

Literature Review of the High-Quality Development of the Marine Economy

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Abstract: The focus of marine development has shifted from speed to quality in recent years. Consequently, high-quality marine development has become a popular research topic. This paper presents a summary of the literature on the high-quality development of the marine economy at home and abroad, encompassing aspects like the definition, the influencing factors, the evaluation index system, the evaluation methods, and the development measures of high-quality development of the marine economy. The pros and cons of each study are also analyzed, providing ideas for subsequent project research and implementation.

Keywords: Marine economy; High-quality development; Evaluation index system

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1. Introduction

With the rapid development and utilization of global land resources, the ocean has become a key domain for economic development. Therefore, the rapid development of the marine economy has become a key measure for countries to improve their comprehensive competitiveness. At present, China's marine economy has been developing rapidly, and its role in promoting the development of China's national economy has become increasingly prominent. Nevertheless, alongside this progress, issues concerning the unequal distribution and structure of the marine industry have become more pronounced. Challenges such as overexploitation of marine resources and environmental degradation are increasingly limiting the healthy and sustainable advancement of the marine economy.

Hence, China has advocated for a shift towards enhancing the quality and efficiency of the marine economy. In light of the ongoing transformation and upgrading of the industrial structure, new demands have emerged for positioning the marine economy as a strategic driver for high-quality economic growth. This underscores the crucial role of high-quality development in the marine economy, ultimately aligning with the broader strategy of becoming a maritime power and fostering the overall development of the national economy. Therefore, it is essential to systematically study the high-quality development of the marine economy at the theoretical level to guide and support the decision-making of relevant departments.

2. Analysis of research status

2.1 Foreign research status

The high-quality development of the marine economy has been analyzed from macro, meso, and micro perspectives. These extensive research findings offer theoretical guidance for future marine economic development and pave the way toward achieving high-quality growth.

(1) Marine economic development model

The marine economy falls within the realm of regional economies and serves as a primary constituent alongside land-based economies. At present, the regional attributes of the marine economy are mainly related to geographical space. The challenges faced by national marine reserves in Southern Africa in view of the expansion of the regional marine economy have been proposed ^[1]. In order to alleviate the conflict of such regional expansion, the importance of establishing integrated economic policies for marine countries has been discussed. These discussions revolve around the reasons for the vulnerability of Indonesia towards the impact of the global economic crisis ^[2]. Sustainable development of the economy has become the main solution for such problems. However, the adaptivity of policies established with the idea of a sustainable development economy is still unclear. East Timor has been used as an example to study policy coherence and coordination in the maritime sector, which can meet the needs of sustainable development of the Marine economy ^[3].

(2) Law of marine economic development

Foreign scholars summarized the general law of marine economic development according to the activities involved. A researcher studied 70 fishing countries from 1961 to 2010 and found that economic growth had a favorable impact on the sustainability of marine fisheries ^[4]. Marine development is closely tied to marine spatial planning, and more and more maritime countries have begun to develop offshore spaces. Part of the territorial sea and exclusive economic zone of Angola, Namibia, and South Africa have been analyzed and it was found that these three countries had begun marine spatial planning to achieve sustainable development of the region ^[5]. Influenced by the system theory, foreign scholars began to introduce the concept of marine ecosystems into the field of marine research. Heckwolf conducted case studies on areas of important social and economic significance in the Northern Hemisphere, so as to quantify and evaluate the function and level of marine ecosystem services ^[6].

(3) Marine economic development efficiency

For example, Ding *et al.* used a modified Malmquist-Luenberger index to measure the green development efficiency of the marine economy, including environmental output and marine resource input, and further analyzed the trend of efficiency change ^[7]. Li *et al.* constructed a new global marine performance index (GMOPI) based on the Malmquist efficiency index model of relaxation measurement ^[8].

(4) Sustainable development capacity of the marine economy

For example, Rickels *et al.* used the sustainable development goal index of the United Nations to continuously monitor sustainable development indicators through detailed analysis of coastal countries in the European Union ^[9]; Mehta *et al.* also measured the level of sustainable development of the marine economy of India and Bangladesh ^[10].

(5) Contribution of the marine economy to economic development

For example, Morrissey *et al.* defined, described, and quantified the actual value of economic activities in Ireland's marine sector ^[11]. Edward *et al.* used the multi-regional social accounting matrix (MRSAM) to measure the multi-regional economic contribution of the Alaskan fishing fleet to the international market ^[12]. Li *et al.* analyzed and studied regional marine economic productivity based on the DEA-

Malmquist index ^[13].

2.2. Domestic research status

In order to further promote the high-quality development of the domestic marine economy and provide theoretical support for the formulation of policies and measures for the high-quality development of the marine economy, domestic scholars have carried out systematic research on fields related to the marine economy.

2.2.1. The connotation of high-quality development of marine economy

The high-quality development of the marine economy refers to the continuous growth of the marine economy. However, there would be bottlenecks at a certain stage of development, which requires a shift in the focus of development. By efficiently utilizing marine resources, accelerating the transformation of traditional marine industries, actively cultivating emerging marine industries, and vigorously developing modern marine service industries, the quality of marine economy development can be improved. This approach promotes a greener and healthier marine ecological environment and balances economic supply and demand, thus achieving sustainable and high-quality development of the marine economy.

2.2.2. The characteristics of high-quality development of the marine economy

Stability is an important feature of the marine economy in the stage of high-quality development. At this stage, the marine economic market's supply and demand, alongside the needs for economic development and the preservation of marine resources, are generally in a balanced and stable state. The advancement of marine science and technology further facilitates a manageable balance between economic progress and environmental conservation efforts. The high-quality development of the marine economy reflects the principles of efficiency and sustainability. Through innovation and advancement in marine science and technology, efficient development and proper utilization of marine resources are pursued to improve the efficiency of marine economic industries and protect the marine ecological environment.

2.2.3. Internal mechanism of high-quality development of the marine economy

Domestic scholars have conducted an in-depth analysis of several aspects of the internal mechanism of high-quality development of marine economy: theoretical basis, general characteristics, and concept definition.

Wang analyzed the impact of the cluster effect, polarization effect, and support effect on the marine economy by examining its development mechanism under the new normal ^[14]. Li conducted case studies and explored the formation mechanism of marine strategic emerging industrial clusters from the aspects of influencing factors, promoting effect, and spatial organization mode ^[15]; Zhan analyzed the overall characteristics of marine economic efficiency in 11 coastal provinces and cities in China and explored the mechanism of driving force of main factors for high-quality development of marine economy ^[16]; Tang tested the influencing mechanism of sea-land economic integration through theoretical analysis ^[17]. The high-quality development of the marine economy is not only a process of quantitative expansion but also a process of quality improvement, which is the unity of quantitative expansion and quality improvement.

2.2.4. Systematic evolution of high-quality development of marine economy

Process analysis and development trend are two aspects that focus on the systematic evolution of high-quality marine economic development: Wang evaluated the stability level of China's marine economic system according to the connotation of the concepts of resistance and resilience ^[18]; Li constructed the marine economic system and further discussed its system composition and interaction law ^[19]; Sun proposed the concept of

vulnerability of the marine economic system and analyzed the mechanism of its occurrence and its attributes from the perspective of time and space ^[20]; Wang constructed the marine composite system as the basic framework for integrative research ^[21]. The system perspective and related theories are conducive to promoting the high-quality development of the marine economy.

2.2.5. Indicators of high-quality development of the marine economy

It reflects the sustainable development capacity of the marine economy in terms of structure, efficiency, and stability. Sun constructed a comprehensive evaluation index system based on the theory of information entropy, synergy science, and the co-evolution mechanism of the human-sea relationship ^[22]; Wang established a fuzzy matter-element model to measure the high-quality development level of marine economy and echelon division of coastal provinces and cities ^[23]; Di built a composite system of marine economy based on the goals and requirements of high-quality development and evaluated the level of the overall development of the marine economy ^[24]; Ding analyzed the activities of high-quality development of the marine economy from three levels: connotation, index, and path ^[25]. Through the selection of indicators, this paper provides the theoretical basis for the construction of index systems and the selection of evaluation methods.

2.2.6. Policy suggestions for high-quality development of marine economy

Domestic scholars have carried out detailed research on marine management systems, improving financial and fiscal support policies, and innovating marine governance mechanisms. Luan, in conjunction with holistic land and sea planning, argued that supporting China's land development through the development and utilization of marine resources was an inevitable decision ^[26]; Wang analyzed the policies and measures taken by the United States and Japan on marine financial support ^[27]; Chen proposed that among many marine ecosystem management models, adaptive management offers unique advantages ^[28]; Hu believed that the ability to obtain information about the high-quality development of marine economy in China is currently insufficient ^[29]. This paper summarizes the main problems in the transition process of China's marine economy to high-quality development.

2.2.7. Driving mechanism of high-quality development of marine economy

With the comprehensive adoption of the new development concept, a fresh research perspective emerges for understanding the driving mechanisms behind the high-quality development of the marine economy. Zhang, in conjunction with the practical demands of the new development concepts, endeavors to advance the high-quality development of the marine economy ^[30]; Lu constructed an evaluation index system based on the five development concepts and used information entropy to measure the comprehensiveness of high-quality development of the marine economy in China's coastal provinces and municipalities ^[31]; Liu constructed an index system based on the new development concept and conducted a weighting analysis on the high-quality development system of marine economy in Jiangsu Province ^[32]; Huang sorted out the new trends and characteristics of China's current marine economic development based on the requirements of leading high-quality economic development with new development concepts in the new era ^[33]. It is inevitable and necessary to study how the driving mechanism promotes the transformation of the marine economy to high-quality development.

3. Literature review

In summary, domestic and foreign scholars have conducted in-depth research on marine economic evaluation, high-quality development of the marine economy, and other related aspects. There are also certain differences in the research focus between the two, but both have achieved relatively rich results.

3.1. Research on marine economic evaluation

Studies conducted by domestic and foreign scholars on the evaluation of the marine economy are somewhat dispersed, often focusing on specific aspects of marine economic development. These include examinations of marine economic efficiency, the sustainable development capacity of the marine economy, its vulnerability, and the comprehensive competitiveness of the marine industry. There are still few comprehensive studies on the overall level of marine economic development. Foreign scholars mostly emphasize ecological health, while domestic scholars mostly emphasize a specific marine industry. Besides, most of them involve an evaluation of the whole country or a certain region instead of highlighting differences between different regions. In general, the current research on the evaluation of marine economic development level is still in the preliminary stage and there are mainly two flaws in these studies.

In terms of the construction of a marine economic evaluation index system, most scholars rely on their professional background and personal experiences, resulting in different emphases in the index systems, leading to a failure to fully integrate research findings from domestic and international marine economic evaluations. The types and numbers of evaluation indicators differ greatly, and there is a lack of a complete index system to evaluate the overall level of the development of the marine economy. Most of the indicators are tailored to a specific marine industry or a certain aspect of marine economic development. Besides, the indicators are also specific to a certain region, rendering them unsuitable for horizontal comparison between regions.

Existing studies on comprehensive evaluation methods for the development level of the marine economy predominantly rely on single evaluation methods or amalgamate various subjective and objective approaches. However, combining subjective and objective weighting may introduce bias due to the weighting scheme, while solely relying on a single evaluation method can yield one-sided results and inconsistent conclusions due to differing internal mechanisms.

3.2. Research on the high-quality development of the marine economy

When investigating the development of the marine economy, scholars often approach the subject from a subdivided perspective, focusing on aspects such as economic efficiency, environmental sustainability, coordination, ecological civilization, and industry. However, these studies typically fail to integrate all these aspects into a comprehensive analysis. Research on the high-quality development of the marine economy remains primarily theoretical, lacking a fully crystallized concept. Scholars have analyzed its connotation from different perspectives, but there is no unified definition, so a comprehensive and authoritative evaluation index system is yet to be established. Most studies on the level of development of the marine economy are done in a general way without analyzing its sub-systems. Besides, most of the research is done on a certain region or country, and there is a lack of differentiated research on different coastal areas across the country. Different variables and methods have been applied to study the influencing factors of the marine economy, and most of them come to similar conclusions, with some being highly debatable.

4. Conclusion

This paper provides a systematic review of the existing research literature on the high-quality development of the marine economy. It comprehensively surveys the scope, research methods, and significant conclusions derived from previous studies. By doing so, it establishes a robust theoretical groundwork for future research on the high-quality development of the marine economy in Guangdong Province and Jiangmen City. Extensive research was conducted on the literature concerning the level of high-quality development, its influencing factors, and existing challenges, as well as the driving mechanisms and development pathways of the marine

economy. This study offers insightful reference suggestions aimed at facilitating the high-quality development of the marine economy in both Guangdong Province and Jiangmen City.

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