scientific research and proposals presented require further development and elaboration, particularly in detailing the economic components of the projects.

18. Deputy Head of the Odessa Regional State Administration, S. Kropyva (outgoing letter No. 7098/6/01-28/8195/2-23 dated 10.08.2023) positively evaluated the memo «*Justification and Development of Preliminary Project Proposals for the Development of the Aquaculture Market (Using the Example of the Odessa Region)*». It was noted that the justification provided has been taken into account and will be used in the further development of program measures for the formation and implementation of the regional sectoral program.

19. The Deputy Head of the Odesa Regional State Administration, D. Radulov (outgoing letter No. 12061/4/01-22/12749/2-23 dated 22.11.2023), reviewed

and positively evaluated the analytical note «*Organizational and Economic Mechanisms for Attracting Investments in the Aquaculture Sector of the Ukrainian Black Sea Region*». The note emphasizes the importance of interest in developing the aquaculture sector and attracting investments to this promising field. The analysis of investment attraction features in the global and EU blue economy sectors, as well as the assessment of the current situation in Ukraine and the regions of the Ukrainian Black Sea, provides a vital foundation for further action and decision-making. Interest in implementing innovative investment tools based on best global practices and the high evaluation of contributions regarding organizational and economic mechanisms for investment attraction in the aquaculture sector are identified as key steps for the successful development of this industry. Developing sectoral strategies and programs incorporating effective investment tools will stimulate further growth in this economic sector. Appreciation was expressed for the presented initiatives aimed at aquaculture development. It was also noted that the submitted materials would be considered by the relevant structural units of the regional state administration.

20. The Department of Economic Policy and Strategic Planning of the Odesa Regional State Administration (outgoing letter No. 1994/02/03.2-14/2-23/7095 dated 28.07.2023) reviewed and positively evaluated the report «*Justification and Development of Preliminary Project Proposals for the Development of the Aquaculture Market (on the Example of Odesa Region)*». In particular, the Department highlighted the feasibility of the proposals regarding new ways to develop aquaculture in the Odesa Region, as this is one of the key components of fishery reform as a whole. Appreciation was expressed for the contributions to advancing this significant sector, which holds great potential for ensuring the country's food security and improving economic and social conditions.

21. The Department of Economic Policy and Strategic Planning of the Odesa Regional State Administration (outgoing letter No. 2000/02/01.1-06/2-23/1391 dated 31.07.2023) reviewed and positively evaluated the scientific-analytical report «*Organizational and Economic Measures and Tools for Multifunctional Use of Aquaculture Facilities*». Activating the aquaculture sector in the Odesa Region and establishing new promising business entities to implement investment projects with high local resource use, significant added value, and regional representation in global goods and services markets is identified as a key element in regional economic development. The proposals for developing multifunctional aquaculture facilities as innovative recreational centers will foster the creation of new jobs and stimulate local economic growth. The variability of aquaculture development directions in the context of marine strategy implementation, Sustainable Development Goals, and mitigating the adverse effects of water pollution due to military actions is of undeniable interest. Proposed measures for developing Ukrainian recreational aquaculture and integrating aquaculture into tourism activities will be utilized in the Department's work.

22. The Department of Economic Policy and Strategic Planning of the Odesa Regional State Administration (outgoing letter No. 3060/02/01.1-06/2-23/2260 dated 22.11.2023) reviewed and positively evaluated the analytical report «*Organizational and Economic Principles for the Development of Recirculating Aquaculture Systems in Ukraine*» and the report «*Proposals on the Organization and Use of Recirculating Aquaculture Systems in Ukraine*». It was noted that the creation of recirculating systems will enable the efficient use of limited water resources while ensuring controlled conditions for fish growth. The review of key aspects necessary for the successful

implementation of such systems in Ukraine was considered relevant. The principles and recommendations outlined by the Institute were deemed valuable for understanding and supporting the aquaculture sector's development. It was proposed to forward the analytical materials to the Department of Agricultural Policy, Food, and Land Relations of the Odesa Regional State Administration for consideration in drafting the regional program «Development of the Fisheries Sector in the Odesa Region for 2024–2029.»

23. **The Department of Agricultural Policy, Food, and Land Relations of the Odesa Regional State Administration** (outgoing letter No. 734/01-28/2-23/10741 dated 08.11.2023) reviewed and expressed support for the 2022 analytical note «*Methodological Support for Determining the Extent of Damage to Agricultural Land Caused by the Armed Aggression of the Russian Federation*». It was noted that the methodological support serves as a valuable addition to the «*Methodology for Determining Damage to Land and Soils Resulting from Emergencies and/or Armed Aggression and Hostilities During Martial Law*,» approved by the Ministry of Environmental Protection and Natural Resources of Ukraine on April 4, 2022 (Order No. 167).

24. **The Department of Agricultural Policy, Food, and Land Relations of the Odesa Regional State Administration** (outgoing letter No. 654/01-28/2-23/10742 dated 12.10.2023) reviewed and expressed support for the 2022 report «*Organizational and Economic Support for Business Processes in the Aquaculture Sector Considering Best Practices*». The Department emphasized the potential of consolidating aquaculture producers' efforts within territorial communities under associations to address common issues and promote forms of farmer self-organization, such as creating rural production alliances, joint consulting centers, and innovative brokerage platforms. The provided rationale was noted and will be taken into account in the further development of the regional aquaculture development program in the Odesa Region.

25. **The Department of Ecology and Natural Resources of the Odesa Regional State Administration** (outgoing letter No. 1400/06/06-17/2-23/2199 dated 23.06.2023) reviewed and positively evaluated the analytical note «*Status and Prospects for the Development of the Organic Aquaculture Sector*». The proposals for organic aquaculture development in Ukraine presented in the analytical report by the State Institution «*Institute of Market and Economic-Ecological Research of the National Academy of Sciences of Ukraine*» were considered useful and effective. The implementation of this work will enable Ukraine's transition to more efficient, inclusive, and sustainable agri-food systems while restoring the ecological state of aquatic ecosystems. Practical steps toward introducing socially responsible sustainable aquaculture practices at national and regional levels will be further considered in the Department's work on compiling information on the state of the environment in the Odesa Region.

26. **The Department of Ecology and Natural Resources of the Odesa Regional State Administration** (outgoing letter No. 2853/06/06-17/2-23/8453 dated 28.11.2023) reviewed and positively evaluated the *proposals for developing a Comprehensive Program for the Development of Aquaculture in the Odesa Region*. Specialists from the Institute were invited to join the working group under the Department of Agricultural Policy, Food, and Land Relations of the Odesa Regional State Administration to draft the regional program «Development of the Fisheries Sector in the Odesa Region for 2024–2029.»

27. LLC «**Odesa Sturgeon Farming Complex**» (no outgoing number dated 27.07.2023) reviewed and positively evaluated the scientific-analytical report «*Organizational and Economic Measures and Tools for Multifunctional Use of Aquaculture Facilities*». The depth of research and creative approach to developing the aquaculture sector were highlighted. The report reflects alignment with national and international sustainable development strategies and emphasizes the importance of reducing the negative impact of water pollution worldwide. Particularly noteworthy are the proposals for developing multifunctional aquaculture facilities as innovative recreational centers. This approach will promote economic, scientific, and educational growth and create new jobs and local production. Recommendations regarding various types of aquaculture facilities, including decorative, educational, and circular systems with functions for reproduction, training, and cultural-recreational education, were deemed interesting and promising. The importance of socio-ecological and economic motivational mechanisms to mitigate risks in seaside areas was recognized. The proposed measures for developing Ukrainian recreational aquaculture align with the EU Blue Economy Sustainable Development Resolution and are a significant step toward fostering sustainable tourism in the region. The creation of marine gardens as inclusive aquaculture facilities that ensure sustainable income for local communities and vulnerable populations was additionally supported. The report was acknowledged as a valuable information source for the organization, and its recommendations will be considered in planning future projects.

28. **The Institute of Fisheries and Marine Ecology** (outgoing letter No. 02/107 dated 22.08.2023) (outgoing letter State Fisheries Agency dated 18.08.2023, No. 2-6.2.2.-15/4853-23) reviewed and positively evaluated the scientific and analytical report «*Organizational and Economic Measures and Tools for Multifunctional Use of Aquaculture Objects*.» The Institute supports the proposed approach as one of the directions for the development of aquaculture in Ukraine. It fully aligns with the Institute's vision for the development of Ukraine's fisheries sector. These approaches and development directions should be included in national and regional fisheries development programs. They should serve as elements for fisheries enterprises of various ownership forms, primarily as modern aquaculture centers.

29. **The Institute of Fisheries of the National Academy of Agrarian Sciences of Ukraine** (outgoing letter No. 656-8/23 dated 28.08.2023) (outgoing letter State Fisheries Agency dated 18.08.2023, No. 2-6.2.2.-15/4853-23) reviewed and positively evaluated the scientific and analytical report «*Organizational and Economic Measures and Tools for Multifunctional Use of Aquaculture Objects*.» The work proposed for discussion aims to expand aquaculture opportunities in Ukraine, contributing to socio-economic development and environmentally safe resource use in the post-war period. The management practices presented in the report have not yet been adequately developed in Ukraine. The proposals outlined in the report will facilitate the planning of measures to overcome challenges in Ukraine's fisheries sector but will also require further clarification considering the real state of the economy, regional specificities, and priorities for ensuring food security. The relevance, novelty of certain provisions, and the prospects of the proposed innovations were noted.

30. **The National Institute for Strategic Studies** (outgoing letter No. 20/287 dated 03.07.2023) (outgoing letter No. 293/568 dated 14.07.2023) reviewed and positively evaluated the scientific report «*Systemic-Parametric Formalization of the Aquaculture Sector in the Ukrainian Black Sea Region in the Context of Sectoral*

Management and Market Formation.» The report highlights the high theoretical, methodological, and practical significance of addressing the following issues: a) The exceptionally high relevance of aquaculture development in Ukraine due to severely limited industrial fishing volumes and the high level of fish imports (up to 85% of domestic consumption). b) Aquaculture development should be considered a key driver for reviving the southern regions of Ukraine during post-war reconstruction and development.

31. **The National Institute for Strategic Studies** (outgoing letter No. 298/567 dated 14.07.2023) (outgoing letter No. 293/568 dated 14.07.2023) reviewed and positively evaluated the monograph «*The Seaside Zone as a Stronghold for the Development of Fisheries and Aquaculture in the Ukrainian Black Sea Region*» It was noted that the authors' proposals are essential for the socio-economic revival of the Ukrainian Black Sea region, addressing the tasks of rebuilding and modernizing Ukraine's fisheries complex and aquaculture sector in the post-war period, and achieving strategic goals outlined in Ukraine's Maritime Doctrine up to 2035.

32. **The National Institute for Strategic Studies** (outgoing letter No. 293/909 dated 23.11.2023) (outgoing letter No. 20/502 dated 31.10.2023) reviewed and positively evaluated the scientific report «*Scientific and Economic Concept for Developing an Aquaculture Development Program in the Ukrainian Black Sea Region.*» The report presents visions of programmatic scientific and organizational approaches for developing the aquaculture sector, principles of program-target planning, and criteria-based approaches to aquaculture development as a factor for improving the quality of territorial development and the quality of life in Ukraine. The materials from the scientific report are used by the Institute's experts in preparing informational, analytical, and advisory materials for government authorities per the Institute's statutory objectives.

33. **The State Service of Ukraine on Food Safety and Consumer Protection** (outgoing letter No. 11.1.2-5/13362 dated 26.06.2024 and No. 11.2.1-4/17516 dated 22.08.2024) reviewed and positively evaluated the analytical note «*Ensuring Traceability of Aquatic Bioresources in the Context of Modern Institutional Changes.*» It was noted that the analytical note can be recommended for use by market operators working in the field of aquatic bioresources.

34. **The Ministry of Economy of Ukraine** (outgoing letter No. 3012-05/31466-07 dated 30.04.2024) reviewed and positively evaluated the memorandum «*Scientific Concept for Developing the Market Potential of Aquaculture.*» It was noted that the presented results are useful and relevant and will assist in the current work of the Department of Strategic Planning and Macroeconomic Forecasting.

35. **The Ministry of Economy of Ukraine** (outgoing letter No. 3021-06/92461-07 dated 23.12.2024) reviewed and positively evaluated the memorandum «*Scientific Concept for Developing the Market Potential of Aquaculture.*» It was noted that the presented materials will be used in the current work of the Department of Strategic Planning and Macroeconomic Forecasting, particularly when drafting regulatory acts and other documents aimed at ensuring food and environmental security.

36. **The Scientific and Technical Council of the State Agency for the Development of Reclamation, Fisheries, and Food Programs** (meeting on 29 November 2024) reviewed and positively evaluated the analytical note «*Ensuring Traceability of Aquatic Bioresources in the Context of Modern Institutional Changes.*» It was stated that the conducted research is relevant and could serve as a foundation for

further collaboration between the Institute and the State Agency for the Development of Reclamation, Fisheries, and Food Programs.

37. The Directorate of the State Agency for the Development of Reclamation and Fisheries in the Odesa Region (outgoing letter No. 1-3-16/300-24 dated 14.02.2024) reviewed and positively evaluated the memorandum «*Recommendations for Executive Authorities on Organizing a Regional Fish Market*» and the analytical note «*Organizational and Infrastructure Support for the Functioning of the Aquatic Bioresources Market.*» It was noted that the Directorate of the State Agency for the Development of Reclamation and Fisheries in the Odesa Region appreciates the scientific developments provided by the State Institution «Institute of Market and Economic-Ecological Research of the National Academy of Sciences of Ukraine» and will use them in their work and in drafting regulatory acts.

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