Optimization and Upgrading of Marine Fishery Industry under the background of Rural Revitalization Strategy

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Abstract. The strategy of revitalizing the countryside was put forward in the 19th National Congress of the Communist Party of China and regards solving three rural issues as the top priority of the work of the whole party. As an important part of agriculture, marine fishery is of great significance to solving three rural issues. According to the actual situation of the marine fishery industry, the optimization and upgrading of the marine fishery industry was proposed based on the current problems, and the sustainable development of the marine fishery industry is promoted in Ningbo.

1. Introduction
In recent years, the total output value of China's fisheries has been increasing steadily. The speed of development of the marine economy is much higher than the average growth rate of the national economy. Three major players of The Bohai Sea, the Yangtze River Delta and the Pearl River Delta has basically taken shape. While rich marine resources have promoted regional development and prosperity, how to optimize the development of marine fishery industry and promote the sustainable development of marine fishery industry has become an important issue that the country urgently needs to solve. As an important economic source of coastal farmers in Ningbo, marine fishery is particularly important for coastal farmers. At present, due to environmental pollution, resource depletion, and backward development mode, marine fisheries cause problems such as low industrial economic benefits and industry disconnection. The optimization and upgrading of Ningbo marine fishery industry has become an urgent problem for the government to solve by industrial optimization.

Ningbo marine fishery industry is took as the research object, mainly analyzes the necessity of the transformation and upgrading of marine fishery industry, and the problems of marine fishery industry. In the aspects of the optimization and upgrading of marine fishery industry, the paper explored the research on the optimization of marine fishery industry under the rural revitalization background strategy in the form of literature retrieval and investigation, and provided the theory for the government to formulate relevant laws and regulations. Based on this, it will also provide a higher theoretical and practical application value for providing a more efficient path to the upgrading of marine fishery industry.

2. Development status of marine fishery industry

2.1. Foreign research status
Foreign scholars have researched on the marine fishery industry relatively early. The marine fisheries economy were first researched by The United States, Japan and other countries, mainly including: fishery resources, aquaculture, fishermen income and recreational fisheries. Duy et al. (2016) used the model to analyze the uncertainty of several types of fisheries, and Yogi Sugiawan and Moinul Islam (2017) constructed the fish in the North Sea and Norwegian waters. The basic form of the fishery biology model, Edward V and Ahrens (2018) examined fisheries biology models globally. Mohammad Mahmudul Islama (2017) pointed out that 90% of small-scale fisheries operations come from Developing countries, therefore, accelerating the promotion of marine fisheries is of great significance to provide employment opportunities for developing countries and effectively increasing income of coastal residents. Robert Blasiak et al. (2015) adopted aquaculture families and Conducted surveys and using comparative analysis to confirm the links between household-related incomes and their consumption in aquaculture. Piroddi (2015) using data from the USA Oceanic and Atmospheric Administration, The USA marine recreational fishery has been thoroughly and comprehensively Analysis in recreational fisheries research.

2.2. Research state in China
Zhang Bo (2011) conducted an in-depth research on the operational mechanism of China's marine fishery transformation, and combed the overall framework of marine fishery transformation operation mechanism based on the policy transfer theory. The scholars (2015) emphasizes the role of social culture in the transformation of marine fisheries based on the sociological category, it discusses the relevant theories of fishery transformation and the actual situation of marine fishery transformation. It is concluded that the fundamental goal of the future development of fishery transformation is to implement Ecological farming and extension of the industrial chain. Liu Yang (2015) and other scholars (2016) proposed an action plan to accelerate the transformation and upgrading of fisheries with ‘Internet +’ as a new engine, from the four links of production, management, management and service, we will promote the transformation and transformation of fishery growth mode with Internet thinking. Xiang Xiaomei (2017) analyzed the development direction of marine fishery transformation and upgrading based on the supply side characteristics of marine fishery. Tuan Feifei (2017) analyzes the current situation and problems of supply and demand dislocation in the development of marine fisheries in China from the perspective of supply-side structural reform. Wang Mengyu (2017) used a combination of qualitative and quantitative analysis to research the effective path for the transformation and upgrading of the marine fishery industry in Zhoushan Islands.

3. Necessity of the transformation and upgrading of marine fishery industry

3.1. Resource shortage and environmental pollution
With the development of fishery equipment and fishing technology, the amount of marine catching is rising, leading to the extreme decline of marine resources and the continuous decline of marine productivity, which has far exceeded the maximum available for marine fishery resources. At the same time, with the continuous development of coastal industries and agriculture, marine environmental pollution continues to increase, coupled with the rapid growth of population, domestic garbage pollution has also spread to coastal waters, and causing great damage to the marine environment.

3.2. Demand for aquatic products continues to rise
With the rapid development of China's economy, the quality of people's living standards has continuously improved, and the demand for aquatic products has also increased. According to statistics, since 2011, the capita consumption of aquatic products has been risen, as show in fig.1. This requires us to change the original industrial structure, optimize and upgrade the industry to meet people's demand for aquatic products.
3.3. Decisions on national institutional policies
According to the relevant provisions of the Fisheries Law of the People's Republic of China, the current supervision of fisheries mainly implements centralized leadership and is divided into different levels for management. Leading to local government's pursuit of political achievements, conniving illegal fishing and operations, destroying marine resources, and declining fishery resources are not conducive to the sustainable development of marine fisheries. Therefore, it is necessary to carry out upgrading research on marine fisheries to further protect the diversity of marine life.

4. Problems of marine fishery industry in Ningbo

4.1. The development of marine fisheries tertiary industry lags behind
The fishery circulation and service industry is the tertiary industry of marine fisheries, which mainly contained the transportation, the circulation of aquatic products, and recreational fisheries. The development of the tertiary industry is clearly defined as a transformation and upgrading industry in the “13th Five-Year Plan” for fisheries in Zhejiang Province. In recent years, the proportion of the first and second industries in the fishing industry has declined, and the proportion is not reasonable enough.

4.2. Raw material supply lag
The lag of raw material supply mainly includes the pollution of the marine environment and the depletion of offshore fishery resources. Among them, the pollution of the marine environment mainly includes problems such as coastal industrial waste water waste, heavy metals, and eutrophication of water bodies. In addition, it also includes the actual coastal aquaculture process. The residual feed in the water pollution. Offshore fishery resources are mainly due to fisher men's fishing and demand for marine resources, coupled with imperfect fishery policies, resulting in fishery catches exceeding the maximum allowable resource environment. At the same time, the deterioration of the marine environment is also one of the reasons for the decline of fishery resources.

4.3. The marine management system needs to be improved
The development of marine fisheries is inseparable from the guarantee of institutional mechanisms. At present, there are many problems in the management of marine fisheries. First, the comprehensive marine management capacity is weak and cannot meet the development requirements of the current fishery industry. Second, the current management departments have their own battles. In the situation, the development of marine resources independently by various departments has resulted in the disorderly use and intermediate consumption of marine resources, with an average growth rate of 10% every year, the total amount exceeds 50 million yuan per year, as show in fig.1. In addition, there are
still imperfect problems in management methods, policies and regulations, management equipment, etc., resulting in scattered resources and unclear management effects, which hinder fisheries. Sustainable development of the industry.

5. Ways of Optimizing and Upgrading Marine Fishery Industry

5.1. Strengthen the monitoring of offshore fishing intensity for protecting marine fishery resources
China's current marine fishery is mainly based on marine fishing, it is an extensive economic development model, and it is very lazy to natural resources. In the long run, it will inevitably lead to the depletion of natural resources. For protecting offshore fishery resources. The richness and diversity of the fishery must be taken to ensure the upgrading of fishery production. Mainly aspects: Firstly, setting a time period for the fishing season, control fishing intensity; Secondly, regulating artificial discharge to ensure the richness of fishery species; Thirdly, strengthening the construction of artificial reefs, and promoting fishery resources open source and throttling.

5.2. Accelerating and upgrading of the fishery industry structure, encourage the development of offshore fisheries
Due to the increasing pressure of offshore fishing in recent years, it has become an effective means to appropriately increase the development of offshore fishing. However, offshore fishing is more difficult than offshore fishing, including higher requirements for equipment and personnel. Therefore, it is necessary to take certain measures to ensure the rapid development of offshore fisheries. From the government level, we will carry out relevant training and financial subsidies on a regular basis, and strive to strive for a wider operating area for fishermen to solve the existing problems. In addition, various platforms should be set up, and an industrial chain for production and sales, and promoted the sustainable development of offshore fishing.

5.3. Accelerating development of aquaculture technology and improving the efficiency of marine aquaculture
Judging from the current farming methods, although there has been some development since the founding of China, there are still gaps compared with developed countries. The farming method is still in an extensive production mode, and the breeding efficiency is not high. To solve this problem, I believe that we mainly start from the following aspects, Firstly, further development of new varieties, elimination of old varieties abandoned by the market, increase the proportion of high-yield varieties of economic value; Secondly, strengthening the control and farming environmental conditions, to achieve green health and efficient breeding; Thirdly, changing the traditional extensive breeding model, for the factory and scale transformation, forming industrial advantages and improve economic efficiency.
5.4. **Improving relevant laws and providing institutional guarantee**

The development of the fishery industry is inseparable from the strong protection of policies and regulations. To achieve sustainable development of the fishery industry, it is necessary to combine the current industrial development status of Ningbo City and formulate a series of well-established laws and regulations. Firstly, improving the publicity procedures for major sea areas projects and establishing a functional area classification system. Secondly, strengthening the supervision of sea areas and improving the quality of the marine environment. Thirdly, developing development early warning mechanisms for existing problems and the top Design. Fourthly, combining with the difficulties and difficulties in the actual production process, optimizing in the policy field to promote the healthy and efficient development of the fishery industry.

5.5. **Accelerating scientific and technological innovation and technology, promoting fishermen to increase production and income.**

In view of the development of current fishery science and technology in Ningbo, the main ways to improve fishery science and technology innovation are as follows: Firstly, increasing funding support for fishery science and technology innovation, integrate existing financial funds, and plan in the overall planning. In the aspect of fishery science and technology innovation, encourage and guide local enterprises to increase investment in fishery science and technology. Secondly, it can be combined the research resources of local governments and fishing companies, effectively use research platforms to strengthen base construction. Thirdly, formulating incentive systems for fishery science and technology innovation, and improving the enthusiasm. Fourthly, accelerating the training of a team of fishery science and technology innovation talents, learning the latest technology at home and abroad, and effectively apply to the development of the fishery industry in Ningbo.

5.6. **Increasing the environmental protection of fisheries and ecological development, and continue to develop green fisheries**

In recent years, the ecological environment of fisheries has become increasingly severe, and the issue of ecological environment has become one of the key issues for the extension of the marine fishery industry. Only by colluding with green fisheries, the sustainable development of the fishery industry is promoted. Firstly, increasing the publicity of marine environmental protection, and various publicity activities for ecological civilization construction and sustainable development of fisheries was organized, and continuously strengthening the public sense of responsibility for marine ecological environmental protection.

6. **Conclusion**

In this paper, a recurrent network with long short term memory architecture was designed and implemented for forecasting precipitation. The network use modified back-propagation with short-term memory filters, represented by input lags and with feedback loops. This network type is especially well suited to this task, where context is vitally important. As opposed to previous approaches, it does not suffer from conceptual problems of standard recurrent neural network training. The RNN model was trained applying to different input combinations of precipitation data of Yulin Station located in China. The results demonstrated that the recurrent network outperform other models and more robust in long-term forecasting. LSTM architecture is much faster to train than other approaches, and also slightly more accurate. Also, the RNN model was compared with three models. The comparison results indicated that the RNN performed better than the FNN, WNN and ARIMA models in forecasting precipitations.

For future work, we would like to apply LSTM combined with hidden Markov models to form a hybrid sequence system which likely leads to even greater forecasting accuracy.
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