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Экономическое развитие прибрежных регионов Китая

- Анализ и пути совершенствования

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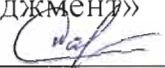
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## ABSTRACT

At present, about 100 kilometers away from the coast, the coastal zone is one of the most developed countries in the world of metropolis circle, gathered here in the big cities of the people all over the world 3 / 4, 70% of the industrial capital and 70% of the population, and most of them were banded expand gradually to the inland extension and radiation. China is no exception, economically developed areas are also concentrated in coastal areas. China has a vast territory and abundant marine resources. From a geographical point of view, across the tropical, subtropical and temperate, the mainland coastline of more than 18000 kilometers. 11 coastal provinces (municipalities and autonomous regions) land area of square kilometers, accounting for 13.4% of the country, a total population of 510 million 770 thousand people, accounting for 40.5% of the country. At present, the coastal area has become a very active areas of China's economic development, not only has faster growth rate of GDP, and continued for a long time, good stability, economic output and per capita level have achieved large span. Now, China's coastal areas not only become the driving pole of the significant growth of the national economy, but also the economic effect of releasing the full area, economic growth of the coordination of the area, the opening to the outside world demonstration pilot area and the national science and technology innovation ability of leading regions. In short, China's coastal areas have been showing the quantity and quality, speed and efficiency of a good situation.<sup>1</sup>

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<sup>1</sup> Wei Hua, Lin Zhenshan. Regional differences in China's economic development and its prime Due to the multi-scale analysis [F] // Economic Research.—2006.—№ 7.—P. 117–125.

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## INTRODUCTION

History, the various countries in the world the importance of Marine is gradually increasing, some advanced countries actively explore the high and new technology development and utilization of ocean. Since the 1980 s, some countries began to establish the related to Marine science and technology development planning, including the United States, Japan, Britain, France and Germany, economic power, they also should have said the Marine economic development as a new growth point of national economy, at the same time should pay attention to priority to the development of Marine high-tech technology. After entering the 21st century, some of the major countries in the world is rapidly accelerated the pace of development and utilization of Marine resources. <sup>2</sup>

The cause of the development and utilization of Marine resources, Marine construction and the development of Marine economy, not only good for the world's economic prosperity and social progress, to China's reform and opening up and modernization construction at the same time also has very important function and meaning. In particular, China has to a certain extent in the development of Marine economy advantage. So far, the cause of China's Marine economy development prospect is good, the development of increasingly prominent advantages, increasing the trend of Marine economy high speed increase, Marine annual economic growth rate increasing year by year, Marine industry chain tend to diversification development, the

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<sup>2</sup> Zhang Jinzhong, Zhu Yuxin. Xinjiang County Economic differentiation characteristic: Causes and Countermeasures [J] // Geographical Sciences.-2010.-№ 4.-P. 536-543.



development of Marine economy space has certain development in depth and breadth. The economic status of Marine economy in the coastal areas have become particularly important, in the coastal provinces (municipalities) got a big boost to the economy development, Marine development and Marine industry then become the new growth point of the coastal areas in the new century economy and concerns.

Paper research significance lies mainly in the following two points:

First, the theoretical research significance. First of all, in this paper, the research involves the development of Marine economy and regional economic growth relations, the relationship between Marine economy and the coastal area economic growth research field were reviewed at home and abroad, this part reviews the comprehensive overview of the current situation of research, combines the latest research development trend, offer reference for research on related areas; Second, reveals the three economic zones of Marine economy and regional economy development present situation, help others more research in this field; <sup>3</sup>Finally in this paper, the development of Marine economy and regional economy development correlation research enrich the domestic research about the relationship among economic development and regional development. Second, practical research significance. In this paper, using the latest data, to the bohai sea, the Yangtze river delta and the pearl river delta coastal economic zone of the three Marine economy and regional economic development has carried on the empirical research, from the regional cooperation, the industrial development and regional

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<sup>3</sup> Jiao Xiao. Explore the cause of differences in regional economic development [J] // Huazhong Normal Graduate Journal of Van University.-2012.-№ 3.-P. 1-5.

economic integration also puts forward several Suggestions on Marine economy and regional economy, to promote the development of regional Marine economy and regional economic development to provide guidance and reference. <sup>4</sup>

Development of Marine economy at home and abroad with the interaction relationship of regional economic development trend of the research mainly includes the following four:

First, the association between Marine economy and regional economy mechanism analysis. Marine industry connection phenomenon existing department of Marine industry and terrestrial industry, Marine industry and ocean industry department three times and Marine industry, based on the principle of input-output analysis, completely consumption coefficients, middle TouRuLv, Marine industry comprehensive employment coefficient and comprehensive capital coefficient of intermediate demand rate and sense degree coefficient, influence coefficient to measure the degree of correlation, the results showed that Marine industry leading role performance in Marine economy of land economy, improve the level of urbanization, land to extension absorbing labor force, improve the level of science and technology, etc. Single for certain types of Marine industry, coastal areas of ocean energy development can alleviate huge demand for energy, promote economic development of coastal areas directly. <sup>5</sup>

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<sup>4</sup> Du Yali. FDI distribution difference on effects of Unbalanced Growth [J] // Dalian University. -2010.-№ 3.-P. 8-11.

<sup>5</sup> Cai Fang, Du Yang. Convergence of difference in China's economic growth to Western open Hair Inspiration strategy [F] // Economic Research.-2000.-№ 10.-P. 30-37.

Second, the empirical study of Marine economy and regional economic relations. In view of the general area or in a specific area of the empirical study results show that Shanghai Marine fishery, Marine transport, coastal tourism an important role in economic development in Shanghai. Contribution rate research also suggests that China's ocean direct economic contribution has risen steadily over the past ten years, from 8.48% in 2001 to 9.70% in 2010. Zhoushan's Marine economic development of the regional economic contribution is higher, part of the Marine industry in liaoning province for a larger role in promoting regional economic growth, Marine economy in zhejiang province and zhejiang province long-term stable relationship between GDP. <sup>6</sup>

Third, the Marine industry structure, industry agglomeration effect on regional economic research. In zhejiang province of the grey correlation analysis results show that the Marine industrial structure change on GDP in zhejiang province, zhejiang province, the impact on GDP in zhejiang province is the largest, the second industry in zhejiang province and put forward the Marine industry development should focus on developing new lingang heavy industry and Marine engineering equipment industry countermeasures. In view of the bohai rim region, according to the results of empirical research of Marine industrial agglomeration of played a significant role in bohai rim economic development, bohai rim economic development at the same time also played a significant role in economic development in regional ocean. <sup>7</sup>

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<sup>6</sup> Xu Jianhua, Lu Feng. Regional economic differences and spatial scales in China [J] // Geographical Research.—2005.—№ 17.—P. 57–68.

<sup>7</sup> Jin Sang, Yu Wupeng. The trend and characteristics of regional economic development in china—GDP revision based on data field [F] // Nankai Economic Studies.—2010.—№ 1.—P. 79–96.

Fourth, the development of Marine economy and regional economic development analysis of the FGC coordination. Marine industrial agglomeration in the regional economic growth pattern, information technology progress and technological innovation, and degree of regional economic efficiency of the market open and mutual influence, regional economic development by building contains 29 secondary indexes of regional economy and Marine economy coordination degree model, empirical research on the shandong peninsula blue economic zone, the results show that the FGC coordination degree is higher, has entered the phase of good coordination. <sup>8</sup>

On bohai sea Marine economic development of the related research mainly in the Marine industry development present situation, the Marine industrial structure optimization and Marine industrial development trend forecasting, etc. First, Marine industry development present situation research mainly from the trend of the Marine industry, Marine industry growth in gross domestic product (GDP), Marine industrial structure, Marine sector output value proportion, etc, to reveal the overall developing situation of Marine industry, and studies have shown that the Marine industrial structure advantage degree is low. Secondly, Marine industrial structure optimization research part, using a variety of analysis method to measure area proportion of Marine industrial structure, as well as the link bohai sea economic zone Marine TongGouHua degree measurement of industrial structure, and optimize the structure of industry of Marine countermeasures are put forward. Finally, Marine industry forecast related research, based on the regional Marine economy operation, using grey prediction model to predict

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<sup>8</sup> Makena Coffman, Karl Kim. The economic impacts of banning commercial bottomfish fishing in the Northwestern Hawaiian Islands [J] // Ocean & Coastal Management.—2009.—№ 52.—P. 166–172.

its development trend analysis. Related studies of Marine economy in Yangtze river delta is relatively small. Marine industry development in Yangtze river delta area, the industrial concentration degree based on gini coefficient measure results show that the highest degree in Marine tertiary industry cluster in Yangtze river delta, the industrial structure is reasonable; Yangtze river delta regional comparative study on the Marine industry development in the two provinces and one city, based on the single factor analysis of the competitiveness of the multi-factor comprehensive evaluation and comparative analysis of the results, suggests that long exist within the triangle elements in the two provinces and one city layer isomorphism phenomenon, need to adjust its industrial development. In order to promote the whole Marine industry development in Yangtze river delta, should choose regional Marine advantage industry, such as ocean transportation, etc. Related studies on Marine economic development in the pearl river delta is very little, most of the studies are carried out for the entire region of guangdong province, the research content mainly relates to the guangdong Marine industry development present situation, existing problems and countermeasures and a main direction of future development. On the whole, the development of Marine industry in guangdong province is Marine industrial structure optimization is slow, Marine industry correlation degree is low, lack of ocean leading industry, high technology Marine industry development is slow, first mover advantage weakened; Policy, in order to promote the healthy development of Marine industry in guangdong province, should vigorously support Marine scientific research activities, will intensify reform of traditional Marine industry, the increase of strategic emerging Marine industry and terrestrial industry in a coastal area correlation degree, at the same time focus on

developing Marine power, new ocean industries such as the comprehensive utilization of the water industry.<sup>9</sup>

Abroad about Marine economic development and the interaction relationship of regional economic development research mainly involves two aspects, one is through the theoretical analysis shows that the Marine industry, Marine department of the national economy or the significance of the regional economy, the second is through empirical research, to measure ocean department or Marine economy contribution rate, etc. Theory research, as early as the 1980 s, American scholars pointed out that the Marine economy's contribution to the national economy, in the 90 s, the coastal zone economy is regarded as the important driving force of the national economy, in 2002, Botswana of tropical and subtropical wetland environment monitor meeting, some scholars proposed to development, including harbor activities and petroleum exploration, coastal and offshore industry, Marine industry to enhance the development of the importance of regional development. Development up to now, has considerable research attention to coastal areas the role of Marine economy, Marine trade and Marine resources development impact on coastal area economy, Marine economic data monitoring is of great significance. The empirical research, Marine economy, the United States Juno about Poland's port business district: an empirical study of Marine economic development fully confirmed the importance of Marine economy to regional economic development. In British Columbia, Canada, empirical studies have shown that Marine

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<sup>9</sup> Xie Mengjun, FangDeDong. The correlation analysis of industrial structure and economic growth in shandong province—based on empirical data from 1980 to 2010 [J] // Journal of shandong industrial and commercial college.—2012.—№ 6.—P. 30–34.

industry on the regional economy important impetus, and Marine contribution is constantly expanding, the progress of science and technology and infrastructure should not be ignored.<sup>10</sup>

Thesis research background, significance, on the basis of the review of related research at home and abroad, put forward in this paper, research contents, thoughts, main methods and innovations, and draw the technology roadmap. Main structure and the research content is as follows:

The first chapter, the theoretical basis part mainly elaborated this article research based on the main theory, involving the theory core content, the new progress in theory and its relationship with in this paper, we study the main.

The second chapter, this chapter respectively from two aspects of Marine economic development and regional economic development, in view of the bohai sea economic zone, the Yangtze river delta economic zone and the pearl river delta economic zone to carry out the comparative study, comparing ranging from Marine economic output, the structure of the Marine economy, Marine science and technology and Marine economy industry labor productivity, Marine economic development environment, the output value of regional economy, the regional economic structure and the income of residents. Comparing the empirical research results of the above analysis, the first intuitive comparison with the result of empirical study, simply reveal the

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<sup>10</sup> Ma tao, Ren Wenwei. Shanghai's Marine economy development strategic thinking [J] // Ocean development and management.-2007.-№ 24.-P. 96-100.

difference of coastal three economic zones, and then to the analysis of existing problems.

The third chapter, this chapter on the basis of the comparison research, aiming at the problems of the coastal economic zone, from the regional cooperation, economic development, sea and land integration level, put forward to promote the three economic zones of Marine economy and regional economic development countermeasure and the suggestion.<sup>11</sup>

For the main research contents, to solve the key technology and the problems include: first, the three coastal economic zone: an empirical study of Marine economy and regional economic development, this part of the difficulty is that are the empirical research results with expectations; Second, coastal Marine economy three economic zones and regional economic development research results compare and reveal the deep-seated reasons, this part of the difficulty lies in whether the omni-directional for various economic zone to find its internal factors; Third, on the basis of empirical research results, and puts forward countermeasures and Suggestions.<sup>12</sup>

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<sup>11</sup> Chen Tao. Tobacco Industry to promote the effect of economic growth in Yunnan Province [J] // Northern economy.-2012.-№ 16.-P. 86-87.

<sup>12</sup> Vancouver. Economic Contribution of the Oceans Sector in British Columbia [R] // Canada/British Columbia Oceans Coordinating Committee.-2007.-№ 1.-P.3-7.



# CHAPTER 1 THEORETICAL ASPECTS OF CHINESE COASTAL REGIONS MARINE ECONOMY STATE

## 1. History of Chinese coastal regions marine economy formation

As land resource scarcity problem increasingly serious, exploit ocean space, use of Marine resources, Marine economy development, solve the problem of sustainable development for land has become the consensus of the world. Developed countries in the early 1960 s, at the beginning of the energy resources and environment crisis, his eyes will focus on developing Marine, after half a century of development, has made a great achievement. Marine economy scale, output by the early 1970 s \$110 billion to \$1.3 trillion in the early 21st century, has increased by nearly 11 times. Single individual Marine power, the United States Marine GDP has reached \$2004 in 138 billion, by sea and land transport to complete more than 90% of international trade; The UK as a veteran of the Marine countries, its Marine economic output in 2008 accounted for 6.8% of GDP, with the aid of the north sea oil field oil development by oil importer reversal for the oil exporters; Although Japan is a small country, but in the early 60 s are transferring its economic development center to the Marine economy, and in the early 90 s to establish the development strategy of "ocean state"; Canada, Australia and other countries for its feature set is suitable for their own special policies in the development of Marine economy. Overall, at present, the world's oceans output increasing, the population resources continue to coastal strip agglomeration, increasing investment in science and technology, ocean ocean islands become Marine economy development hot, Marine economic development momentum to continue. In addition, the world's ocean

consciousness also gradually enhanced, especially after the 1982 United Nations convention on the law of effect strife in the exclusive economic zone, a coastal state for the development of its economy, speed up the Marine technology research and development, robbing the high seas resources, has become the inevitable choice of coastal states.<sup>13</sup>

Domestic perspective, China has 18000 kilometers of coastline, 300 square kilometres of the exclusive economic zone, the waters of the north and south latitude across a wide range, rich Marine resources, although Marine economy starts late, but develops fast. Since 2008, China's Marine economy has been rapid development. In 2012, the whole society of Marine production amounted to 5.0087 trillion yuan, up 66.9% from \$3 trillion compared with 2008, accounting for more than 9% of the total gross domestic product (GDP). Marine economy structure, the first, second, third economic weight is 5.3:45.9:48.8, Marine tourism and Marine transportation industry is the sum of the proportion of 67.2%, oceans continue to optimize the economic structure. Since 2009, has the basic formation of the bohai sea, Yangtze river delta, the pearl river delta mainly Marine economic zone Marine output value accounted for 86.9%, Marine economy agglomeration advantages to continue. Degree of China's economic dependence on the Marine economy has reached a very high level, China as the ocean superpower worthy, but power is still a certain distance from the sea, is suitable for the comprehensive Marine management system in China has not been formed, Marine management efficiency is low, there are still serious Marine environment pollution,

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<sup>13</sup> Xu Donglin. China Industrial Structure Change and Economic Growth Empirical Analysis [J] // Zhongnan University of Technology.-2004.-№ 2.-P. 49-54.

Marine port overcapacity, fishing severe external environment, Marine science and technology independent research and development ability is low many problems, Marine economic development is facing huge pressure.

Marine economic development cannot leave the land development of the economy, between them there are closely linked. Though the oceans and land have obvious differences in geography, ecology, but through economic interaction between sea and land, the environment interaction, bidirectional energy flow, resource flow, sea and land rights from each other, to form the complex networks. Based on this, such as positive effective mechanism can promote the formation of sea and land economy, land Marine economic development to stimulate economic development, economic development for land, in turn, to promote the development of Marine economy, will be conducive to promote the formation of intensive utilization of resources, speed up the development of national economy.<sup>14</sup>

## **2. General characteristics of the main Chinese coastal regions marine economy**

All kinds of Marine economy is the development and utilization of ocean economy and related activities combined. China's Marine economy in the world the medium level, a coastal state is in rapid growth. Development of Marine economy has good natural conditions, economic basis and social environment.

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<sup>14</sup> Long Wenke, Wei Haitao. Hunan Industrial Structure on Regional Economic Growth Difference [J] // Economic Geography. -2005. -№ 4. -P. 491-494.

## **2.1 Natural conditions**

China's coastal sea of superior natural conditions, abundant resources. China sea vast, across the tropical and subtropical and temperate zone, continental coastline for more than 18000 kilometers. There are many different kinds of Marine resources, Marine, oil and gas, solid mineral, renewable energy, such as coastal tourism resources, development potential is tremendous. Among them: more than 20000 kinds of Marine life, more than 3000 kinds of Marine fish. Offshore oil resources of about 24 billion tons, the natural gas resource of 14 trillion cubic meters; <sup>15</sup>Coastal placer resources reserves of 3.1 billion tons; Theory of Marine renewable energy reserves is 630 million kilowatts; Coastal tourist attractions more than 1500; Deepwater port address of deepwater coastline of 400 kilometers, more than 60; Beach area of 3.8 million hectares, the depth of 0 ~ 15 meters of the shallow water area of 12.4 square kilometers. In addition, in China also has international seabed area 7.5 square kilometers of polymetallic nodules mining area.

## **2.2 Social Conditions**

Since the 1990 s, China's Marine resource development as an important part of the national development strategy, the development of Marine economy as the major efforts to revive the economy, management of Marine resources and environmental protection, Marine and ocean business investment increase gradually. To regulate Marine development activities, to protect the Marine ecological environment, the state has

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<sup>15</sup> Chen Chenzai. Industrial structure, urbanization and China 's economic growth in the ECM model [J] // Theory and Practice of Finance and Economics.–2012.–№ 6.–P. 85–88.

carried out the "Marine environmental protection law of the People's Republic of China, the maritime traffic safety law of the People's Republic of China, fisheries law of the People's Republic of China, the maritime space use administration law of the People's Republic of China and a series of laws and regulations. The ocean consciousness is growing. Some coastal areas in took a strong Marine province (autonomous region or municipality directly under the central government). The rapid development of Marine economy already have good social conditions.

### **2.3 Marine economies of scale**

Rapid economic development over the past 20 years, the coastal areas, to the Marine economy of investment increased year by year, for the sustained, stable and rapid development of Marine economy laid a foundation. ", in the period of the coastal areas mainly Marine economic output value reached 1.7 trillion yuan, more than doubled in half "five-year" period, the average annual growth of 16.2%, higher than the same period of national economic growth. According to statistics, in 2000, the added value of main Marine economy reached 229.7 billion yuan, accounting for 2.6% of national GDP, accounting for 11 coastal provinces (autonomous regions and municipalities directly under the central government) 4.2% of gross domestic product. Mariculture and Marine oil and gas, coastal tourism, Marine medicine, emerging, and the rapid development of Marine economy, such as seawater desalination effectively drive the development of Marine economy. China's Marine Fisheries and salt production for many years has been the world's first, the shipbuilding industry in the

world third, with fifth of the number of ports in the world and cargo capacity, coastal tourism revenue among the world's first.

## **2.4 Regional Marine Economy**

According to the natural conditions and resources, economic development level and the administrative division, the China's coastal belt and adjacent sea area is divided into three major economic zones, by exerting regional comparative advantage, form the distinctive Marine economic regions. <sup>16</sup>

Bohai sea all called "bohai rim economic zone" or "link bohai sea area", refers to the parts all around the bohai sea and yellow sea coast of the economic region. Bohai rim region including Beijing, tianjin two municipalities directly under the central government and the central liaoning, hebei, shanxi, shandong and Inner Mongolia region, a total of five provinces (area) the city. Land in the area of 112 square kilometers, the total population of 260 million people. There are altogether 157 city around bohai area, make up about a quarter of the city, the urban population of millions city has 13. Is the northern coast of China, the gold coast, in China's opening to the coastal development strategy, the important component. Widely expected to become the "third pole" of the economic growth in China. It is the most densely populated city distribution China, one of the strongest comprehensive strength of areas, in the heart of the whole coastal economic layout and Yangtze river delta, the pearl river delta in the equally important position. Also has the view that in beijing-tianjin-hebei bohai rim

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<sup>16</sup> Li Yuanyuan. Industrial Structure Changes related research on the economy and employment—Empirical Analysis Based on VAR Model [J] // business.—2013.—№ 2.—P. 157–158.

region as the core, the liaodong peninsula and shandong peninsula as the two wings of bohai sea economic zone, including Beijing, tianjin, hebei, shandong, liaoning, which is three provinces of the "3 + 2" economic region. Region including Beijing, tianjin, tangshan, qinhuangdao, dalian, yantai, Weihai, Qingdao, dongying, shijiazhuang, jinan, shenyang and other cities; Area of 51.8 square kilometers; A population of 230 million, accounting for 17.5%; GDP reached 3.8 trillion yuan, accounting for 28.2% of the country.

The Yangtze river delta is located in the alluvial plain of the Yangtze river into the sea before, is the first big economic zone of China, the central government orientation of China's comprehensive strength of the strongest economic center, Asia Pacific region important international gateway, global important advanced manufacturing industry base, China takes the lead among the world-class urban agglomeration in the region. Yangtze river delta economic zone as the earliest and the most mature in the modern sense of China economic zone, the Yangtze river delta economic zone since China's reform and opening up, region, economic scale and the population is growing. So far, the Yangtze river delta economic zone has grown into with Shanghai as the center, space scope includes: LongHaiXian on the north, south to south mountainous area, west to integrate, east is near yellow sea, east China sea, administrative area covers more than 40 local and neighboring cities in Shanghai. , according to data from 34.4 square kilometres of the super long triangle economic zone, the resident population of 212.2 million in 2011, the gross area is 11.5466 trillion yuan, with 3.58% of the country's territory contributed 24.5% of gross domestic product. The Yangtze river delta urban agglomeration is the highest level of China's most developed economy, urban

agglomeration in the urbanization areas. Yangtze river delta is one of the most active areas in China's economic development, to account for only 2.1% of the country's land area, focus on more than a quarter of the nation's economic output and a quarter of the industrial added value, is regarded as the important engine of economic development of China, is China's most developed economic areas. The Yangtze river delta urban agglomeration has been internationally recognized as one of the six major world-class urban agglomeration, and is committed to building in 2018 as the world's metropolis circle.<sup>17</sup>

The Pearl river delta economic zone including guangzhou, shenzhen and other 15 cities. The earliest established by guangdong provincial government in 1994, its development is mainly thanks to neighbouring Hong Kong, Hong Kong has always been the pearl river delta economic zone of the main sources of investment. According to the national development and reform commission of the People's Republic of China published data, gross domestic product (GDP) accounted for about 13.2% of the economy of mainland China, is second only to the Yangtze river delta urban economy, urban economic circle of bohai sea of China's third largest economy urban economic circle. Now, Hong Kong and Macao to build 2020 urban agglomeration in the world. By theory of economies of scale, "the big pearl river delta" is equivalent to 1.2 times that of the Yangtze river delta. Is China's important center of economy, in the national economic and social development and the overall situation of reform and opening-up has outstanding leading role and important strategic position. The pearl river delta

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<sup>17</sup> Cui Yuquan, Wang Ruzhi, Sun Jianan. Influence of Industrial Structure on Economic Growth [J] // Chinese Journal of Management Science.—2000.—№ 3.—P. 53–56.



region is a global power base for advanced manufacturing and modern service industry, the south portal opening to the outside world, China's participation in the main area of economic globalization, the national science and technology innovation and technology research and development base, the national important engine of economic development, radiation drives the development of the south China, central China and southwest, is the largest number of population agglomeration, and the innovation ability, the strongest comprehensive strength the strongest one of the three regions.

### **3. Peculiarities of the activities of Chinese coastal regions marine economy**

#### **3.1 The importance of marine economy**

China is a maritime power, the formation of the open economy in China, the sustainable development of Marine economy to gradually shift to the coastal city, which is based on local Marine economic development, regional has been a steady rise in the national economy, the strategic position of Marine economy has become increasingly obvious, and in reducing the national economic and social resource bottleneck in the show more and more important role. Since 2004, China ocean GDP has kept in accounting for almost ten percent of gross national product (GNP) levels, in addition to a slight downturn affected by the global economic crisis in 2008, a year of Marine has maintained rapid growth in gross domestic product (GDP). With the continuous development of Marine economy, Marine economic contribution to the country will be more and more big, will also increasingly prominent.

### **3.2 National strategic objective of marine economy**

China's good external conditions for the development of the Marine economy and macro environment, thanks to the Chinese government attaches great importance to. <sup>18</sup>Party's 18th will "construction of Marine power" upgraded to the height of the national development strategy, make clear a regulation to "improve the ability of Marine resources development, the development of Marine economy, the protection of Marine ecological environment, resolutely safeguard national Marine rights and interests, construction of Marine power". The government attaches great importance to the main performance in the following aspects:

#### **3.2.1 Government documents guiding Marine economy development**

In May 2003, China issued the national Marine economy development plan outline, deployed in China in the past ten years in the 21st century the development of Marine economy development plans and measures. In 2004, the state oceanic administration, the national development and reform commission and the ministry of finance jointly issued the seawater desalination special planning, from 2006 to 2015, the water using the detailed planning of the national economy and social development of the eleventh five-year plan outline ", to "the protection and development of Marine resources", "positive development of ocean energy", <sup>19</sup>"development of Marine special tourism", "focus on developing Marine engineering equipment, etc. 2007 "congress" report

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<sup>18</sup> Ji Yushan, Wu Yu. Establish cointegration growth of the industrial structure and economic relations between China and the realization [J] // Contemporary Economic Research.-2006.-№ 6.-P. 47-52.

<sup>19</sup> Zhang Xiangqian, Ouyang Qinfen. Ocean economy and regional economic development [J] // Ocean development and management.-2002.-№ 2.-P. 44-48.

"Marine industry development strategy of coastal provinces and cities to build" a powerful province of Marine economy ". In February 2008, the state council issued the national Marine development planning outline, the provisions of Marine shift in the direction of sound and rapid economic development, promote the Marine economy sustainable development.

### **3.2.2 The government constantly improve laws and regulations to promote the development of Marine economy standard**

In January 2002, the maritime space use administration law of the People's Republic of China issued a formal, comprehensive Marine management for specification provides the necessary legal support. In December of 2009, China through the law of the People's Republic of China on island protection act, to protect the island and its surrounding waters ecosystem in China, the reasonable development and utilization of island natural resources, safeguard national Marine rights provides legal protection.

### **3.2.3 China's leaders do important instructions for many times on the Marine economic development**

Xi Jinping in the political bureau of the CPC central committee general secretary eighth collective learning stressed that "further concerned about ocean, know the ocean, running the oceans, promote the construction of Marine power new achievements". Prime minister Li Keqiang, held in March 2014 the 12th session of the National People's Congress second conference pointed out that "the sea is our precious blue homeland. Stick to sea as a whole, fully implement the strategy of Marine and developing Marine

economy, Marine environmental protection, and firmly safeguard national Marine rights and interests, to the construction of Marine power."<sup>20</sup>

### **3.3 Marine industry transition towards sustainable development**

Promote Marine economy sustainable development is to become the world's coastal states the general trend of Marine economy development. Since 2001, 2013, China's major ocean industries generally maintained rapid growth, the specific performance is as follows:

#### **3.3.1 The four traditional Marine industry ranks the leading position**

Since 2000 until 2013, Marine fishery, Marine transport, coastal tourism, Marine salt industry four traditional Marine industry maintained rapid growth. Marine fisheries in China under the guidance of policy, the overall stable development. The added value of Marine fisheries for 3202, 2011, one hundred million yuan, calculated at comparable price, up 1.1% from 2010. Marine products output reached 29.08 million tons, 4 higher than in 2010. 0 %, among them, the mariculture production 15.513 million tons, up 4.7% from 2010: Marine fishing production 12.419 million tons, up 3.2% from 2010: deep-sea fishing production 1.148 million tons, an increase of 29.3% over the previous year. Ocean transportation is still maintained rapid development, the national coastal port production situation overall is good, but by the international shipping industry slowdown in demand and shipping prices and other factors, is still in the state. Full-year

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<sup>20</sup> Xie Mengjun, Fang Dedong. Correlation Analysis in Shandong Province Industrial Structure and Economic Growth—1980—2010 empirical data field [J] // Shandong Institute Of Business.—2012.—No 6.—P. 30—34.

2011 Marine transportation industry to realize the added value of 421.75 billion yuan, up 10.8% from 2010, the coastal port cargo throughput of 6.36024 billion tons, up 12.7% from 2010, the international standard container throughput of 146.32 million teu, up 11.3% from 2010.

### **3.3.2 Heavy industrialization Marine industry development smoothly**

Since 2001, China ocean shipbuilding industry technology has improved, has made remarkable achievements, dominated the world mainstream market of the ship. 2011 ocean shipping industry continued to maintain steady development trend, the added value of 2011 135.2 billion yuan, up 10.8% from 2010, shipbuilding completions of 3412 ships, up 42.9% from 210. Offshore oil and gas industry continue to maintain rapid growth, significant progress was made in the offshore oil and gas exploration. All major breakthroughs were made in Marine geology research, exploration and practice and the geological research results show that China's waters from shallow to deep, from shallow to deep water has a great resource potential. Affected by the oil spill emergency, such as in recent years, Marine oil output fell, but with the prices of oil and gas, Marine oil-gas industry still maintained a stable development. To realize the added value of 171.97 billion yuan in 2011, up 6.0% from 2010, the total output of ocean oil 44.52 million tons, 5.5% less than in 2010. Marine gas output of 12.14519 billion cubic meters, up 9.5% from 2010. China is rich in Marine mining exploitation varieties gradually, the structure is also in the developing constantly optimized, production maintained steady growth. Natural sand was formally implemented in 2007 countries banned exports, further strengthen the management of sea sand. In China in 2008 to

continue to strengthen its management of sand mining, effectively control the non-metallic mineral exploration. Realize the added value of 5.33 billion yuan in 2011, an increase of 2.6% over the previous year.

### **3.3.3 Marine high-tech industry development in good condition**

China's modern for Marine medicine before and after the study began in the 1960s, but the very rapid development, Marine innovation after drug research and development of the ninth five-year plan, significant progress to form which lays an important foundation for China's scale of Marine pharmaceutical industry. By 2011, there have been seven Marine drug production approval from the state. The added value of Marine biological pharmaceutical realize 15.08 billion yuan in 2011, up 21.3% from 2010. HaiYangGuan based on instruments and technology makes great progress in the Marine science, Marine monitoring technology in general have in multi-dimensional three-dimensional integration of the Marine environment monitoring. Seawater desalination industry in China achieved significant technological breakthroughs. In seawater circulating cooling technology, the successful implementation of the electricity or the chemical industry - seawater circulating cooling technology demonstration project, realized by water instead of fresh water for industrial circulating cooling water and reduce operating costs, reduce the cooling water. In terms of seawater desalination, reverse osmosis and distillation in major key technology has achieved a major breakthrough in the desalination. The larger scale of seawater desalination in China, to realize the added value of 1.04 billion yuan in 2011, up 11.9% from 2010. In addition,

China ocean engineering construction is booming. In 2011, ocean engineering construction realize the added value of 108.68 billion yuan, up 13.9% from 2010.

### **Conclusions on chapter one**

China's coastal economic belt as the portal of opening to the outside world in China and important sea route, become the best condition of the development of China's coastal areas, also known as the world's most development potential of the "gold coast", the development advantage is very outstanding. This chapter in the development of China's coastal economic belt based on the analysis of the advantages and characteristics, the development of China's coastal economic belt, development foundation, development level, the main advantage is briefly analyzed, to analyze the current situation of the development of China's coastal economic belt Marine economy provides an effective starting point. With the rest of the world, compared to the Marine economy development of the coastal economic region in China's coastal economic belt of the Marine economy is still in development of a land, mountain in many factors of obstacles and delay, to make it also become China's coastal economic belt of the relatively backward regions in the development of Marine economy. But on the other hand, backward means that there is a new development opportunities and the huge development potential, China's coastal economic belt in the fine port, Labour and land resources with strong strength, especially with the speeding up of the northeast Asia regional economic integration, the development of China's national Marine strategy. The Marine economy development of China's coastal economic belt has the potential to be completely new northeast Asia regional economic growth pole.

# CHAPTER 2 ANALYSIS OF THE MARINE ECONOMIC DEVELOPMENT OF CHINESE COASTAL REGIONS

## 1. Current marine economic condition of coastal regions of China

From the current situation of China's economic development, the eastern coastal areas has always been the pillar of the national economy, by China, tianjin, hebei, shandong, jiangsu, Shanghai, zhejiang, guangdong constitute the bohai rim, Yangtze river delta, the pearl river delta economic zone is the main drive of the eastern coastal economic strength, the main economic zone is not only economic output is higher and faster development, but due to the geographical resources enjoy fu, policy environment, historical and cultural background is different, its economic development characteristics of obvious differences, and in the aspect of Marine economy, but also because enjoy fu, Marine resources development environment, the differences between the factors such as labor of science and technology, its key distribution of Marine economy is different.

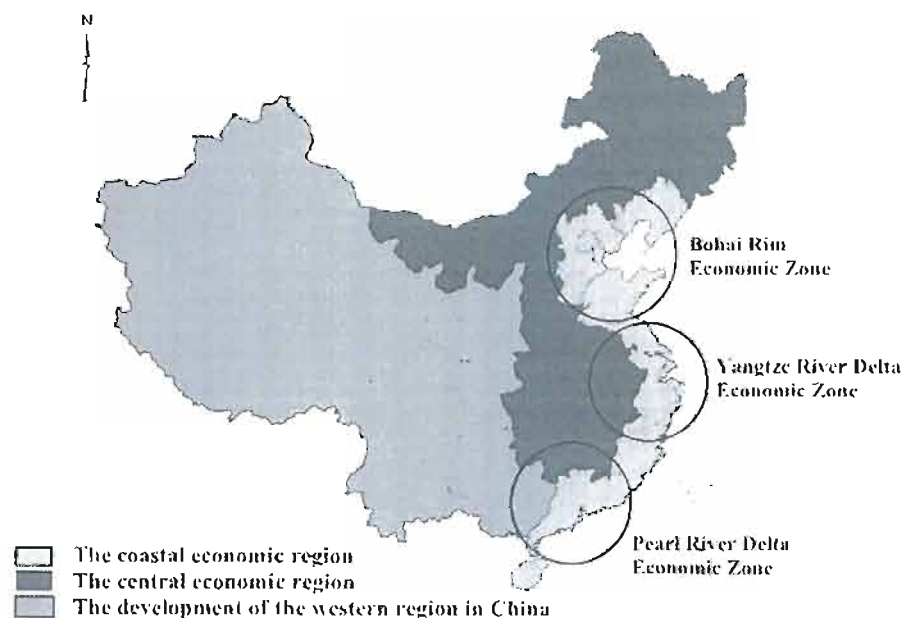


Figure 2.1-Map of China Economic Regions



## **1.1 Current Marine economic development of main coastal economic zone**

The development of Marine economy mainly in Marine economic output value, the structure of the Marine economy, Marine science and technology and Marine industry labor productivity and Marine economic development environment, etc., on the bohai sea, Yangtze river delta, the pearl river delta economic zone analysis and comparison of the current situation of the development of Marine economy, will reveal the development characteristics of regional Marine economy, provide empirical research analysis.<sup>21</sup>

### **1.1.1 The current situation of the development of Marine economy link bohai sea economic zone**

#### (1) Marine economic output

From 1996 to 2012 of 17 years, the bohai sea economic zone larger Marine economy has obtained the degree of development, from the bohai sea Marine economic output in 1996 was only 1996 yuan, after 2000 years of rapid growth stage, 2012 Marine economy output value 1.8078 trillion yuan, increased by nearly 20 times, the average growth rate of 21.63%. On the regional economic contribution rate from 6.5% to 15.8% of the total output value.<sup>22</sup> Specific changes as shown in the figure below:

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<sup>21</sup> Liu guangbin, Zhang Yizhong. Strategies to promote the integration of the Chinese land and sea [J] // Marine economy.-2012.-№ 2.-P. 11-17.

<sup>22</sup> Ma Tao, Ren Wenwei, Chen Jiakuan. Shanghai Oceanic Economy Development Strategy [J] // Ocean Development and Management.-2007.-№ 24.-P. 96-100.

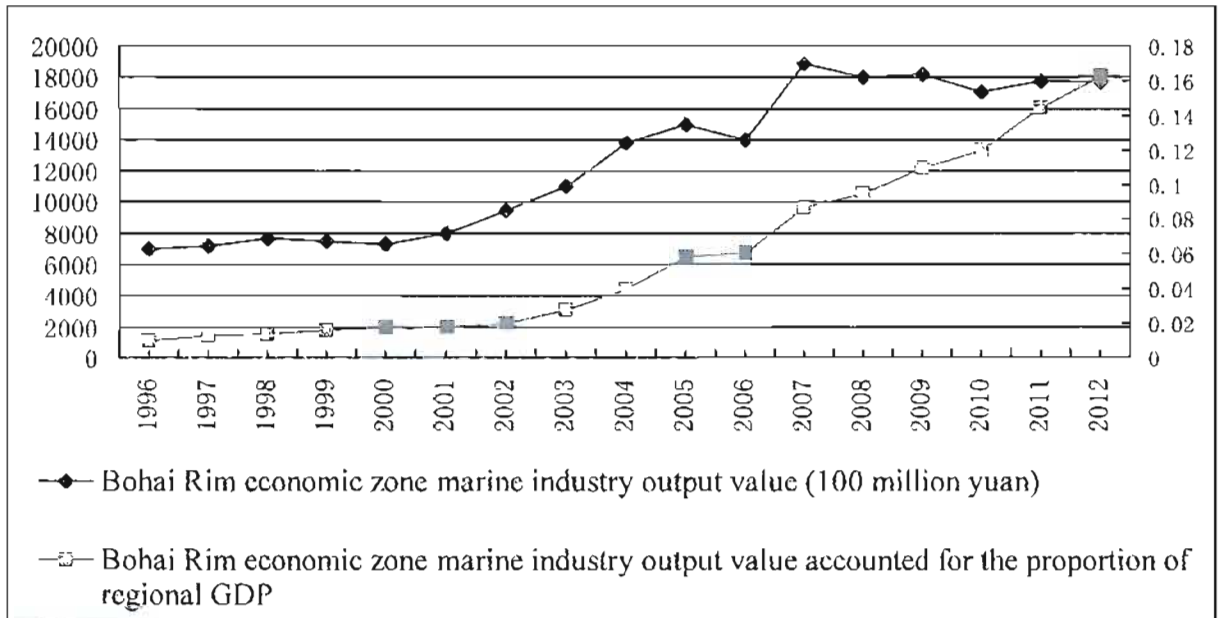


Figure 2.2-Bohai rim ocean graphic output value and its contribution to national economic change

(2)Marine industry structure

From 2006 to 2010, bohai sea Marine industry structure change tendency is not obvious, but overall the first ocean economy declined, Marine industry weight has increased, the third Marine industry basically remain unchanged, the proportion of the second three industry weight is 5.8 2010:52.8:41.3, still show the second dominant industry, Marine economic structure remains to be further optimized. <sup>23</sup>Due to the link bohai sea area in the three provinces and one city resources environment and economic level difference, in the main Marine advantage with focus on economic development, Marine industry development on the basis of the dominant economic also each are not identical, focus on the development of three provinces and one city Marine industry shown in the table below:

<sup>23</sup> Sun Jiuwen. Research on Industrial Agglomeration under the Coordinated Regional Economic Development [J] // Academic Journal.—2007.—№ 6.—P. 64–67.

Table 2.1-The Bohai rim economic zone key Marine industrial distribution in various provinces

Areas	Key marine industry
Liaoning Province	Marine fisheries, marine salt, marine transportation, offshore oil and gas industry, marine shipbuilding, marine tourism
Hebei Province	Marine transportation, coastal tourism, marine engineering construction, marine fisheries
Tianjin City	Offshore oil and gas industry, the salt industry, the marine chemical industry, marine transportation
Shandong Province	Marine fisheries, marine transportation, marine tourism, marine chemical industry, salt industry, marine shipbuilding
Bohai Rim	Marine fisheries, marine transportation, offshore oil and gas industry, salt industry, marine chemical industry

(3) Marine science and technology and Marine economy industry labor productivity

In 2010, the bohai sea economic zone of Marine scientific research institution number 58, Marine scientific research institution staff 8614 people, the activities of science and technology personnel in the graduate student 1726 people, 2436 people have senior professional titles, Marine scientific research funds investment of 44.59952 billion yuan, to apply for Marine related topic number 2151, 855 to apply for a patent. That year, the bohai sea economic zone Marine economy involves the employment of 10.816 million people, 7.39% of the area proportion of practitioners.<sup>24</sup>

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<sup>24</sup> Liu Shijin. Industrial Agglomeration and Its Importance to Economic Development [J] // Reform.-2003.-№ 3.-P. 64-68.

#### (4) Marine economic development environment

Provinces in the circum bohai sea region has specifically for the development of Marine economy policy measures. Chinese province of Marine economy development "twelfth five-year" plan proposed by 2015, from a big ocean province to a powerful province of Marine economy leap, attaches great importance to the Marine science and technology, improve the utilization efficiency of Marine resources, optimize the structure of Marine economic three times, adjust the traditional Marine economy, focus on developing Marine advantage dominant economic and Marine emerging economies; Marine science and technology and economy in hebei province "twelfth five-year" plan proposed the key development of comprehensive utilization of seawater, seawater desalination demonstration project construction, improve the comprehensive utilization of seawater technology, developed with independent intellectual property rights of key equipment, and promote the construction of water use of related infrastructure, do a good job in environmental protection work in economic development.

#### **1.1.2 The current situation of the development of Marine economy the Yangtze river delta economic zone**

##### (1) Marine economic output changes

Ocean long triangle economic output increased from 1996, 74.962 billion yuan in 2012 to 1.544 trillion yuan, the growth ratio is close to 20, the average growth rate of 21.9%, on the regional economic output contribution rate from 5.7% growth in 1996 to 14.2% in 2012, the importance of regional economy. Among them, the ocean economic output change since 2001 is obvious, contribution to the regional national economy after

the rapid growth of the 2000-2004, change gradually narrowed, tend to be 14% of the equilibrium level. Specific change trend as shown in the figure below:

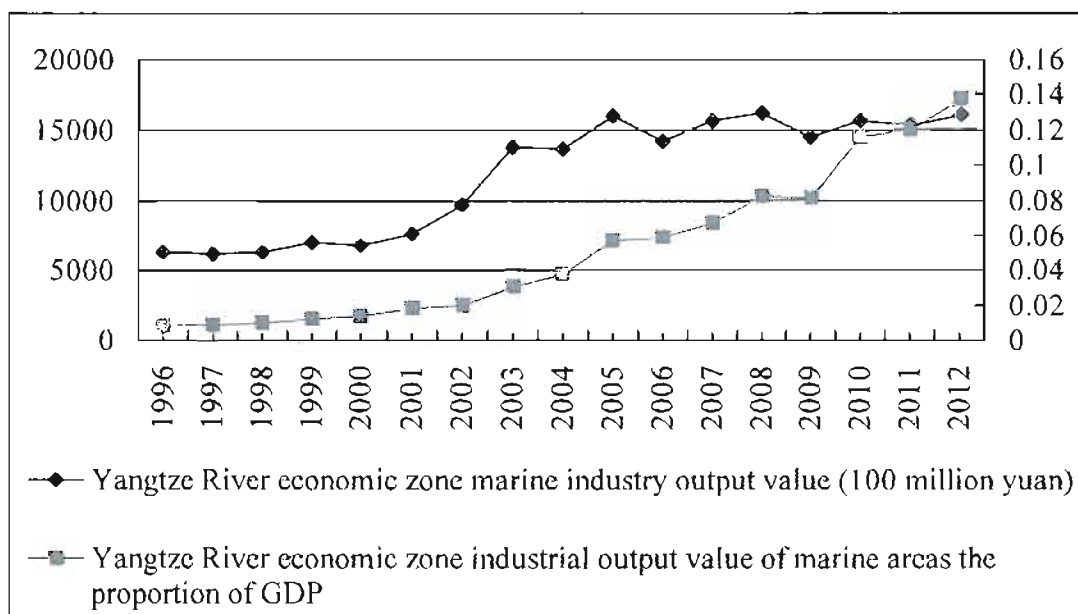


Figure 2.3-The Yangtze river delta economic zone ocean graphic output value and its contribution to national economic change

## (2) Marine industrial structure

With the optimization of industrial structure, the Yangtze river delta economic zone Marine economy three oceans of the third industry occupies obvious advantage in the industry, the proportion of more than 50%. <sup>25</sup>Three times in 2010 Marine industry specific gravity of 3.6, 45.4, 51.0, the structure advantages more apparent. Specific to the Yangtze river delta has three provinces and cities, the sea different pillar industries, specifically shown in the table below:

<sup>25</sup> Chen Baifu, Wang Feng. Marine emerging industry investment mechanism and innovative strategic thinking [J] // Tian Hebei University of Engineering (Social Science Edition).-2011,28.-№ 2.-P. 46-49.

Table 2.2- Yangtze river delta economic zone key Marine industrial distribution in various provinces

Areas	Marine pillar industries
Jiangsu Province	Marine fisheries, marine shipbuilding industry, coastal tourism, marine power industry
Shanghai City	Marine transportation, marine tourism, marine shipbuilding
Zhejiang Province	Marine transportation, marine shipbuilding industry, marine equipment manufacturing, marine tourism, marine mining
Yangtze Economic Zone	Marine transportation, marine shipbuilding industry, marine tourism

(3) Marine science and technology and Marine economy industry labor productivity

In 2010, the Yangtze river delta economic zone of Marine scientific research institution number 44, Marine scientific research institution staff 7856 people, the activities of science and technology personnel in the graduate student 1737 people, 3917 people have senior professional titles, Marine scientific research funds investment of 44.3948 billion yuan, to apply for Marine related topic number 3097, application for 903. That year, the bohai sea economic zone Marine economy involves the employment of 7.962 million people, 8.54% of the area proportion of practitioners.

(4) The Marine economic development environment

The Yangtze river delta region in Jiangsu, Shanghai, Zhejiang two provinces and one city Marine economic development has had its own characteristics, the development policy is aimed at the development status of various cities. Development

of Marine economy in Jiangsu province "twelfth five-year" plan proposed to build modern Marine economic system and improve the Marine contribution rate of science and technology, optimize the structure of Marine economy, effective control of Marine environmental pollution problems, to 2020, the basic realization of Marine economy strong province goal; <sup>26</sup>Marine economic development of Shanghai "twelfth five-year" plan proposed to accelerate the development of Marine economy, improve the comprehensive Marine management, protect the Marine ecosystem, its signed 39 with Ningbo financial and Marine economic construction projects, the total amount of 43 billion yuan, will promote the Yangtze river delta economic zone of Marine economic cooperation and regional Marine economy long-term development; Zhejiang province in the development of Zhejiang Marine economy demonstration area planning is put forward through a "nuclear wing three times more than nine area island" pattern of planning, building the modern Marine economic system, to achieve this goal, the government of Zhejiang province key planning the 490 Marine economic projects, a total investment of about 1.2 trillion yuan. <sup>27</sup>

### **1.1.3 The current situation of the development of Marine economy of the pearl river delta economic zone**

#### **(1) Marine economic output**

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<sup>26</sup> Liu Boyang. Discussion of new industrial agglomeration and Binhai New Area Economic Growth [J] // *Oriental Culture*.—2012.—№ 21.—P. 199–204.

<sup>27</sup> Su yan, Han Mi. Nonlinear relationship between industrial agglomeration structure and urban economic growth [J] // *Finance & Economics*.—2012.—№ 8.—P. 49–57.

In 1996, the pearl river delta Marine economy gross output value of 74.88 billion yuan, in 2012, the Marine economy output growth for 1.0028 trillion yuan, increased by nearly 13 times, an average growth rate of 18.2%. The pearl river delta economic zone of Marine economic output to its regional GDP contribution rate changed little in the past 17 years, the contribution rate to reach 17% in 1996, after falling to 12% in 2000, growth back to 20% in recent years and basic remained stable. Specific change trend as shown in the figure below:

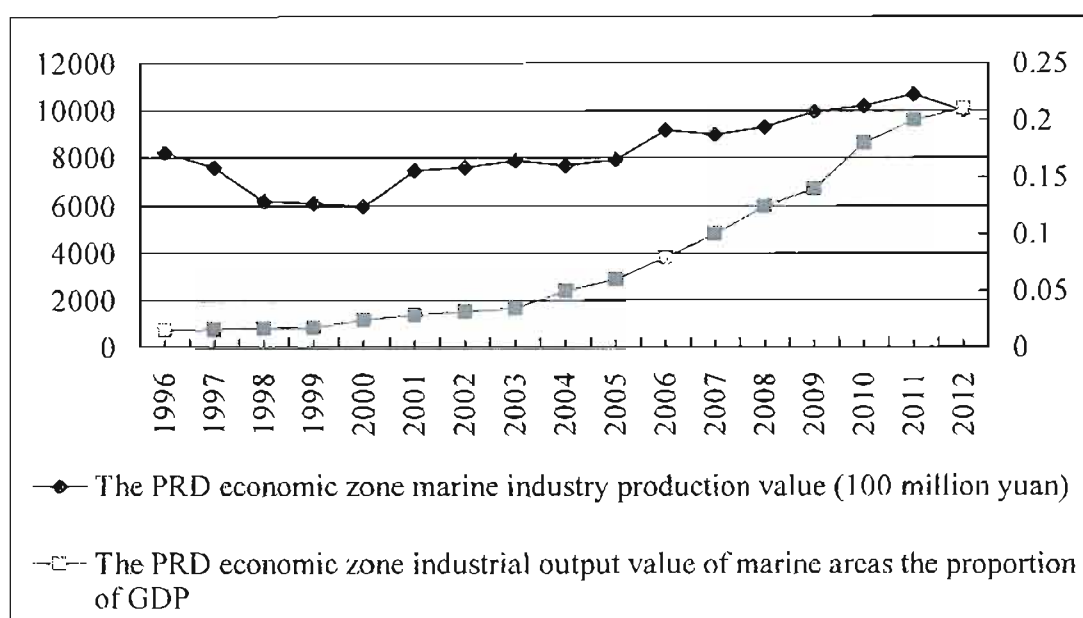


Figure 2.4-The pearl river delta economic zone ocean graphic output value and its contribution to national economic change

## (2) Marine industrial structure

The pearl river delta economic zone ocean pillar industry and ocean the same pillar industries in guangdong province, is the Marine transportation, Marine oil-gas industry, Marine shipbuilding industry, Marine fishery, etc. From the three times of the economic structure, based on 2006-2010, the pearl river delta economic zone sea first, second, the



proportion of the tertiary industry, the pearl river delta economic zone showed the first Marine industrial structure change and the third industry in China, the trend of the rise in the proportion of secondary industry, but from the overall, the Marine basic remain above 50%, the proportion of the tertiary industry Marine industry specific gravity of 2.4 three times in 2010:47.5:50.2, a reasonable industrial structure.<sup>28</sup>

### (3) Marine science and technology and Marine economy industry labor productivity

In 2010, the pearl river delta economic zone a total of 24, Marine scientific research institution for Marine scientific research institution staff 2655 people, the activities of science and technology personnel in the graduate student 548 people, 821 people have senior professional titles, Marine scientific research funds investment of 14.55545 billion yuan, to apply for Marine related topic number 1594, application for 218. That year, the bohai sea economic zone Marine economy involves the employment of 7.63 million people, 7.19% of the area proportion of practitioners.

### (4) The Marine economic development environment

On July 5, 2011, the guangdong Marine economy comprehensive experimental zone development planning, formally approved by the state council, to accelerate the development of Marine economy of this province, as soon as possible become the target of Marine economic strong province, guangdong province, a series of policies, the development of Marine advantage economy, to develop Marine emerging economy, enlarge the proportion of linhai industrial in Marine economy, in turn, bring more

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<sup>28</sup> Rao Ping. Agglomeration, Technological Spillover and Empirical Study on Regional Economic Growth [J] // Kaifeng Institute of Education.—2012.—№ 12.—P. 100–103.

Marine economic development, and strengthen regional Marine cooperation.<sup>29</sup> Around the city of guangdong province and on how to promote the development of Marine economy and Marine economy in the city put forward corresponding planning and countermeasures. In August 2012, the guangdong provincial government issued "the development of guangdong province linhai industrial implementation plan", "the implementation scheme of development of coastal tourism in guangdong province", "guangdong province development Marine emerging economy and Marine science and technology implementation plan, such as multiple implementation plan, put forward the 177 Marine projects, a total investment of more than one trillion yuan.<sup>30</sup>

## **1.2 Development comparation of Current Marine economic development of main coastal economic zone**

The current situation of the development of Marine economy of bohai sea, Yangtze river delta, the pearl river delta economic zone main development trends for the longitudinal comparison, based on this, the present situation of the main coastal economic zone is mainly from the horizontal, including Marine economic output change trend, the structure of the Marine economy, Marine economic level three aspects, such as science and technology.<sup>31</sup>

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<sup>29</sup> Cui Di, Wang Yaoqiu. Based on supply and demand balance regional logistics coupling system [J] // Logistics Technology.-2008.-№ 3.-P. 6-11.

<sup>30</sup> Pan Shiming, Hu Dong. On Economic Effect and Policy Implications of industrial clustering [J] // Shanghai Economic Research.-2008.-№ 8.-P. 31-37.

<sup>31</sup> Yu Jinkai, Cao Yanqiao. Marine industry association model analysis [J] // Journal of resource and industry.-2007, 9.-№ 6.-P. 12-15.

(1) The coastal economic zone main Marine industry output changes

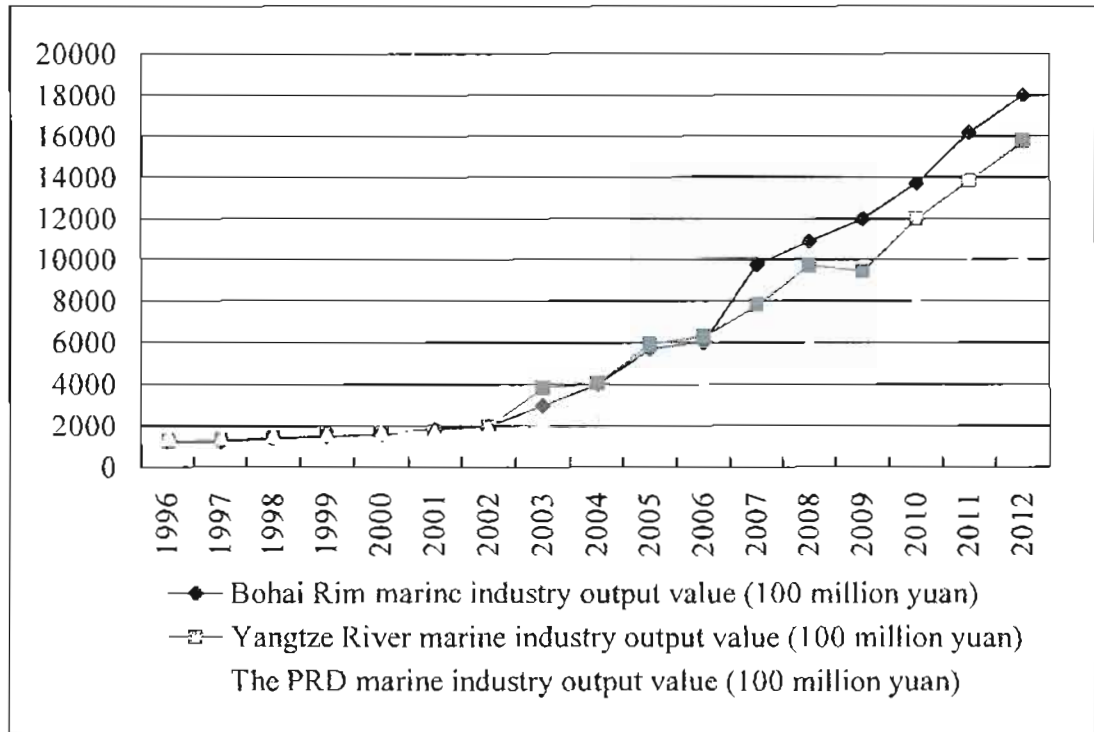


Figure 2.5-Coastal three economic zones of Marine industry value change trend

As shown in the above, the bohai sea, Yangtze river delta, the pearl river delta economic zone in the Marine industry before 2001 economic gap is not big, have the same change trend, remain slow growth trend. After 2001, the main economic zones of Marine economic growth rate are improved, but the link bohai sea economic zone and the Yangtze river delta economic zone of Marine economic output growth is significantly faster than the pearl river delta economic zone. By 2006, the Yangtze river delta and the pearl river delta economic zone differences of Marine economic output growth rate, the bohai sea economic zone at a faster rate of growth, the Yangtze river delta economic zone is a little behind. In 2012, the main economic zones of Marine economic output value proportion as 42:35:23.

(2) The major coastal economic zone Marine industrial structure

The major coastal economic circle due to the Marine environment and resources, location advantage, regional factors such as different economic foundation, the main production capacity on the Marine economy difference is bigger. The specific Marine economy of main economic zone production capacity is shown in the diagram below:

Table 2.3-Three economic zones in major ocean industries production capacity

Industry Areas	Marine Fisheries			Ocean Mining (t)
	Marine fishing(t)	Deep-sea fishing(t)	Mariculture (t)	
Bohai Rim	3627332	334108	6620857	4257157
Yangtze	3412885	274476	1610903	0
PRD	1358112.4	90014.4	2366153.6	25013500
Industry Areas	Offshore oil and gas industry		Marine transportation	
	Crude oil(10,000 tons)	Natural Gas(ten thousand cubic meters)	Cargo throughput (million tonnes)	Container throughput (TEUs)
Bohai Rim	3396.93	242785	255880	3571
Yangtze	8.8	49742	149031	4738
PRD	1239.0375	775559.1	100034.05	3674.6
Industry Areas	Haiyan industry(tonnes)	Marine chemical industry(tonnes)	Shipbuilding (ten thousand tons integrated)	Wind power generation(MW)
Bohai Rim	3084.47	8742142	1385.96	191.9
Yangtze	160.5	1802284	4542.09	145.29
PRD	13.452	547675	315.4	54.0835

From three proportion of industry, the proportion of the bohai sea economic zone is 5.8:52.8:41.3, the proportion of the Yangtze river delta economic zone is 3.6:45.4:51.0, the proportion of the pearl river delta economic zone is 2.4:47.5:50.2,

compared with, in addition to the bohai sea economic zone, the Yangtze river delta economic zone and the pearl river delta economic zone are respectively the Marine economy industry situation of three, two, one, one more evident in the pearl river delta, the lowest proportion in the Marine primary industry, the highest proportion in the ocean of the third industry, and the bohai sea sea proportion of primary industry is higher, the Marine fishery as the pillars with closely related to the current situation of Marine economy.<sup>32</sup>

(3) The major coastal economic zones of Marine science and technology level

Concrete as shown in the figure below:

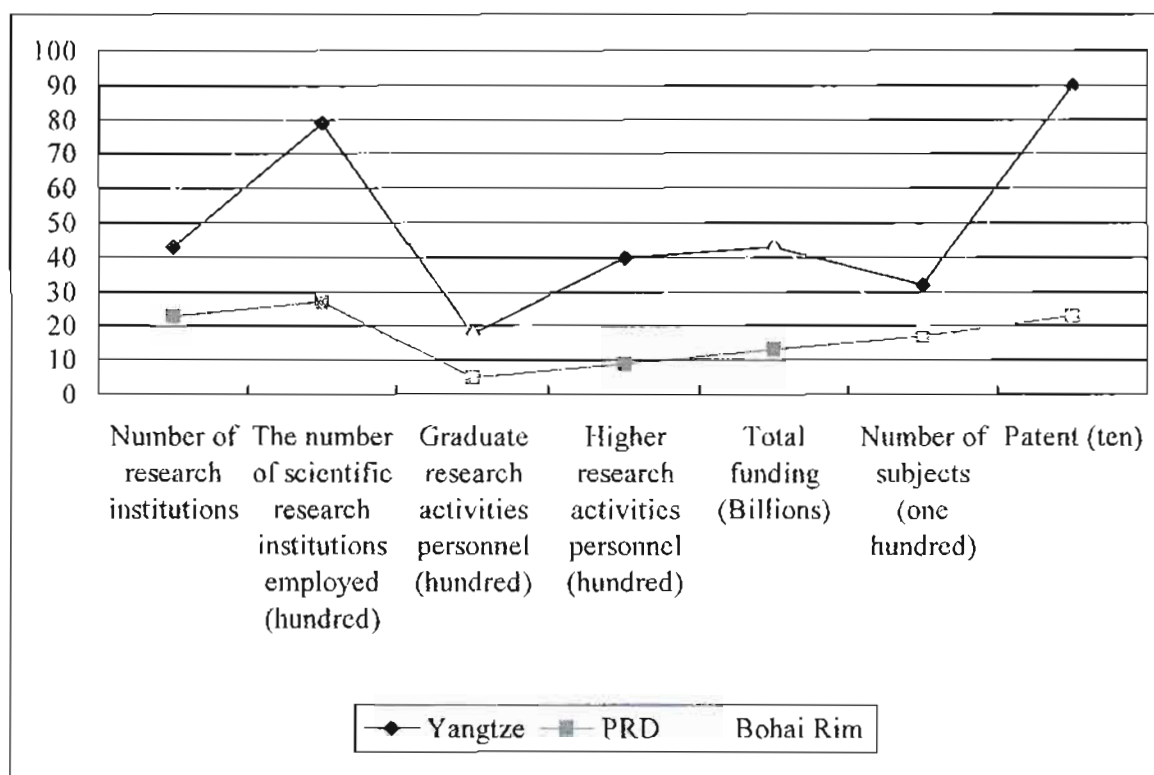


Figure 2.6-Coastal three economic zones of Marine science and technology level difference here

<sup>32</sup> Yao Juefu, Tan Song. Industrial agglomeration and regional economic development in guangdong province—based on the empirical study [J] // Guangdong University of Technology.—2012.—№ 2.—P. 41–46.

Because the Marine scientific research institution of distribution, the location of the Marine scientific research units and so on, the major coastal economic zones of Marine science and technology level there is a certain difference. By the picture above you can see, the bohai sea economic zone and the Yangtze river delta economic zone in Marine science and technology level of several indicators reciprocal relation, the pearl river delta economic zone is due to the small geographical range, economic volume is small, in the aspect of Marine science and technology level and the former two regions have a certain gap.

### **1.3 Current situation of regional economic development of main coastal economic zone**

Economic performance in many aspects of regional economic development level, the main indicators including the region's economic output, regional economic structure and the three categories such as income, the bohai sea, Yangtze river delta, the pearl river delta economic zone mainly analysis and comparative study, the present situation of regional economic development to reflect the development trend of the main economic zone and the development of their respective advantages, provides the basis for empirical research.

#### **1.3.1 The bohai sea economic zone economic development situation**

Bohai sea economic development, involving the three provinces and one city in shandong province, hebei province and tianjin, China, the economic output, economic structure, income etc. As shown in the following analysis:

### (1)Regional economic output

From 1996 to 2012, the economic output has been a growing trend in the Bohai Sea region. Before 2003, growth was slower, but after 2003, it became rapid. After 17 years of development, the Bohai Sea region's economic output grew from 1.367348 trillion yuan in 1996 to 11.427338 trillion yuan in 2012, an increase of more than 7 times. The average growth rate is as high as 14.28%, accounting for 22.0% of the gross domestic product.

### (2) Regional industrial structure

From 2003 to 2011, the Bohai Sea region's industrial structure changed significantly. While the proportion of the primary industry declined, the proportion of the tertiary industry increased. However, overall, the proportion of the secondary industry remains high, and the gap between the second and third industries is still large. To optimize the industrial structure, there is still a large gap to be closed.

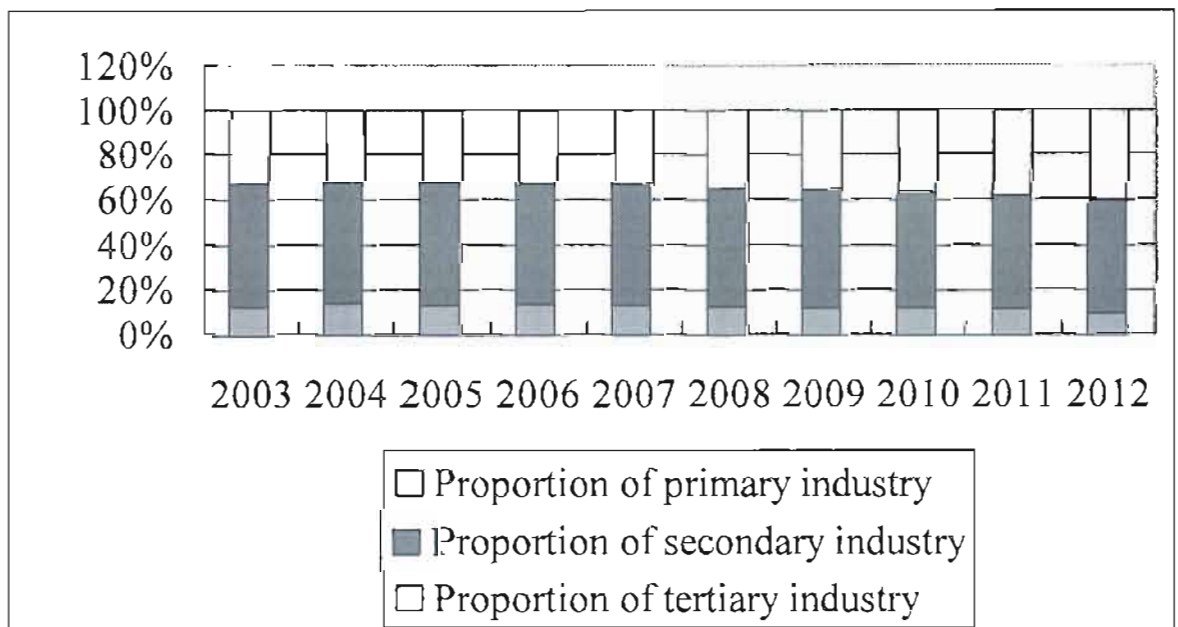


Figure 2.7-The Bohai rim region industrial structure changes

### (3) Residents income

In 2002-2011, bohai sea region rural residents' disposable income and disposable income of urban residents all showed a trend of growth, disposable income of rural residents by 2002 in 2011 to 7977.05 yuan, 2853.27 yuan growth of urban residents disposable income growth from 2002 to 7262.09 in 2011 to 21397.98 yuan, the disposable income of urban residents basic maintain in the disposable income of rural residents is 2.7 times.<sup>33</sup>

### **1.3.2 The Yangtze river delta economic zone economic development situation**

The Yangtze river delta economic zone, economic development involves the two provinces and one city in zhejiang province, jiangsu province and Shanghai, the economic output, economic structure, income, etc. As shown in the following analysis:

#### (1) The region's economic output

From 1996 to 2012, the Yangtze river delta economic output basic with consistent growth trends in the circum bohai sea region, rapid growth from 2003 to 2007, 2003 years before and after 2003, economic growth is slower. <sup>34</sup> After 17 years of development, the Yangtze river delta economic output growth from \$1996 in 1.305247 trillion to \$2012 by 10.870733 trillion yuan, also the growth rate of more than 7 times,

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<sup>33</sup> Yao Shoufu, Zhang Hua. The empirical study of relationship between industrial agglomeration and economic growth—in sichuan province, for example [J] // Productivity research.—2012.—№ 7.—P. 108—110.

<sup>34</sup> Cao Yanqiao. Marine industry influence coefficient and ripple effect analysis [J] // Chinese journal of ocean university (social science edition) .—2007.—№ 4.—P. 8—12.



the average growth rate reached 14.25%, accounting for the proportion of gross domestic product (GDP) of 20.9%.<sup>35</sup>

(2) The regional industrial structure

Compared to the bohai sea region, Yangtze river delta region significantly higher degree of industrial structure optimization, the nine years of 2003-2011, the proportion of primary industry and secondary industry in Yangtze river delta declined obviously, significantly increase the proportion of the third industry. 7:53:40 industry weight for three times in 2003, in 2011, the proportion of improvement for 5:49:46, significantly lower proportion of second and third industry gap.<sup>36</sup>

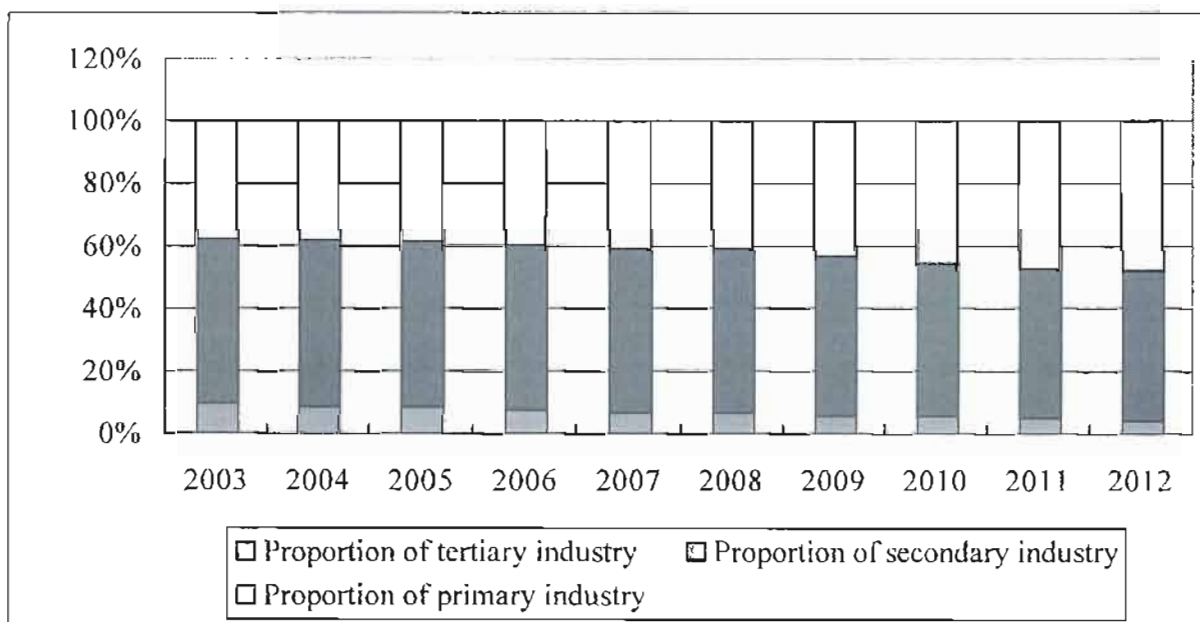


Figure 2.8-Yangtze delta economic zone of the industrial structure change tendency

<sup>35</sup> Cao Xiaohua. Explore a road to port cooperation to promote jiangsu coastal development field [J] // The reform and open.-2010.-№ 9.-P. 86-88.

<sup>36</sup> Yin Kedong. The impact of ocean energy development on social economy evaluation index system research [J] // Chinese journal of ocean university (social science edition) .-2012.-№ 1.-P. 9-14.

### (3) Residents income

In 2002, the disposable income of rural residents is 4457.58 yuan in Yangtze river delta, the disposable income of urban residents is 10360.12 yuan, in 2012, the two income levels rose to 11929.88 yuan and 11929.88 yuan respectively, or very obvious, among them, inviting in basic maintain residents' disposable income in rural residents' disposable income 2.5 times.

### **1.3.3 The pearl river delta economic zone economic development situation**

The pearl river delta economic zone economic development in guangdong province has nine city such as zhuhai, shenzhen, shantou, its economic output, economic structure, income, etc. As shown in the following analysis:

#### (1) The region's economic output

In 1996, the pearl river delta region's economic gross is only 438.375 billion yuan, in 2012, the growth of more than 9 times, reached 4.789725 trillion yuan, accounting for the proportion of gross domestic product (GDP) of 9.2%, the average growth rate reached 16.22%, and after 2003 has maintained high growth.<sup>37</sup>

#### (2) The regional industrial structure

In 2003, the pearl river delta economic zone of the three industries proportion to 8:54:38, by 2011, the proportion of adjustment as 5:50:46, showed a trend of gradual optimization of the industrial structure.

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<sup>37</sup> Jin Rong, Zheng Shu. The empirical study of Marine industry of Shanghai economy pull effect [J] // Journal of zhejiang agricultural.-2011.-№ 3.-P. 634-638.

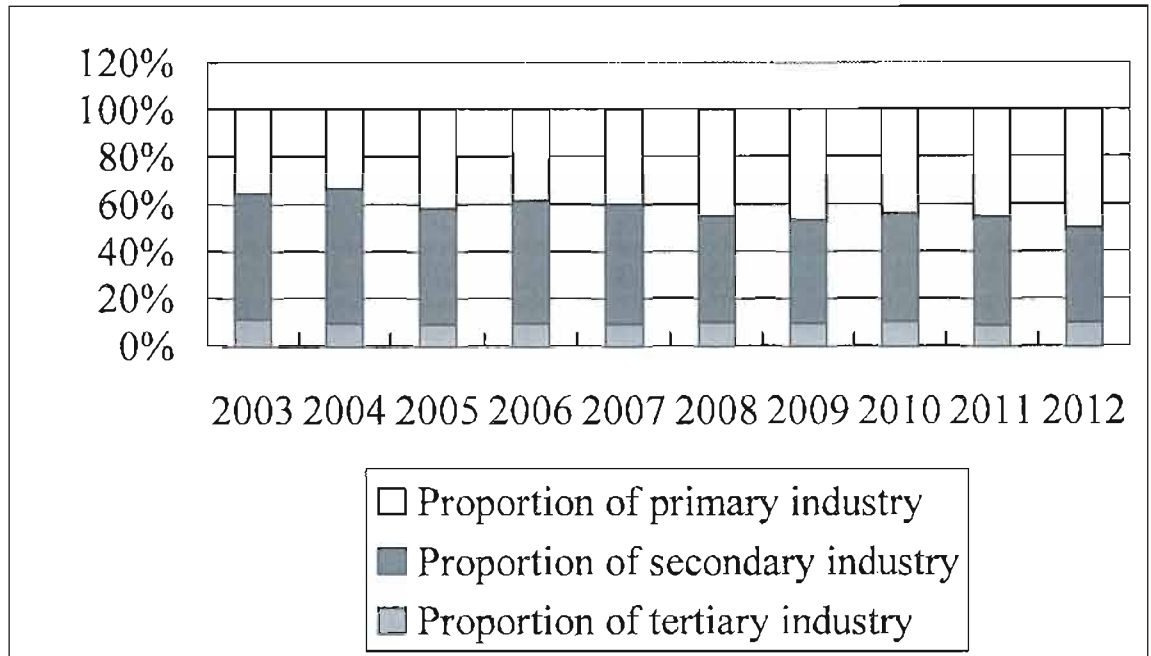


Figure 2.9-The PRD economic zone of the industrial structure change tendency

### (3) The residents income

Compared with link bohai sea area and the Yangtze river delta, the pearl river delta region of the disposable income of urban residents and rural residents' disposable income gap between the larger, from 2002 to 2011, the gap at the level of 3.1 times. Rural residents' disposable income increased from 3911.9 in 2002 yuan in 2011 to 9371.73 yuan, and disposable income of urban residents increased from 11137.2 in 2002 yuan in 2011 to 26897.48 yuan.<sup>38</sup>

<sup>38</sup> Liu Tao, Wang Xinqi, Liu Shangtian. seashore ecotourism regional cooperation development in coastal areas of shandong, for example [J] // Journal of resources development and the market.-2011.-№ 24.-P. 378-381.

## 1.4 Development comparison of Current regional economic development of main coastal economic zone

The main economic zone in the economic output value, industrial structure, people's income transverse comparison.

### 1.4.1 Main economic zone economic output status

1996-2012, the main economic zone has been present GDP growth trend, the bohai sea economic zone and the Yangtze river delta economic zone economic output curve almost overlap (as shown in the figure below), show a consistent trend, and from the point of the slope of the following three curves, the bohai sea economic zone, the Yangtze river delta economic zone, the economic output growth is significantly faster than the pearl river delta economic zone.

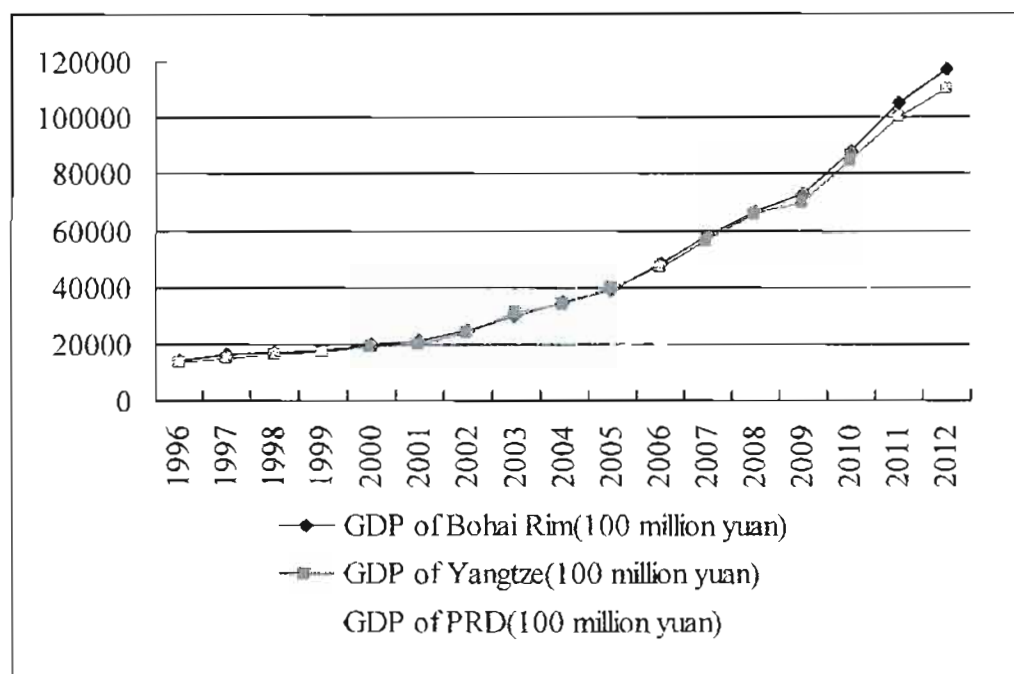


Figure 2.10-Three economic zone economic output change trend

Although the GDP based on output, link bohai sea economic zone to match that of the Yangtze river delta economic zone, but from a given area the per capita GDP change trend of demographic factors, main economic zones exist obvious difference: as shown in the figure below, although per capita GDP growth trend of major economic zones are similar, but the Yangtze river delta economic zone has been maintain leading position, the pearl river delta region economy is not high, but its per capita GDP near the Yangtze river delta economic zone and the bohai sea of much higher than.<sup>39</sup>

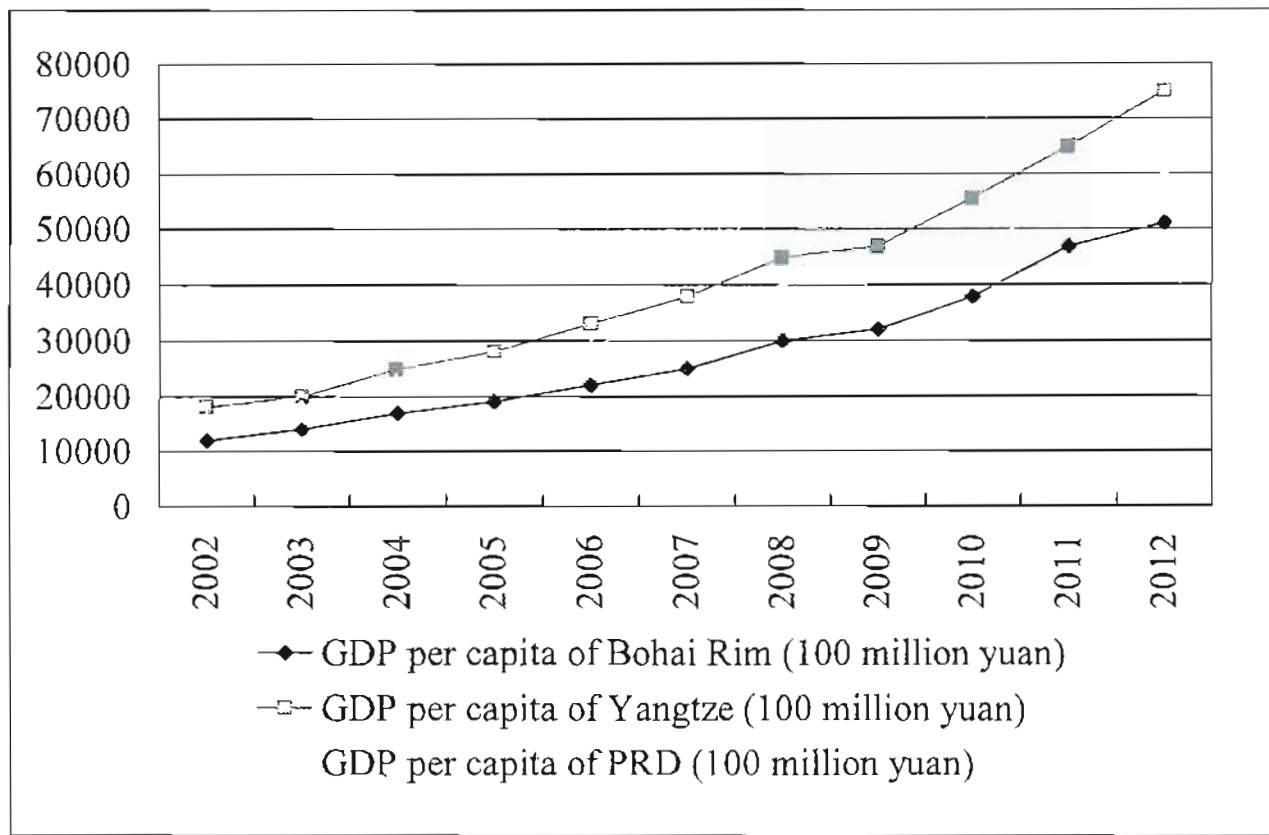


Figure 2.11-Three economic zones per capita economic output change trend

#### 1.4.2 Main economic zone of the industrial structure present situation

<sup>39</sup> Zhou Dajun. Marine economy's contribution to the zhoushan study [J] // Journal of ocean development and management.-2007.-№ 4.-P. 136-137.

Main economic zone in the bohai sea economic zone the highest proportion of primary industry, the proportion of the tertiary industry, the lowest least structure optimization; Yangtze river delta economic zone accounted for less than the pearl river delta economic zone, the first industry and the tertiary industry accounted for more than the pearl river delta economic zone, the industrial structure optimization of the highest degree.<sup>40</sup>

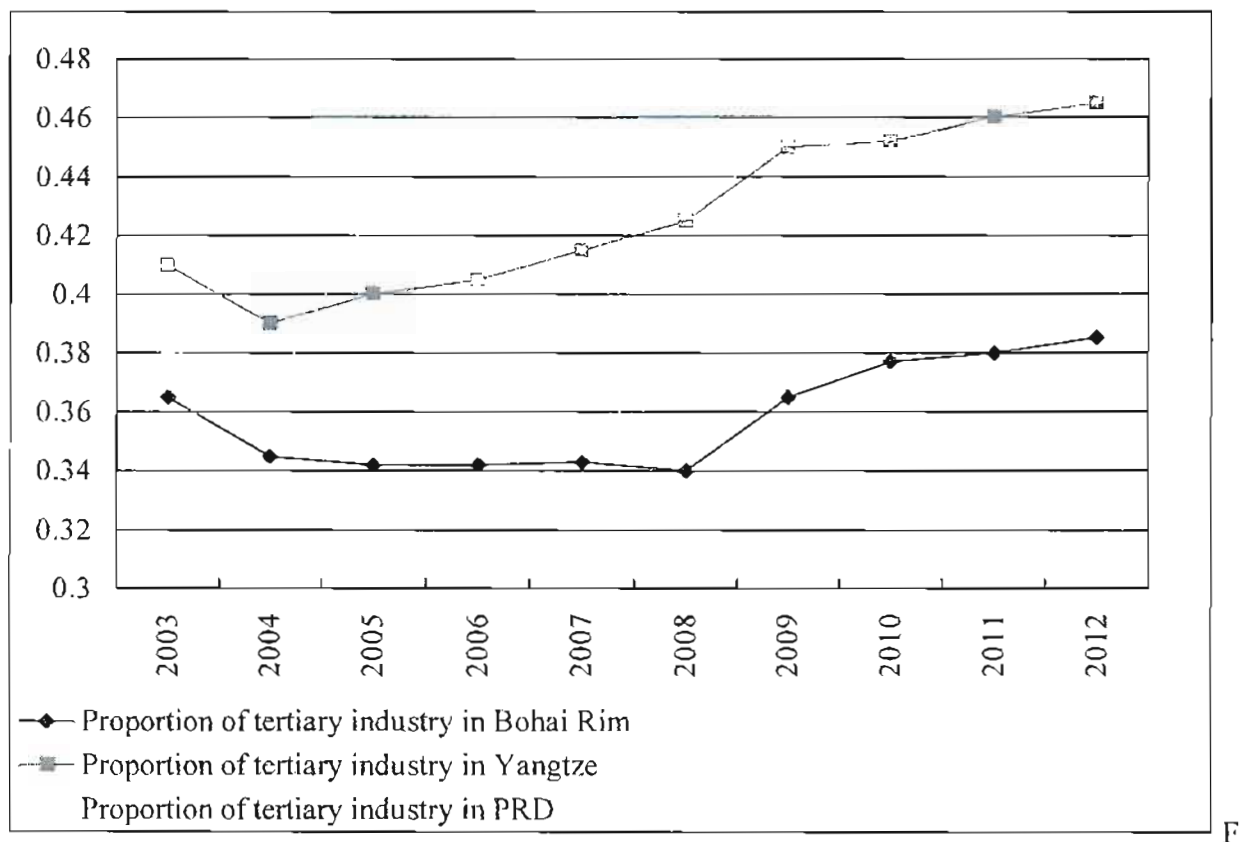


figure 2.12-The change of three economic zones of the third industry accounted

Through the tertiary industry accounted for changes reflect the trend of the economic zone of economic structure optimization and intuitive reflect: compared with the Yangtze river delta economic zone and the pearl river delta economic zone, the

<sup>40</sup> WuYefeng, Shi Ping. China's Marine industry economic contribution of the measure [J] // Journal of statistics and decision.-2013.-№ 12.-P. 136-139.

bohai sea economic zone of the tertiary industry is not only on the proportion is low, and on the growth rate is low, and there is a decline in short-term phenomenon, the industrial structure optimization to be long-term development.

### 1.4.3 Main economic income status

Major economic zones residents income level rise, the Yangtze river delta economic zone and the pearl river delta economic zone residents income level is higher, faster, and its rising rate but the link bohai sea economic zone residents income level is low, and the growth rate significantly lower than the Yangtze river delta economic zone.

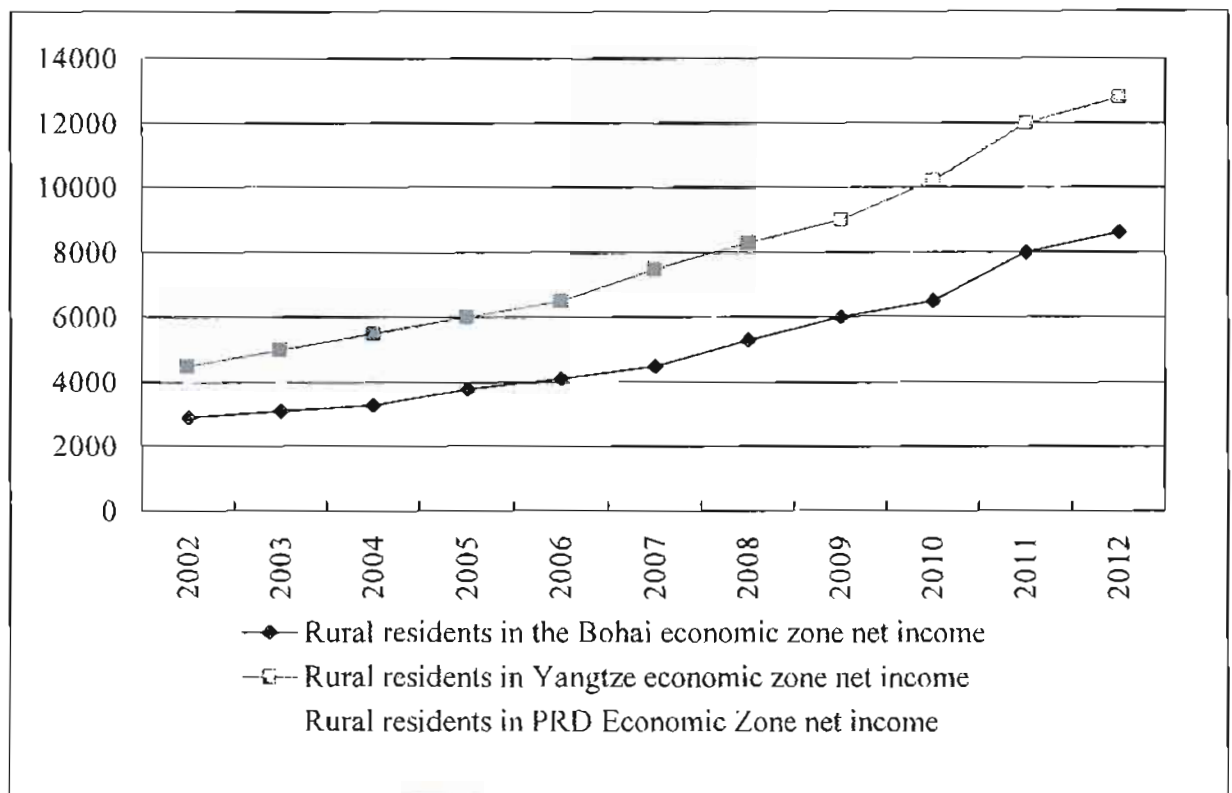


Figure 2.13-Three economic zones changes in personal disposable income to rural

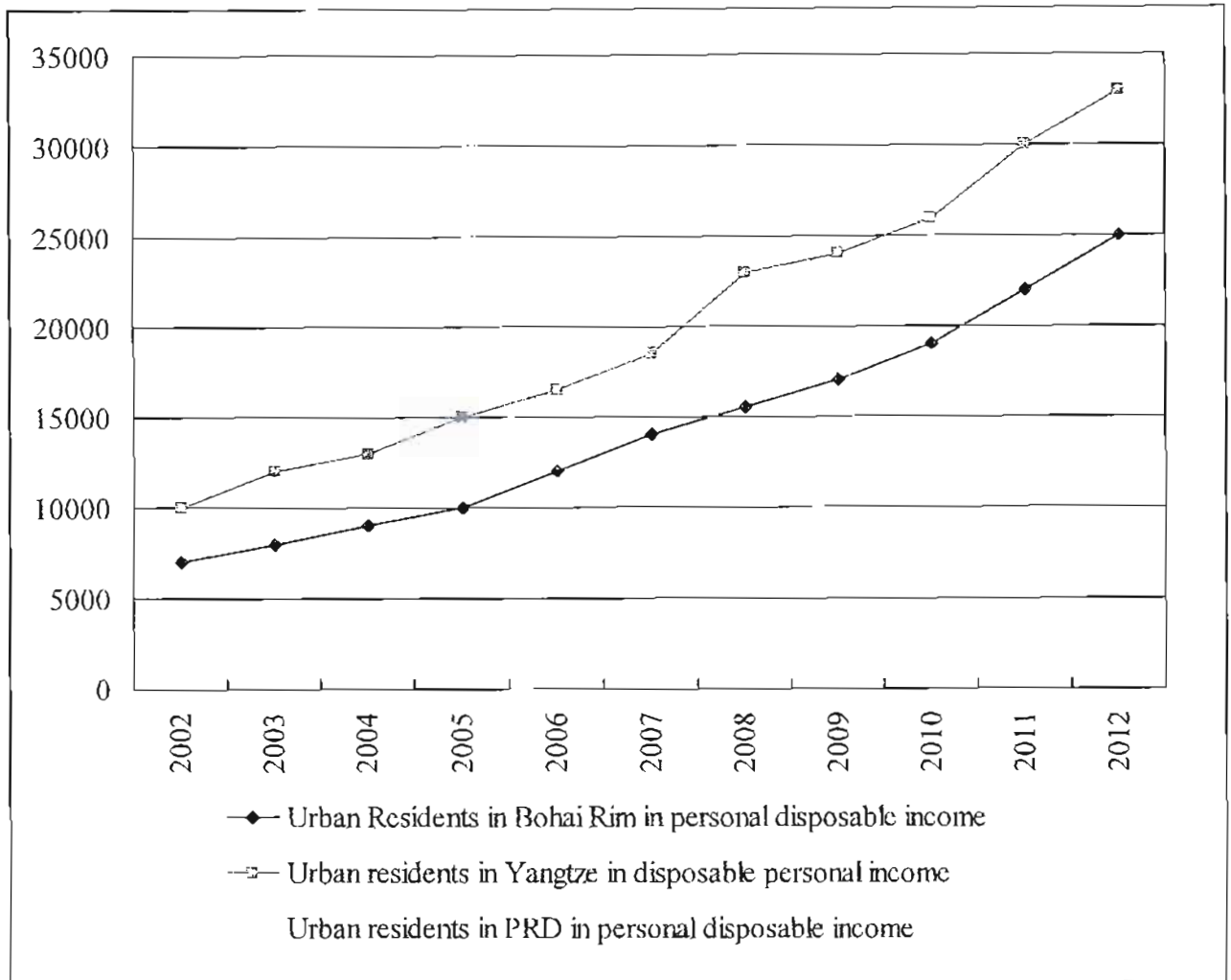


Figure 2.14-Three economic zones personal changes in net income for the urban

## 2. Analysis of marine economic condition of coastal regions of China

### 2.1 An Empirical Study of the marine economy and regional economic linkage between major coastal economic zone

Study of Marine economy and regional economy of the method are many, including measuring causality test and regression analysis, the contribution rate, the paper studies is the ocean economic output and the regional economic output two indicators, this article research tasks at the same time to reveal the interaction of these two factors direction relations, through the contribution, pull, relative growth rate



compared with indexes such as simple performance of the relative relationship between Marine economy and regional economy.<sup>41</sup>

## **2.1.1 Evaluation method**

### **2.1.1.1 The traditional analysis method**

Traditional methods include visual analysis contribution, stimulating degrees and the relative growth rate, mainly based on simple gross production of marine economy, marine economic value added, regional economic output and its growth rate comparison between, it can directly reflect the marine economic development and regional linkage effect relationship between economic development, as follows:<sup>42</sup>

#### **(1) Contribution**

Contribution has a direct and indirect contribution. Under the existing system of national economic accounting, to gross domestic product (GDP), gross area (GRP), and each economic added value as the core of statistical indicators of national and regional economies of scale. Marine economic accounting system, the Marine GDP accounted for the proportion of gross domestic product (GDP) indicates that the contribution of Marine economy to the national economy. Among them, the direct contribution to gross domestic product (GDP) refers to the added value of Marine economy namely

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<sup>41</sup> Ma Xuran, zeng Linhan. Marine economic impact analysis of regional economic development in liaoning province [J] // Journal of resource development and the market .-2011.-№ 5.-P. 436-438.

<sup>42</sup> Wang Minxuan. The world trend of Marine economic development strategy in the developed countries and enlightenment [J] // Journal of new vision.-2012.-№ 2.-P. 40-45.

contribution, calculation formula is: direct contribution = present value added of the Marine economy gross domestic product (GDP).

## **(2) Pull degrees**

Pull degree represents the contribution of Marine economy output and the accumulation of relationship between gross domestic product (GDP) growth rate, the calculation formula is: pull degree = contribution of Marine economy by gross domestic product (GDP) growth rate.<sup>43</sup>

## **(3) Relative growth rate**

Relative growth rate reflects the Marine economic output growth and regional GDP growth rate, the relationship between its computation formula is: the relative growth rate = Marine economic output growth rate present regional GDP growth rate. Alternatively, The relative growth rate = area has present Marine economic output growth in gross domestic product (GDP).<sup>44</sup>

### **2.1.1.2 Econometric analysis**

Methods based on econometric analysis can be more rigorous system to show a causal relationship between two variables.<sup>45</sup>

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<sup>43</sup> Xie Yuanfan. Marine economic development of zhejiang regional economic impact study [J] // Journal of ningbo radio and television university.—2012.—№ 4.—P. 20–23.

<sup>44</sup> Jiang Xuchao, Fang Jianyu. Marine and coastal industrial cluster empirical research on regional economic growth — in the bohai sea economic zone, for example [J] // Chinese fishery economy.—2012.—№ 3.—P. 103–107.

<sup>45</sup> Yao Lci. Zhejiang ocean industrial structure change on GDP contribution of correlation study [J] // Market modernization.—2010.—№ 34.—P. 146–148.

## **(1) Stationary test**

Also known as the stationary test unit root test. Advances in modern econometric studies have revealed that the use of traditional methods of non-stationary sequence (containing a unit root) directly lead to spurious regression regression, that the regression results are not accurate, and thus become the metering unit root test regression analysis and the basic requirements necessary premise. In macroeconomic practice, most economic series are non-stationary, for example, this study either marine economic zone GDP and economic output are showing an increasing growth trend, are non-stationary sequence, in order to solve this problem, modern analysis the general steps of the method by the difference in order to achieve stability requirements. In using Eviews software for data analysis process, the general method ADF unit root test, practice obedience have assumed that the data unit with a sequence of K order autoregressive process, and select the 1-3 first-order lag of several.

## **(2) Cointegration**

After the stationary test of two or more data sequences regression must also be co-integration test of the premise, the long-term equilibrium relationship between the test results reflect the co-integration analysis between variables, cointegration prerequisite: Participation cointegration between the variables of the same order integration, that same variable after difference smooth difference order. From the point of view of economics sense, only the existence of long-term equilibrium of cointegration relationship exists between the two variables is affected by the real influence with regression analysis between variables is meaningful. In this paper,

Views in JJ (Johnson and Juselius) maximum likelihood cointegration test between the null hypothesis of no cointegration variable, There are five models to choose from, economics generally only three models in line with 2,3,4 practical, according to the model restrictions, limiting the maximum from model 2 sequentially to try until the cointegration results shall prevail, the lag order selection order integration with the order. By co-integration test, which can be return.<sup>46</sup>

### **2.1.2 The data source and explanation**

As a result of the reference data and the changes of the population statistics in the past several years, and thus the data is the proper adjustment. In this paper, we study data from 2003 ~ 2012 statistics bulletin of the Marine economy in China, China statistical yearbook from 2003 to 2009, 1996-2002, Marine economic development of China, 1996 ~ 2012 partial provinces and cities in China statistical yearbook and yearbook.

Because there are statistical differences, some of these statistics yearbook of similar data exist discrepancy, to eliminate the above differences, ensure data comparability, it is necessary to standardize the data processing, specific, after 2003 statistics bulletin of the Marine economy in China alone to the pearl river delta economic circle of Marine economic output in the accounting, from 2003 to 2012 "Chinese statistics bulletin of the Marine economy in China's coastal of three main

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<sup>46</sup> Zhou Huang, Sun Yangyang, Zhang Yihao. Shandong peninsula blue economic zone of Marine industry and coupling relationship of regional economic research [J] // China's fishery economy.-2005, 28.-№ 5.-P. 137-142.

Marine economic output remains the same, i.e. as a benchmark in the study of this article.<sup>47</sup>

Before 2002 the Marine economic development in China "on the cover of the pearl river delta nine cities separately, so need to the pearl river delta from 2003 to 2012 in Marine economic output present in guangdong province to measure the average ratio of Marine economic output, according to the ratio of output value multiplied by the Marine economy of guangdong province from 1996 to 2002, obtained indirectly from 1996 to 2002 in the pearl river delta Marine economic output. Guangdong province from 2003 to 2012 in Marine economic output from the China statistical yearbook, consider the data availability, selected from 2003 to 2009 China statistical yearbook. Due to the China statistics bulletin of the Marine economy and China statistical yearbook statistical standards is different also, so first compares on the basis of the bohai rim, Yangtze river delta economic circle, indirectly get the China statistics bulletin of the Marine economy under the benchmark of Marine economic output of guangdong province, on the basis of analyzing Marine economic output.

### **2.1.3 The major coastal economic zones of Marine economy and regional economy relationship traditional analysis**

Based on visual analysis method described above, respectively for the major economic zones of Marine economy and regional economy to study the relationship, because of the limitation of data available range and considering the Marine economic

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<sup>47</sup> Hong Binliu. Economic development and Marine industrial structure adjustment in the circum bohai sea region [J] // Dongyue review.—2003.—№ 1.—P. 37-40.

statistical caliber changes before and after 2006, selected from 2006 to 2010 are studied in this part of the main economic zone Marine economy study on measurement data.

### 2.1.3.1 Bohai Rim Marine economy and regional economy correlation analysis of the traditional

Bohai sea Marine economic output, the added value of Marine economy, Marine economic intermediate input, regional economic output and its change is shown in the table below:

Table 2.4-Bohai Rim regional economy and change the size of the marine industry

Year	Marine industry output	Marine industrial added value	The total value of intermediate inputs marine industry	GDP
2006	6018	4386.6	1631.4	47151.6
2007	9542	5210.3	4331.7	55749.3
2008	10706	6084	4622	67076.62
2009	12015	6292.6	5722.4	73866.47
2010	13271	7925.4	5345.6	87245.91

According to the above formula: = Marine economic contribution to the total present GDP, direct contribution = the added value of Marine economy present GDP, the indirect contribution = 1 - directly, pull = contribution by GDP growth rate and relative growth rate = ocean economic growth present GDP growth rate, . the results shown in the diagram below:

Table 2.5-Bohai Rim marine industry and regional economic linkage between visual analysis

Year	Contribution	Direct contribution	Indirect contribution	Marine industry output growth	GDP growth in the region	Pull degree	Relative growth rate
2006	0.1276	0.093	0.035	—	—	—	—
2007	0.1711	0.093	0.078	0.5856	0.1823	0.0312	3.2114
2008	0.1596	0.091	0.069	0.122	0.2032	0.0324	0.6004
2009	0.1626	0.085	0.077	0.1223	0.1012	0.0165	1.2079
2010	0.1521	0.091	0.061	0.1045	0.1811	0.0276	0.5771
Average value	0.1546	0.091	0.064	0.2336	0.167	0.0269	1.3992

Can be seen from the table above, the bohai sea Marine economy, direct contribution to regional economic basic remain at a stable level, the data from 2006 ~ 2010 are normalized, ocean economic output can be drawn from the region's economic contribution to an average of 15.5%, a direct contribution to 2.97

### **2.1.3.2 The Yangtze river delta economic zone of Marine economy and the regional economic relationship of traditional analysis**

The Yangtze river delta economic zone Marine economic output, the added value of Marine economy, Marine economic intermediate input, regional economic output and its change is shown in the table below:

Table 2.6-Yangtze Delta regional economic and industrial scale changes in ocean

Year	Marine industry output	Marine industrial added value	The total value of intermediate inputs marine industry	GDP
2006	6174	3992.7	2181.3	47743.96
2007	7748	4826.6	2921.4	56710.44
2008	9584	5503.4	4080.3	65197.68
2009	9466	5964.4	3501.6	72494.1
2010	12059	7172.1	4886.9	86313.77

According to the calculation formula of the calculation results shown in the diagram below:

Table 2.7-Yangtze economic zone on marine industry and regional economic linkage between visual analysis

Year	Contribution	Direct contribution	Indirect contribution	Marine industry output growth	GDP growth in the region	Pull degree	Relative growth rate
2006	0.1292	0.0836	0.0456	—	—	—	—
2007	0.1366	0.0851	0.0515	0.2549	0.1875	0.0256	1.3592
2008	0.1463	0.0841	0.0623	0.2369	0.1549	0.0226	1.5293
2009	0.1305	0.0822	0.0483	-0.0143	0.1058	0.0139	-0.1152
2010	0.1397	0.0833	0.0566	0.2739	0.1906	0.0266	1.136
Average value	0.1365	0.0836	0.05288	0.1883	0.1601	0.0222	1.0525



By shown in the table above, Marine economy of Yangtze river delta regional economic contribution from 2006 to 2010 basic maintained at about 13%, the average contribution is 13.7%, the average direct and average indirect contribution is 8.4% and 5.3%, respectively. Marine economy pull degrees over the past few years on the regional economy changed little, average of 2.22%. Overall, the Yangtze river delta economic zone of Marine economic output growth is greater than the region's economic output growth, the average relative rate ratio is 105.26%.

### **2.1.3.3 The pearl river delta economic zone Marine economy and the tradition of regional economic relationship analysis**

The pearl river delta economic zone of Marine economic output, the added value of Marine economy, Marine economic intermediate input, regional economic output and its change is shown in the table below:

Table 2.8-The PRD regional economic and industrial scale changes in ocean

Year	Marine industry output	Marine industrial added value	The total value of intermediate inputs marine industry	GDP
2006	4145	2589.41	1555.58	21609
2007	4755	2874.61	1880.39	25607
2008	5825	3444.51	2380.49	29745.58
2009	6614	4014.89	2599.11	32105.88
2010	8291	4812.7	3478.3	37388.21

According to the calculation formula of the calculation results shown in the diagram below:

Table 2.9-The PRD economic zone on marine industry and regional economic linkage between visual analysis

Year	Contribution	Direct contribution	Indirect contribution	Marine industry output growth	GDP growth in the region	Pull degree	Relative growth rate
2006	0.1918	0.1198	0.0719	—	—	—	—
2007	0.1856	0.1122	0.0734	0.1471	0.1850	0.0353	0.7954
2008	0.1958	0.1157	0.0801	0.2251	0.1616	0.0316	1.3924
2009	0.2060	0.1250	0.0809	0.1354	0.0793	0.0163	1.7071
2010	0.2217	0.1287	0.0931	0.2535	0.1645	0.0365	1.5411
Average value	0.2002	0.1203	0.0798	0.1902	0.1476	0.0297	1.3589

As shown in the table above, 2006 ~ 2010, the pearl river delta economic zone of Marine economic output of regional economic output contribution basic showed growth trend, the average contribution of 20.02%, direct and indirect contribution also keep growth trend, the average of 12.03% and 7.99% respectively. In addition to the low in 2009, Marine economy pull degree on the regional economy in other years are up to 3%. From the perspective of the analysis results of relative growth rate, most of the year, the pearl river delta economic zone of the ocean economic output growth rate is greater than the regional economic growth, the average is 135.89%.

## 2.1.4 Major coastal economic zones of Marine economy and the regional economic relationship

Given in this paper, we study the Marine economic output and the regional economic development linkage effect size, convenient for analysis, analysis of the variables are after taking logarithm, the original data shown in the table below:

Table 2.10-Three marine industry output and gross regional production economic zone on changes over the years

Year	Marine industry production value is X (100 million yuan)			Regional production production value is Y (100 million yuan)		
	Yangtze	PRD	Bohai	Yangtze	PRD	Bohai
1997	1008.97	831.45	805.28	15421.54	14678.79	5040.65
1998	1104.91	901.48	749.88	16636.32	15875.65	5625.09
1999	1173.01	1034.84	849.15	17853.04	17097.67	6438.89
2000	1266.16	1146.95	1056.23	19939.82	19170.22	8421
2001	1587.35	1400.23	1461.94	21889.27	21210.9	9559
2002	1998	2027	1694	23991.41	23836.50	10954
2003	2779	3399	2112	27984069	28106.64	12957
2004	4116	4169	2417	33282.44	34725.13	15485
2005	5510	5860	3000	40319.61	40897.69	18244
2006	6018	6174	4145	47151.6	47753.96	21609
2007	9542	7748	4755	55749.3	56710.44	25607
2008	10706	9584	5825	67176.62	65497.68	29745.58
2009	12015	9466	6614	73866.47	72494.1	32105.88
2010	13271	12059	8291	87245.91	86313.77	37388.21
2011	16442	13721	9807	103411.5	100624.8	43966.18
2012	18078	15440	10028	114273.3	108707.3	47897.25

### 2.1.4.1 Around bohai sea economic relations with regional economic linkage analysis of the measurement

Based on econometric analysis steps, and combined with around bohai sea economic output from 1997 to 2012 and regional GDP, empirical research results are obtained.

#### (1) Variable stationarity test

Variable stationarity test shown in the table below:

Table 2.11-Variables stationarity test in the circum bohai sea region

variable	Inspection formula(t, c, k)	ADF statistics	The critical value at 5% confidence level	The critical value at 10% confidence level	Whether the balance
Lny	(t,c,1)	-2.8256	-3.7597	-3.3249	No
Lnx	(t,c,1)	-1.9291	-3.7597	-3.3249	No
D(Lny,2)	(0,c,1)	-4.4707	-3.1199	-2.7011	Yes
D(Lnx,2)	(0,c,1)	-3.6914	-3.1199	-2.7011	Yes

By the test result of the above we can see that under the confidence level of 5% and 10%, the original sequence Lny, Lnx ADF statistic value is greater than the critical value, show the original sequence for nonstationary sequence; Respectively on the second-order difference and then to carry on the unit root test, the results show that D (Lny, 2) and D (Lnx, 2) under the combination of (0, c, 1) in line with the series stationarity, namely Lny, order Lnx meet with single whole, cointegration test can be conducted to verify the long-term equilibrium relationship between variables.

## (2) Variable cointegration test and causality test

Using Johansen test methods for Lny Lnx with cointegration test, the results of the analysis in the following table:

Table 2.12-Test link bohai sea arca variable co-integration relationship

Variable is	Model selection	Several lags	Statistics	The critical value at 5% confidence level	Whether cointegration
Lnx,Lny	Model 2	(2, 2)	28.3453	20.26184	Yes

From the point of the test result of the above, Lnx, Lny the variable of the maximum likelihood ratio of 28.34534 is greater than the critical value of 20.26184, 5% confidence level falls in the rejection region, namely the possibility of 95%, is co-integration between the two variables, namely has the long-term relationship between variables. Below the Granger test:

Table 2.13-Variables Granger causality test in the circum bohai sea region

The null hypothesis	Lag phase	F statistic	The probability value
Granger cause of Lnx not Lny	1	8.76320	0.0111
Granger cause of Lny not Lnx	1	0.05030	0.8260
Granger cause of Lnx not Lny	2	3.64130	0.0649
Granger cause of Lny not Lnx	2	0.19315	0.8274
Granger cause of Lnx not Lny	3	2.64988	0.1301
Granger cause of Lny not Lnx	3	0.14101	0.9322

The results show that the lag phase 1, around bohai sea economic output of regional economic output there is one-way Granger causality, regional economic output in the circum bohai sea region to the Marine economic output effect is not obvious; In the phase lag of 2, 3, around bohai sea economic and no obvious Granger causality between regional economic output.<sup>48</sup>

## **2.2 Comparative analysis of the main economic zone of coastal marine economy and regional economic association**

The empirical research has investigated bohai rim, Yangtze river delta, the pearl river delta economic zone three Marine economy and regional economic linkage relations has carried on the empirical study, results show that the three areas of the similarities and differences in the two index correlation exists, therefore, it is necessary to the above analysis results of horizontal comparison research between regions, to reveal deeper internal factors.<sup>49</sup>

### **2.2.1 Marine economy compared with regional economic linkage relations empirical research results**

#### **2.2.1.1 Traditional analysis results**

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<sup>48</sup> Xu Huichao. Around bohai sea economic comparative study [J] // Journal of ocean development and management.—2012.—№ 13.—P. 101–105.

<sup>49</sup> Huang Wang, Miao Guowei. Marine industry cluster measure, based on the contrast of bohai sea and the Yangtze river delta economic zone research [J] // Chinese fishery economy.—2010.—№ 13.—P. 132–138.

Contribution and pull degree and relative growth rate of major economic zones of the transverse comparison.

**(1) Contribution**

The main economic zone Marine economic output contribution change trend of regional economic output and compare the results as shown in the figure below:

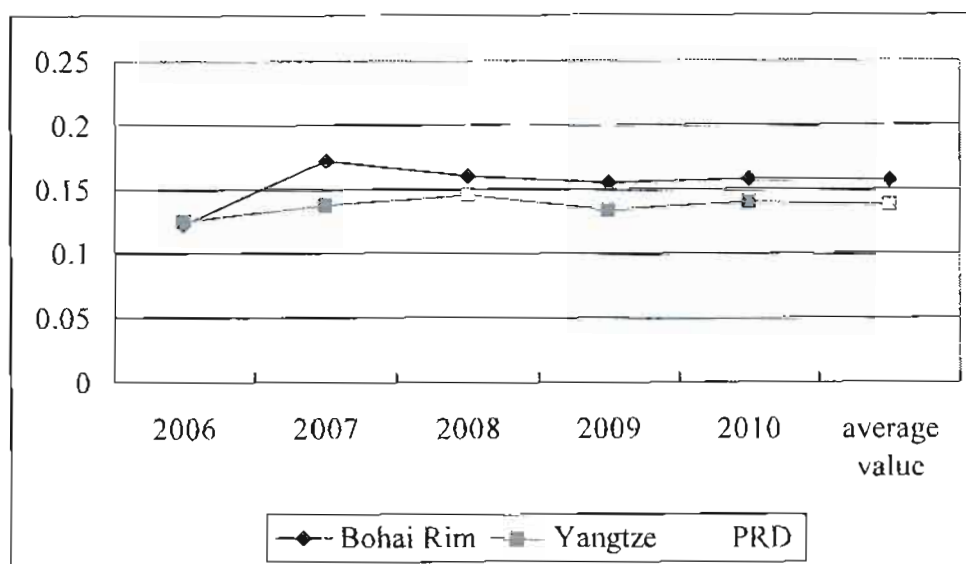


Figure 2.15-Comparison of the marine industry output production value the contribution of the regional economy

As shown in the above, the main economic zone, the pearl river delta economic zone of Marine economic output for the regional economic contribution to the highest, and the growth trend in recent years has been presented; Bohai sea and the Yangtze river delta economic zone of Marine economic output for the regional economic contribution in 2007, up near 2008 and then decline, in general, the bohai sea economic zone's contribution is superior to the Yangtze river delta region. In addition, the major economic zones of Marine economic output in 2006-2010 on the regional economic output average contribution of bohai sea 15.5% respectively, and the pearl river delta,

Yangtze river delta, 13.7% to 20.0%. <sup>50</sup>Further classifying the Marine economy, Marine economy of main economic regions economy average direct and average indirect contribution ratio relationships shown in the table below:

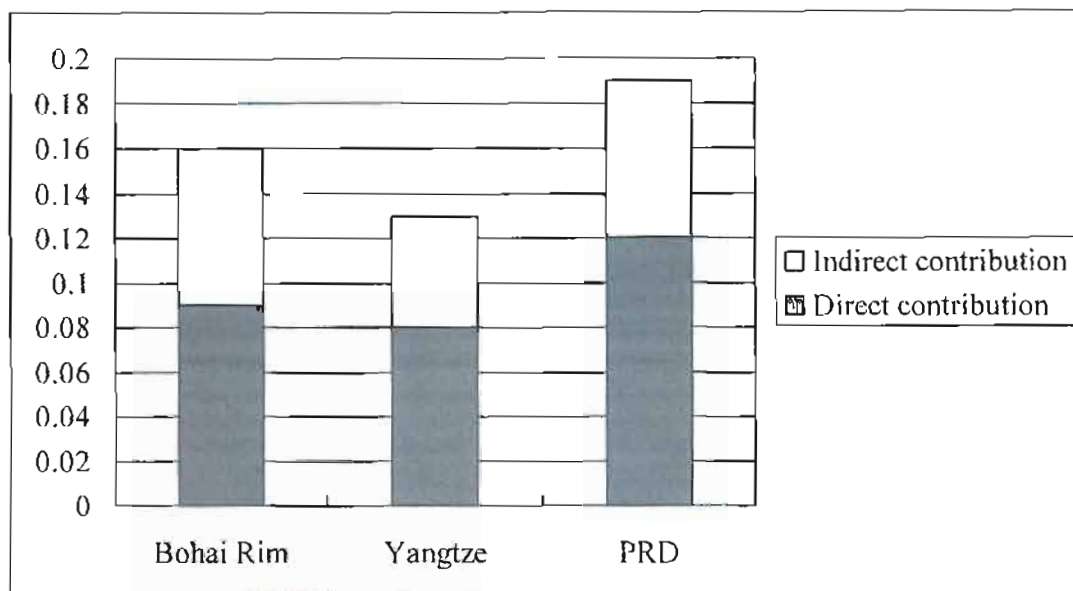


Figure 2.16-Comparison of the proportion of the contribution of the structural relationship

Due to the direct and indirect contribution reflects the added value of Marine economy and Marine economy intermediate input output for the contributions to the regional economy, the above results show that the pearl river delta region to promote regional economic growth in Marine economic output not only the highest contribution on gross, the in the middle of the ocean economic development process in the regional economic contribution is the highest, but at the same time, in turn, suggests that the pearl river delta economic zone of the regional economic development high degree of dependence on the Marine economy.

<sup>50</sup> Zhu Nian. Ocean industries agglomeration and regional economic development coupling mechanism of instance analysis [J] // Journal of commercial age.-2010.-№ 36.-P. 110-111.



## (2) Pull degree and relative growth rate

Pull the degree of intuitive reflect the Marine economic development of regional economy.

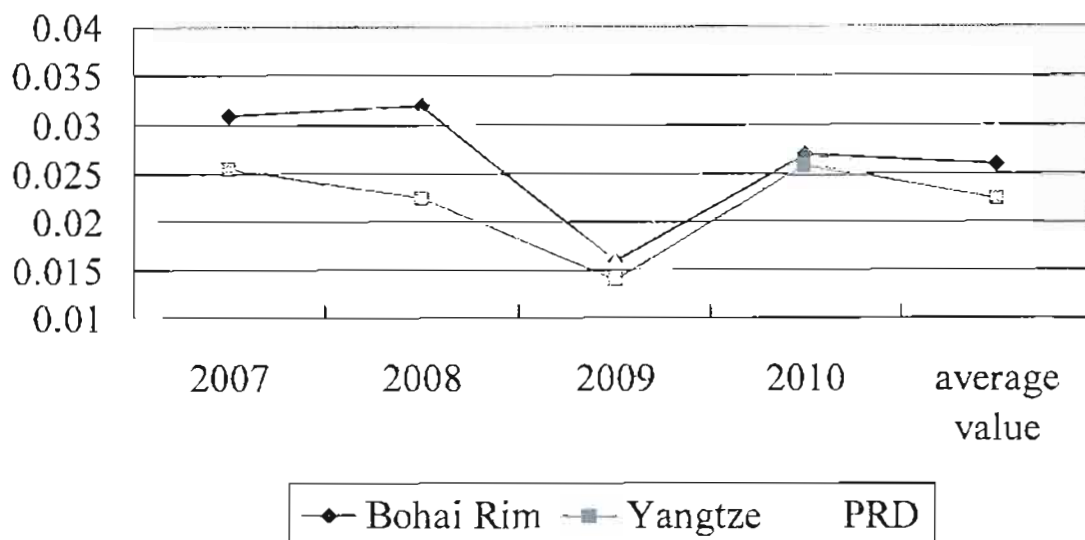


Figure 2.17-The empirical results of the comparison pulling

As shown above, the major economic area from 2007 to 2010 marine economic development trend of regional economic boost substantially the same, but overall, showing Pearl River Delta Economic Zone > Bohai Economic Zone > Status Yangtze River Delta economic zone. The average major economic regions in the order of 2.7% in the Bohai Sea, Yangtze River Delta and Pearl River Delta 2.2% 3.0%. Relative growth rate is the Marine economy gross output growth rate relative to the regional economic growth rate ratio, reflecting the Marine economic output growth compared with the average growth rate between regional economic output rate between.<sup>51</sup>

<sup>51</sup> Zeng Linhan. Around bohai sea industrial structure optimization analysis [J] // Journal of resources development and the market. -2010.-№ 112.-P. 1093-1097.

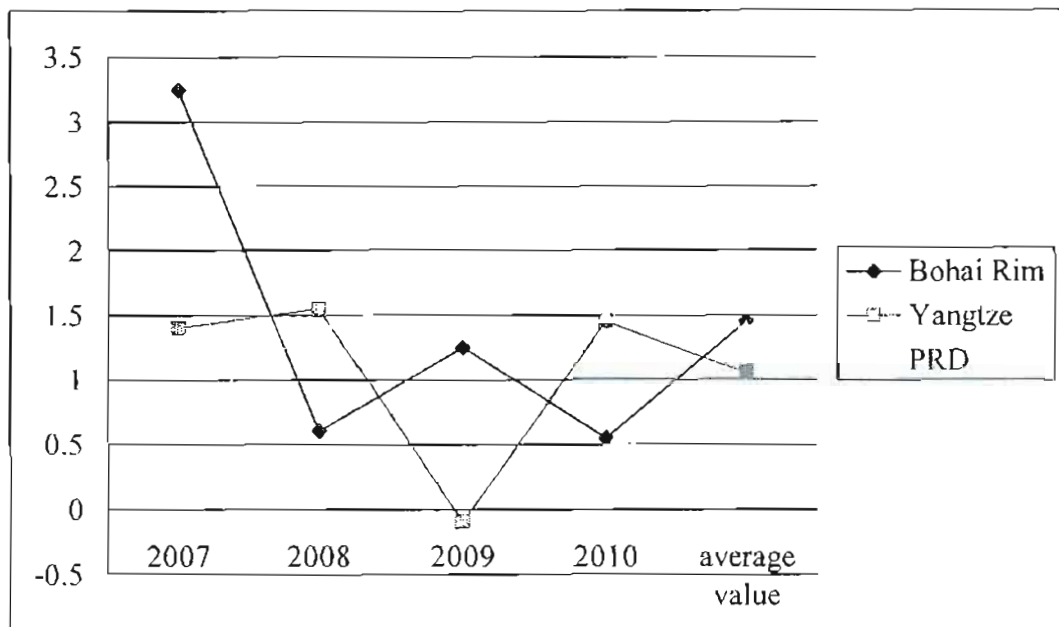


Figure 2.18-Comparison of relative growth rate of empirical results

By the picture above you can see, the bohai sea, Yangtze river delta, the pearl river delta economic zone three of four years from 2007 to 2010 a total of 12 data have eight data is greater than 1, show that in the past most years Marine economic output growth rate higher than the average growth rate of the region, from the side reflects the Marine economy in the region has the better vigor and development potential in the economic development. But from the point of an area alone, the bohai sea economic zone of Marine economic output relative growth rate showed a trend of decline, in addition to the 2007 higher, the rest of the year rate of relative value is low; Yangtze river delta economic zone and the pearl river delta economic zone, except individual years most years of relative growth rate remained above 1, relative equilibrium.

### 2.2.1.2 Econometric analysis results

On the basis of the visual analysis, econometric analysis method, further to dig its inherent law, based on the increase in the number of data at the same time, reflect the

data of time span longer, more scientific validation of linkage between Marine economy and regional economic development role. On the basis of the above empirical research process, variables stationarity test, the long-term equilibrium relationship test and granger causality test fully reveal the Marine economy of the bohai rim, Yangtze river delta and the pearl river delta economic zone and a long-term equilibrium exists between regional economic development and cause and effect, but in terms of specific areas, causal relationship between variables in a different direction, reflect the real economic operation in the process of Marine economy and the interaction mechanism of the regional economic differences. specific shown in the table below:

Table 2.14-Comparison of Economic Analysis of the results of measurement

Region	Between variables that affect the direction	Influence coefficient
Bohai	Marine industry is Granger cause of the regional economy	0.618
Yangtze	Marine industry is Granger cause of the regional economy	0.583
PRD	Regional economy is Granger reason for the marine industry	0.791

### 2.2.1.3 Compare the results of comprehensive evaluation

Empirical research in the traditional analysis results and the econometric analysis results show that the region of the Marine economy development and regional economic development are complementary to each other, Marine economic development to promote regional economic growth, at the same time, regional economic growth and promote Marine economy output growth. On the one hand, the Marine economy as part of a regional economic system, its contribution to regional economic growth and development and pull is inevitable; Regional economy, on the other hand, is the external

environment in the development of Marine economy, the role and Marine economic chain each link, affect the Marine economy system benign operation. Realization of Marine economy and regional economy two-way promoting effect, namely the measurement to realize the two-way Granger causality, will become the region can be efficient use of Marine resources, can maximize the Marine economy the key to the leading role of regional economy. <sup>52</sup>

From this level, combining the above two aspects of the empirical analysis results, the pearl river delta economic zone between Marine economy and regional economy influence mechanism with maximum efficiency, assuming that the initial function 1 unit power to promote regional economic growth, will drive 0.791 units, Marine economic output growth of regional economy and Marine economy of the pearl river delta to pull the degree of the area of the three highest 3.0%, result in Marine economy and will, in turn, drive the regional economic growth, so as to form a benign mutual promoting circulation. In bohai rim economic zone and the Yangtze river delta economic zone, Granger causal role relationship only in ocean economic role in promoting the regional economic, two-way causal loops has not been formed, compared to the pearl river delta economic zone, economic operation mechanism of these two areas lags behind, and in the bohai sea was compared with the long triangle area, whether it's contribution, pull, relative growth rate of traditional methods such as index, and econometric analysis

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<sup>52</sup> Xu Sheng, Zhang Xin, Wang Li. The empirical analysis on the Marine industry structure and productivity in the circum bohai sea region [J] // Journal of Marine economy.-2011.-№ 5.-P. 44-52.

method of regression coefficient, the comparison results show that on the regional economy around Bohai Sea economic role than Yangtze River Delta region.<sup>53</sup>

### **2.2.2 Association between Marine economy and the regional economic difference is intrinsic factor analysis**

Lead to major economic zone the intrinsic factors of Marine economy associated with the regional economic difference from many aspects, in general, mainly lies in the Marine environmental resources and economic development differences, economic differences for land associated Marine economy, Marine economic and the matching degree of regional economy difference and the four aspects of the difference of regional development coordination degree.

#### **2.2.2.1 Marine environmental resources and economic development**

Marine resources and economic development environment differences of Marine economy and the influence of regional economic relationship mainly depends on two things:

First, the Marine resources and regional economic development history. Marine economic development based on the development and utilization of Marine resources, therefore, the importance of Marine economy to regional economy have close relationship with the present distribution of Marine resources, the amount of resources to determine whether the dominant economic the regional economic development

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<sup>53</sup> Xu Sheng, Wang Xiaohui. Bohai Rim Marine industrial structure problem analysis field [J] // The ocean development and management.—2011.—№ 5.—P. 84–87.

involves the Marine economy, and the amount of Marine economy.<sup>54</sup> Consider major economic zones Marine economic output in 1996-2012, the change rule of regional economic output value proportion can be found, the pearl river delta region of Marine economic output to GDP contribution has been higher. And although in Yangtze river delta and the bohai rim region economy size, but in the Marine economic output accounts for regional economic output value proportion, especially after 2006, bohai sea region has been slightly higher than the Yangtze river delta region, the main economic zone below ocean output to the change trend of regional GDP proportion shown below:

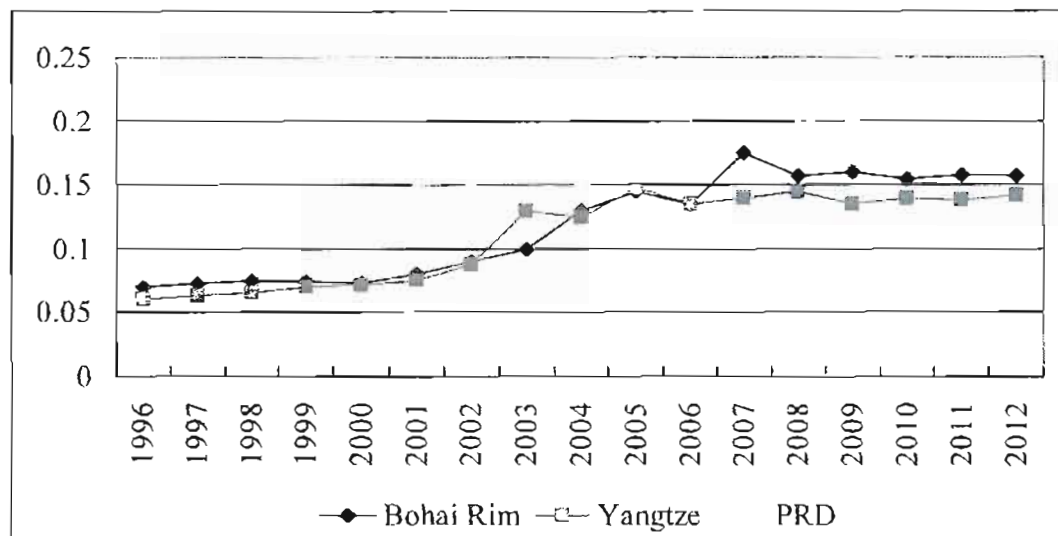


Figure 2.19- Regional marine industry output value accounted for the proportion of economic output trends

Second, the regional economic policy, regional economic characteristics affect regional economic development support for the Marine economy. Regional economic development will provide better development environment for the development of Marine economy, from two aspects of demand and supply indirectly promote the

<sup>54</sup> Song Jin. Bohai Rim economic circle of the Marine industry development status and structure analysis [J] // Productivity research. -2012.-№ 19.-P. 167-169.

development of Marine economy, but due to the regional economic policy, regional economic characteristics, the factors of regional innovation system conduction effect, leading to regional economic output growth did not play a promoting effect on growth of Marine economic output, such as the empirical research of the bohai rim region and Yangtze river delta regional output growth and is not the granger cause Marine economic output growth. <sup>55</sup>Compared with the Yangtze river delta and the pearl river delta, bohai sea region's economic dynamism significantly weaker, only from the point of strength of Marine economy investment and financing, link bohai sea area is lower than Yangtze river delta and the pearl river delta region, the regional economic growth in the fruits of smaller proportion for Marine economic development, thus, the regional economic growth on the Marine economic output growth promoting effect of small, even be ignored.

#### **2.2.2.2 The economic differences for land associated Marine economy advantage**

The study has revealed the characteristics of the main economic zones of Marine economic structure differences. Radiation intensity is not the same of different Marine economy, the leading role of regional economy is not the same, for example, the Marine economy of the third coastal tourism correlation degree is higher, its development to a large extent can drive the regional consumption growth, promote regional economic development, and the first such as Marine fishery economy correlation is relatively low,

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<sup>55</sup> Zhang Yange. Bohai Rim regional Marine industry development trend prediction [J] // Journal of ocean development and management.-2009.-№ 13.-P. 109-113.

in addition the second economy such as ocean mining due to the upstream and downstream, associated leading role to other economy in the region is bigger also, so the choice of ocean dominate the economy and pillar is crucial, mainly from two aspects: the factors which influence the difference of economic indirect directly depends on the comparative advantage of resources and economic development based on regional environment.

First of all, the main economic zone area across from south to north, high dimension, clear difference location characteristics, with emphasis on resource distribution. Along single major economic zones of the provinces and cities, provinces and cities on the advantages of Marine resources distribution is different. Like Bohai sea area, for example, on the Marine fishery resources in Shandong province and China province of comparative advantage is very obvious, Marine resources advantage also reflected in the sea in Shandong province salt industry, Marine industry and Marine transportation industry, Tianjin ranked the first in the Marine oil and gas reserves; And as Yangtze river delta region, Shanghai ocean economy in addition to the Marine transportation resources, other Marine economy, such as Marine fisheries, sea salt, chemical products, Marine amount of resources involved in major economic zones are not dominant in eight provinces and cities, Marine mining resources in Zhejiang province in the country first, Marine shipbuilding industry resources in Jiangsu province is the most significant; The Pearl River delta region of Guangdong province is the most advantage in transportation industry. In conclusion, different of major economic zones



of the comparative advantages of resources, Marine pillar has produced important influences on economic differentiation.<sup>56</sup>

Secondly, the background of the regional Marine economy development environment such as Marine science and technology level, labor quality, Marine policy impact on Marine advantage economic choice. Marine science and technology level of Marine advantage, it is obvious that it is the role of economic choice if technical equipment required and learn the advanced talents of technology on the efficiency of Marine economy development vital role, such as new energy economy to the Marine ocean technology demand is very high, in the ocean energy resources, whether to have the core technology decide the development of ocean energy.

In conclusion, resources endowment and the external environment to affect the choice of the pillar Marine economy, from the point of economic structure, regional emphasis to different Marine economy, leading to regional Marine economy overall effect on regional economic differences.

### **2.2.2.3 Marine economy and the matching degree of difference of regional economy**

Closely linked to Marine economy and land economy, the healthy development of Marine economy cannot leave the land associated the smooth development of the economy, two kinds of unbalanced economic development will lead to Marine economic development of regional economic development of the "barrel short board

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<sup>56</sup> Mo Rong. The role of the marine sector in the Irish national economy: An input output analysis [J] // Marine Policy.-2013.-№ 37.-P. 230-238.

effect". With the deepening of economic development, logistics efficiency is improved, the degree of "land" of Marine economy deepened, association for land and Marine economy linkage effects. Such as closely related to Marine aquaculture onshore processing industry economic environment, such as level of labor has a significant effect on the healthy development of Marine aquaculture, With the development trend of Marine products deep processing, Marine fishing products through the cold chain logistics to onshore processing, Marine fishing to provide raw materials for onshore processing industry, the two promote each other. Coastal tourism with the aid of the Marine landscape, cultural tourism to attract visitors, as well as promoting the development of tourism in the land. <sup>57</sup>

#### **2.2.2.4 Regional Marine economy policy coordination degree of difference**

Regional Marine economy policy coordination between degree of difference is affecting the relationship between Marine economy and regional economic linkage effect of the fourth factor. Due to the liquidity characteristics of Marine resources, located in several provinces and cities of the same economic zone with Marine resources together, but independent of provinces and cities, economic development and Marine resources development policy, more or less will lead to collide with Marine economy and Marine resources competition, such a case, improve regional Marine economy development coordination degree, implement differentiated competition, on this basis, promoting regional sub-regional cooperation, in order to efficiently use of

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<sup>57</sup> Xu Donglin. The empirical analysis of China's industrial structure change and economic growth [J] // At zhongnan university of economics and law journal.-2004.-№ 2.-P. 49-54.

Marine resources, collection region advantage focus on developing Marine economy advantage. Main economic zone, the pearl river delta economic zone is located in guangdong province, the regional Marine resources development policy itself is consistent, and the bohai sea economic zone and the Yangtze river delta economic zone, respectively consists of four provinces and cities and the three provinces and cities, hard to avoid a collision and friction in the policy development, inefficient utilization Marine resources, and waste of money, manpower and material resources. <sup>58</sup>

In addition, the coordination degree of regional Marine economy but also in a degree of Marine economy scale difference between provinces and cities within the region. Around bohai sea lay particular stress on economic development in shandong province, which has the advantage in a variety of Marine resources, compared with other provinces and cities, Marine economic scale is higher; The Yangtze river delta economic zone three provinces gap is not big, the total size of Marine economy relative equilibrium; The pearl river delta economic zone is located in guangdong province, from the perspective of provincial and municipal administrative levels, regional imbalance phenomenon.<sup>59</sup>

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<sup>58</sup> Yong Le. Hunan contribution to economic growth of the regional industrial structure difference research [J] // Journal of economic geography.-2005.-№ 24.-P. 491-494.

<sup>59</sup> Chen Chenzi, Cheng Changchun. Industrial structure, the relationship between urbanization and economic growth in our country the ECM model study [J] // Journal of theory and practice of finance and economics.-2012.-№ 6.-P. 85-88.

### **3. The main problems identified in marine activities of coastal regions of China**

#### **3.1 Resources and environment**

Development of Marine resources and protect the Marine environment between the inevitable contradictions. Development and utilization of Marine resources, Marine economic activities, promote the development of Marine economy to the national economy and has a significant contribution to the development of regional economy, but at the same time the problem is a Marine economy will inevitably to the rapid development of Marine resources and Marine environment brings many negative effects. So far, China's coastal regions are more efforts to the development and utilization of ocean, thus making its own and is faced with different degree of degradation and deterioration of the Marine environment and Marine resources embodied, and growing. Eastern coastal areas, in particular, in the process of reform and opening up development early, fast development, in the early years the development of Marine economy is too single to pay attention to the speed of development and the benefits of access, without considering the Marine resources protection long-term strategic importance to the development of Marine economy, more don't realize the importance of Marine environmental protection for sustainable development of Marine

economy, resulting in some coastal provinces (cities) in the "hard management, development" dilemma, to be solved.<sup>60</sup>

### **3.2 Concept Development Problems**

The technology research and development of Marine economy department whole process slowly. In the early stages of development and utilization of Marine resources, the common problem is only pay attention to the interests of the eyes, operation methods more junior level, didn't realize that should be conducted from a technical breakthrough, in order to achieve low cost and income greater effect. So far, China's coastal areas of Marine scientific research is still in a state of low output, progress is slow, the speed of the Marine science and technology innovation is difficult to match the speed of the Marine economic development, more difficult to meet the 21st century the strong demand in the development and utilization of Marine activities, which caused some traditional Marine economic development stagnation, on the other hand, lead to some emerging Marine economy forward hard, unable to realize breakthrough, the coastal Marine economic development has been a lot of technical limitations, because hard to overcome some obstacles to get Marine economy driving effects of regional economy, hindered the development of regional economy. And this kind of phenomenon in some of the coastal areas of economic development with poor performance more obvious, the scientific research funds in these areas and researchers

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<sup>60</sup> Liu Yuanyuan. The influence of industrial structure change on the economy and employment related studies, the empirical analysis based on VAR model [J] // Journal of modern business.-2013.-№ 22.-P. 157-158.

of inadequate investment, relevant departments of the importance of not enough, lead to the scientific research and innovation is difficult to keep up with the national average of the whole, still in a backward position, form a vicious circle, Marine economic development more and more difficult, limited regional economic development more and more serious..<sup>61</sup>

### **3.3 Economic structural issues**

For land and Marine economy economic combination of inadequate economic economy. In China, many coastal provinces (cities) in the development of Marine economy, not to realize coordinated development between by sea and land can bring about a series of chain reaction, which made the rapid progress of economic development, also is not very good value between sea and land integrated, fully using the correlation between Marine economy and land economy, only a single development of Marine resources, it is difficult to implement economic interaction and complementary for land and Marine economy. In fact, both the single development of Marine economy and the single development of land economy leads to the situation of the local economic development imbalance, it is important to note that if you can't make full use of correlation between ocean and land, will not be able to get the ideal effect in the economic development and the proper result, this will lead to serious lag, the entire region's economic development speed obviously low development level occurs

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<sup>61</sup> Cui Yu, Wang Rui. The influence of the change of industrial structure on economic growth [J] // Journal of management science in China.-2000.-№ 3.-P. 53-56.

### **3.4 The functions of the government issues**

Marine economy leading department of comparative advantage has not been due to play. Some coastal provinces (cities) in the development of Marine economy in the process of the Marine economy is not recognized the important role of leading department of coastal economic development, it is difficult to realize the ocean can dominate the sectors of the economy's comparative advantage into full play decisive role to the development of Marine economy, and thus indirectly affect the development of regional economy. Nor combined with local actual situation, the local characteristics of the Marine economy to formulate appropriate development strategy, so the Marine economy in some coastal areas leading department cannot get the advantages of reasonable utilization, and give full play of, planning regional Marine economy structure is not reasonable, can not achieve the optimal allocation of Marine resources, causes in the process of development and utilization of Marine resources has the unnecessary waste, this will cause the local Marine economic development is slow, low level of development, as well as the development of small and weak market competitiveness situation.<sup>62</sup>

### **3.5 Level of regional development issues**

Coastal provinces (municipalities) Marine economy development level difference is big. 11 Chinese Marine economic development in the coastal provinces

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<sup>62</sup> Yu Zhanxin, Huang Hong. The economic fluctuation effect of industrial structure upgrade in Guangxi research [J] // Journal of Guangxi Normal University (philosophy and social sciences edition) .-2012.-№ 6.-P. 66-71.

(municipalities) of each different, the advantages and disadvantages and distinctive area points to the opposite sex is bigger, difficult to achieve coordinated development, complement each other. It mainly originated from the coastal provinces (municipalities) of the ocean leading sectors of the economy, and local governments without attaches great importance to the Marine economic development experiences and lessons of communication in time, do not introduce advanced the development of the thought and the development of effective methods. And in making strategy of Marine economic development issues, and limited horizon and local short-term interests, can not realize joint development with other provinces (municipalities) and the development of the specific benefits. In the long term, would make China's overall development of Marine economy, lagged caused great waste of resources and difficult to measure the invisible economic loss, more make the pace of China become a maritime power becomes even more slowly.

### **3.6 Lack of high-tech**

Since China's reform and opening up, China's coastal areas after 30 years of policy tilt, according to its geographical advantage, has already become a processing and manufacturing as the main development pattern of the forefront of China's economic development. For many years, the coastal areas by virtue of the advantage Labour and land resources, external two head out, vigorously develop the processing trade of "three to fill a" economy, internal enterprise system reform and mechanism innovation, has obtained the unprecedented development. But, as the international economic integration and domestic modern enterprise system, the establishment of business model for



manufacturing technology and product quality requirements are also increasing. Obviously, economic structure and industrial organization in the coastal area is still not completely adapt to the change. And, with the rapid development of coastal economy, increasingly scarce land, water and other resources, coal, oil, mineral resources supply is becoming more and more nervous, labor cost is higher and higher, all in all the development of enterprises in coastal areas costs rose sharply. In this case, some covers an area of more than, water consumption, high energy consumption, labor of high cost and low value-added industries and enterprises in coastal areas are difficult to survive. So, based on the scientific and technological innovation, improve the technological content becomes the only way out of the coastal economic belt of the industrial structure adjustment. Through the analysis of the industrial enterprises of coastal areas, it can be seen that in 2009 China's coastal 11 provinces, municipalities and autonomous regions of new and high technology enterprise output value is 5.3612 trillion yuan, account for only 16.9% of the total industrial enterprise production; In industrial enterprises to export products, high-tech products export value of 3.5087 trillion yuan, also accounts for only 44.6% of the total export value of industrial enterprises. These two indicators are far lower than developed countries at the center of the city, therefore China's coastal regions in the industry of science and technology content is facing serious problems.

### **Conclusions on chapter two**

This chapter on the bohai rim, Yangtze river delta and the pearl river delta economic zone main current situation of the development of Marine economy and

regional economy development present situation has carried on the contrast analysis, around an empirical analysis of the Marine economy and regional economy relationship were discussed, respectively by traditional methods and econometric analysis methods validation, to explore the relationship of the above, the empirical study analyzed on the basis of deeply discusses the inner factors influencing the results. Specific as follows:

First, the Marine economy development. Economic zones are mainly in 2001 began to rapid development of Marine economy, especially in the bohai sea economic zone of the fastest developing speed, the Yangtze river delta and the pearl river delta economic zone of Marine economic output growth rate, slightly slower to link bohai sea area. Marine economy, link bohai sea area at the top of the main economic zones of Marine economic output ratio of 42:35:23, but three times in the Marine economy, the bohai sea economic zone obviously inferior to Yangtze river delta economic zone and the pearl river delta economic zone, the Yangtze river delta economic zone of the Marine tertiary industry structure is slightly better than that of the pearl river delta economic zone, but considering the high link bohai sea economic zone of the Marine science and technology level, such as by Marine scientific and technological progress to promote Marine third to speed up the economic development, to optimize the structure of bohai sea Marine economy play a role in promoting. In the Marine economic policy, due to the pearl river delta economic zone is located in guangdong province, the policy for the other two are economic zone, has great consistency;

Second, the regional economic development. Main economic zone, the bohai sea economic zone and Yangtze river delta economic zone economy roughly, is the pearl

river delta economic zone of the economy more than twice, and due to the geographical location, resources, population, the influence of such factors as the full value of the bohai sea and the Yangtze river delta economic zone growth significantly faster than the Yangtze river delta region. But in the context of per capita GDP, present the situation of Yangtze river delta is greater than the pearl river delta is greater than the bohai sea, visible link bohai sea area in spite of economic aggregate is higher, but its per capita output value reflect the economic quality is low. Economic structure, the main economic zone's third economy accounted for all showed a trend of increase, but the third in the circum bohai sea region economy accounted for a significantly lower than the other two economic zone. Residents income, also similar to the above analysis, performance for the Yangtze river delta is greater than the pearl river delta is greater than the bohai sea.

Third, the traditional analysis method. Around bohai sea economic directly to the regional economic contribution is 9.1%, the indirect contribution of 6.4%, pull degree average of 2.69%, Marine economic output growth is greater than the region's economic growth, the average relative growth rate of 139.92%; Marine economy in Yangtze river delta regional economic direct contribution of 8.4%, the indirect contribution of 5.3%, pull degree average of 2.22%, Marine economic output growth is greater than the region's economic growth, the average relative growth rate of 105.26%; Marine economy in the pearl river delta regional economic direct contribution of 12.03%, the indirect contribution of 7.99%, pull degree average of 2.97%, Marine economic output growth is greater than the region's economic growth, the average relative growth rate of 135.89%;

Fourth, the econometric methods. According to the econometric analysis steps to make an empirical analysis of the major economic zones respectively, link bohai sea area, the regional economic output of Marine economic output granger causality, the empirical results of Marine economic output per increased by 1%, the regional economic growth of 0.617704%; Ditto variable relationship in Yangtze river delta, the regional economic output, every 1% increase of Marine economic output growth 0.791425%; Two variables relationship also exists, the pearl river delta region linkage direction is different from the above two regions, however, the regional economic output, every 1% increase Marine economic output growth of 0.791425%.

Fifth, comparison and analysis of the result of the empirical research. Major economic zones of the pearl river delta economic zone of Marine economic output for the highest economic contribution of the total output value, the bohai sea economic zone and the contribution of the Yangtze river delta economic zone is low, to distinguish the direct and indirect contribution, similar results. Marine economy pull degree study on the regional economic leading role the bohai sea of the pearl river delta economic zone > > Yangtze river delta economic zone. From the comparison of the relative growth rate, showed a trend of decline in the bohai rim region, Yangtze river delta and the pearl river delta region are relatively balanced. Comparison, the result of the econometric analysis shows that the main coastal economic zone there are correlation between Marine economy and regional economy, the difference is that the link bohai sea economic zone is the Marine economy is the granger reason of regional economy, and the pearl river delta economic zone, by contrast, rendering is the granger reason of Marine economy and regional economy.

Sixth, the intrinsic factors of research. This chapter summarized the influence of the intrinsic factors of Marine economy associated with the regional economic difference lies mainly in four aspects: first, Marine resources and economic development environment difference, the north-south differences of maritime resources endowment, and regional Marine economy policy is different, each economic zone economic output different degree of dependence on Marine economy; Second, advantage of Marine economic differences for land economic association, due to the regional resources and environment is different, the differences in the advantage on the choice of Marine economy, Marine economy and different leading role of regional economy is different, lead to regional Marine economy overall pull function on the regional economy is different; Three, Marine economy and the matching degree of regional economy difference, mutual promotion of Marine economy and land economy requirements between Marine economy and land economy with high development consistency, development degree of difference between the two larger not conducive to the mutual promotion between; Four is that the regional Marine economy coordination degree of difference, the bohai sea economic zone and Yangtze river delta economic zone larger regional areas, contains more provinces and regions, there are large difference between policy, Marine economy development degree between the coastal cities each are not identical, to promote regional Marine caused the resistance.<sup>63</sup>

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<sup>63</sup> Liu Gubin, Zhang Yi. In promoting the construction of China sea and land integrated countermeasures study [J] // Journal of Marine economy.-2012.-№ 2.-P. 11-17.

# **CHAPTER 3 COASTAL THREE ECONOMIC ZONES OF MARINE INDUSTRY AND REGIONAL ECONOMIC LINKAGE DEVELOPMENT COUNTERMEASURES AND SUGGESTIONS**

Promote the three economic zones of Marine industry and is the key to the regional economic linkage development, combined with the above chapters on the analysis of influence factors, from the regional cooperation, the industrial development and integration of sea and land three levels on the analysis of the countermeasures and Suggestions.<sup>64</sup>

## **1. The countermeasures of regional cooperation level**

The stability of the coastal economic zone of Marine industry and regional economic development must be based on regional coordination and cooperation, as well as exchange of needed goods, complementary advantages and common development route, under the consistent policies to achieve the same goal. Regional Marine aimed at on the basis of common development and utilization of Marine resources, to maximize the overall interests and the interests of all parties.

### **1.1 Collection resources promote infrastructure construction**

The economic zone should be guided by large area of city, set in supplies for infrastructure construction. Logistics, first should be to create modern transportation logistics system, and external to the port for the connection hub, internally to improve

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<sup>64</sup> Guan Xin. Prediction of the development trend of China's strategic marine emerging industries [J] // YunNan Geographic Environment Research.-2012.-№ 2.-P. 22-27.

highway transportation trunk road, build all-round coverage of the transportation network; Second, the need to build information network, realizes the information sharing, on the one hand, on the basis of the Marine data information network of provinces and cities, and create a unified official sea economic zone information professional website, and establish a fast and efficient links between the various provinces and cities, realize regional Marine information sharing; On the other hand, based on official website, Marine resources development in the region between enterprises to build up internal exclusive information network, to speed up exchanges of information, improve the awareness, improve enterprise's influence and expand the scale of enterprise operation. In addition, through the official website of communication with internal web site to promote government Marine policy, also is helpful for the government to get the feedback information of the enterprise, to facilitate the policy, to be perfect to maximize the efficiency of policy.

## **1.2 Region complementary to Marine industry joint development**

Regard to the development of Marine industry, the economic zone has provinces should make reasonable division of labor according to their own advantage. Coastal tourism industry, for example, the economic cooperation covers market development and product development, market development include external market development and internal market development two aspects, the economic zone as a whole should make regional seaside tourism brand, joint travel agencies, travel association, etc., at the same time, due to the economic zone of inner cities, especially in the bohai sea economic zone and the Yangtze river delta economic zone, at the same time in the

foreign market development, domestic also should implement measures to effectively promote the requirements, each among the provinces and cities of the zone can through to the big area to provide preferential measures, such as market exchange. Product development, because the area is larger, the landscape resources, folk customs, such as gap is bigger, the zone should make full use of the region itself characteristic advantage, differentiation competition, and close to adjacent coastal cities such as link bohai sea economic zone of Qingdao, yantai, Weihai, Rizhao, etc., environmental resource properties, must through the joint development of tourism resources, build well versed in the four provinces, cities and tourist routes, just may avoid adverse competition and waste of resources.

And with the development of international trade and transportation technology, contribution of port industry of economic development in coastal areas, in order to optimize the efficiency of the port, the port cooperation, each economic zone should be port internal structure adjustment, integration of port resources, building a network of port highlight the professional function of ports and promote common development. Each zone should be the most powerful in the area of one or two ports as the core, on this basis, the development of transportation network, in which the core of the bohai sea port is Qingdao port, the Yangtze river delta economic zone is the core of the port in Shanghai port and ningbo port, the pearl river delta economic zone is the core of the port of guangzhou port. In addition, still should adapt to the characteristics of port operation information sharing platform, through the digital management system to improve the operational efficiency of the port, the gradual development and improvement of shipping information systems and shipping trade system, building



public management platform. Within the economic zones and the economic zone should be market-oriented, technology development cooperation, complement each other, increase the accumulation of experience and knowledge diffusion, and promote the new technology and new products.

## **2. The countermeasures and Suggestions of Marine industry development level**

Marine industry is the floorboard of the containing many kinds of Marine resources development industry, promoting Marine industry and regional economic linkage is dependent on the development of Marine industry, at the same time, accelerate the development of Marine industries also will have a greater role for regional economic, and lead to a virtuous cycle.<sup>65</sup>

### **2.1 In view of the weak link of Marine industrial structure optimization**

Optimize the structure of Marine industry, focusing on the bohai sea economic zone. Need to develop the Marine tertiary industry, Marine transportation, the ports of shall coordinate the collaboration between, such as Qingdao port as the core, makes the modern logistics system; Coastal tourism, should play an island in the circum bohai sea region advantage, promote island tourism system build, make with characteristic of Marine multi-functional tourist area. Need to adjust the Marine second industry development, Marine oil-gas industry development should not only focus on offshore,

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<sup>65</sup> Dong Xia, Han Zenglin. Research on the evolution of regional marine economy in China [J] // Resource development and market.—2013.—№ 5.—P. 30–36.

and to remote areas such as the high seas, therefore, should develop the offshore oil and gas exploration technology and offshore drilling platform building technology. In the first industry development, based on the protection of Marine fishery resources, promote the sustainable development of Marine fisheries, promote fishery products deep processing, improve product added value, promote the establishment of oceanic ranch, build complete system of Marine fisheries.

At the same time, the three major economic zone as a whole, should vigorously develop strategic emerging industries, the development of high technology Marine industry, Marine industry conversion rate of science and technology, through the Marine science and technology research and development, applied ocean science and technology achievements in the area of other industries, thus promote the regional overall development. "Five-year plan" proposed by Marine strategic emerging industries including Marine engineering equipment manufacturing industry, Marine biological medicine industry and Marine new energy industry and so on, to promote the development of Marine high-tech industry, regional provinces must provide resources, manpower and material resources to support, create a good external development environment,

## **2.2 Make full use of private capital increase ocean investment**

The effective development of the Marine resources to a great extent, relies on advanced technology, and the Marine industry in China started late, Marine science and technology level is backward abroad, many core technologies still need to be imported, ocean development cost is high. For maximum utilization of Marine resources, promote

Marine economy benefit, oceanographic research and development, the development of ocean technology has become one of the top priority of Marine economy development, therefore, aims to Marine science and technology research and development of Marine investment projects should be given full attention:

On the one hand, the government is given priority to, fiscal support. In the process of Marine resources development and Marine science and technology in many aspects, especially in the current level is relatively backward stage, the government investment in the role is particularly important to promote the development of Marine economy. Financial capital should become a powerful power back to the development of Chinese Marine economy, the main means of support for the following three ways: first, establish special Marine industry investment fund, the government funding is given priority to, can absorb appropriate professional risk investment, and to share interests as its return on investment, this part of the money in addition to the support of universities and colleges, research institutes and other research projects, most should support more independent research and development of the enterprise, and provide guidance to the enterprise project management and operation, to achieve the maximum output; Second, make full use of the functions of Banks in the financial system, the government's well-being, bank loans provided project enterprise development, by the government to enterprise development the risk of failure and loss, through policy at the same time, reduce the barriers to entry of bank, make full use of social capital; Third, establish and improve the investment management mechanism, make full use of social security funds, in the process of social security fund's ocean industries, by the government and

enterprise supervision and administration institution, in order to ensure the social security fund operation of the high transparent.

On the other hand, broaden the financing channels, private capital investment ocean industries' 7. With the continuous development of China's market-oriented economy, the role of private capital in the financial system increase gradually, not only show the private capital large-scale, also reflected in the private capital than government funding has greater flexibility in the economic market, absorbing private capital into Marine resources development, can more effective configuration of market resources. Therefore, Marine industry, the government should encourage private capital investment policy, more important is to should supervise the implementation of security policy, the government should set up specialized management supervision department, hitting a vested interest in new capital of monopoly power, coordinate the interest distribution. In addition, the Marine industry to support private capital investment, also should be private enterprises provide cheap land with the sea, including relax with sea land use rights, simplify examination and approval procedures for land with the sea, improve the efficiency of private enterprises in the sea land, encourage private enterprises to absorb excellent talents in the field of ocean, cultivate private Marine leading enterprises.

In addition to expand the financing channels, but also should pay attention to the allocation of investment income and the improvement of the investment withdrawal mechanism. First of all, the traditional investment activity, the investment risk and enjoy the main body of investment returns tend to be consistent, but in the Marine

industry investment, especially for the current with low levels of ocean development conditions, to promote the development of the Marine economy, the risks and benefits for the body of the dislocation may be appropriately, embodied in two categories: one is the government to take risks, enterprise profit; The second is, the social risks, the government benefits, in general, two types of main body, with the main body of risk bearing capacity is larger to take risks, to ensure the smooth operation of the investment activities. Second, investment to a greater degree, reduce the resistance of investment, should improve the exit mechanism, the concrete measures include opening up regional equity trading market, and Marine second-board market, realize the metabolism of Marine industry investment funds through equity trading. At the same time, in the process of the coastal economic zone increase ocean investment also attaches great importance to the play to regional advantages, the bohai sea economic zone and the Yangtze river delta economic zone should enlarge the scope of investment promotion and capital introduction, encourage regional cross investment and financing, realize regional interests, in order to more greatly promote the development of Marine economy.

### **3. The countermeasures and Suggestions of sea-land integration level**

Relationship between Marine industry and regional economy is the result of the two-way between energy resources circulation, to promote the joint transmission mechanism is more efficient operation, should be strengthen in view of the linkage between.

### **3.1 Adjust measures to local conditions, formulate unified integration plan the land and sea**

Three coastal economic zone should be according to the characters of regional development, formulate unified integration of sea and land development planning, strengthen the complementary advantages, avoid conflict of resources development and utilization. First, sea and land resources development and integration, the requirement to sea and land resources as a whole, complementary advantages between the land and sea resources and to avoid a certain resource overexploitation; Second, to the sea and land area together, clear the trade-off between land and ocean environment, avoid the traditional land will be a lot of pollutant discharge into the sea, on land for environmental protection at the same time, but the result of the destruction of the Marine environment; And, thirdly, in order to realize integration of industry, the land and sea in the formation of clear industry chain and industry linkage mechanisms between, on the basis of promoting the development of Marine industry as a whole; Fourth, we should change the traditional management mode, the ocean land and ocean exclusive economic zone considering the economic and social development plan, unified management departments and personnel arrangement, the Marine economic development promote each other, rather than restricting each other; Finally, from the concept fundamentally set up ocean land consciousness, attaches great importance to the Marine economy development.

### **3.2 Support in stimulating obvious Marine industry development**

To realize economic integration, the land and sea should focus on the industrial development of the whole chain, through the study of interaction mechanism between the land and sea, formulate specific development plan. To distinguish between Marine industry, coastal industry and Marine industry, and on this basis, according to the empirical data, quantitative mutual impetus factor of all kinds of industries, for this, put forward countermeasures to promote the development of industry.

Marine industry is the core of the Marine resources development and utilization of industry, include 13 classes such as Marine fishery industry. Lingang industrial or coastal industry mainly from the regional scope and geographical location to differentiate refers to the use of sea location advantages and resources advantages, in the coastal zone area industry layout, especially in the industry to give priority to. Refers to the related to the development and utilization of Marine resources, Marine industry is mainly refers to provide service for Marine major industry into the industry. From Marine main activities in the field of Marine industry, to the coastal zone area of lingang or coastal industries, to the inland area of Marine industry, all with the Marine resources development and utilization of Marine industry classification to the smallest category, deeply into the details of the industry, with the aid of input and output coefficient, quantitative out the leading role of all kinds of industries.

The above three kinds of industries, lingang land and coastal industry as the bridge of Marine industry and Marine industry, but also an important part of the energy transfer to each other on land or sea, various economic zone should be based on their

respective economic development characteristics, combined with current situation of the development of port subject area and hinterland linkage area, formulates plans for the development of the region, mainly for lingang industrial hub, communication Marine industry and Marine industry, highlighting the ocean emerging industries, the development of modern Marine fisheries industry. Furthermore, as the law of the People's Republic of China on island protection act of effective implementation of island protection development gradually become a reality, use the auction had pioneered in the island, promote the marketization of island resources configuration, development provides a good environment for the island, integration, in the construction of the land and sea island resources should be considered, especially the offshore island resources development, in island tourism resources development as the main development way, promote island a coastal zone land economic linkage development.

### **3.3 Perfect integration of safeguards the land and sea**

To promote the integration of the land and sea smoothly, should be perfected sea-land integration safeguard measures, including the following four aspects: first, to optimize the layout between land, sea and air, we should plan as a whole the land and sea, land, sea and two angles as a whole, the comprehensive consideration of sea and land interaction relationship between industry and optimize the Marine industrial layout, especially in the coastal zone industry layout, regional advantages, to combine the advantage of resources especially the rapid development of Marine economy region, the construction characteristics of Marine economic belt, create innovative Marine park, pooling resources, realize the conduction function of development of Marine economy,



driving the development of regional economy as a whole; Second, should attach importance to Marine development technology research and development, in view of the reality of Marine science and technology level is relatively backward in our country, various economic zone should concentrate resources development and Marine advanced technology, collaboration between Marine scientific research platform, at the same time increase the Marine scientific research achievements conversion rate and p/e ratio; Again, protect the Marine ecological environment and maintain sustainable development, pollution source should be on the way, strengthen the supervision and management, at the same time fully introducing market mechanism of pollution tax, land through market mechanism to control non-point pollution; Finally, from the aspects of management system, to strengthen the construction of sea and land integrated comprehensive management organization, perfecting the Marine law enforcement, strengthen the offshore monitoring platform building and maintenance, improve the integration of sea and land development and construction of legal system.

### **Conclusions on chapter three**

Based on results of the empirical analysis, this chapter promote Marine industry and regional economic linkage effect, this paper analyzes the concrete countermeasures, mainly puts forward the countermeasures of three levels:

First, the regional cooperation level. The coastal economic zone sub-regional level cities should intensify cooperation and focus resources to jointly promote the construction of infrastructure, on this basis, the economic zone around the city development characteristics of Marine industry should be aimed at their own

advantages, realize the dislocation competition, at the same time should strengthen the complementary area, collaboration between Marine industrial park;

Second, the industrial development level. First should optimize the structure of Marine industry, mainly for the Marine industry structure optimization was significantly behind the link bohai sea area, take different measures corresponding to the first, second and third industry, the support to strategic emerging industries increased at the same time; Second should increase the investment proportion of the sea, through the government leading, fully absorb the venture capital and private capital, set up a special investment fund, play to the functions of the financial system, the use of surplus funds, improve the supervision and management and exit mechanism, etc.;

Third, the integration of the land and sea level, and puts forward three countermeasures and Suggestions. First of all, should adjust measures to local conditions, formulate unified integration of sea and land development plan; Second, should support the leading role the obvious Marine industry development, concrete, through to the Marine industry for land, linhai port-vicinity industry, three layer division major ocean industries, according to the industrial chain of the material energy transfer mechanism, determine the linhai port-vicinity industry as the important part of Marine industry chain; Finally, perfect integration safeguard measures of the construction of the land and sea, including optimization between land, sea and air, attaches great importance to the Marine science and technology research and development, the protection of Marine ecological environment and improve the comprehensive management system of the land and sea.

In conclusion, from the aspect of regional cooperation to strengthen regional Marine industry development coordination, improve the efficiency of the use of Marine resources, and through strengthen the weak links and expand financing channels to promote the development of Marine industry, at the same time to speed up the integration mechanism of the land and sea rapid implementation, so as to effectively promote the Marine industry and regional economic association.

## CONCLUSION

Based on the theory of system, using the regression analysis to three economic zones of Marine industry and regional economic relationship has carried on the contrast research, puts forward the countermeasures to promote the development of Marine industry and regional economic linkage. The main conclusion for six aspects.

First, the three economic zones ocean rate and rapid industrial development in recent years, especially in the bohai sea region is the most, Marine industry, total link bohai sea area at the top, the three major economic zones of Marine industry output value ratio of 42:35:23. But on the Marine industry constitute three times, the bohai sea economic zone obviously inferior to Yangtze river delta economic zone and the pearl river delta economic zone, the Yangtze river delta economic zone of Marine tertiary industry structure is slightly better than that of the pearl river delta economic zone. In the Marine industry policy, due to the pearl river delta economic zone is located in guangdong province, the policy for the other two are economic zone, has great consistency. Regional economic development, the bohai sea economic zone and the Yangtze river delta economic zone economy roughly, is the pearl river delta economic zone of the economy more than two times, the full value of the bohai sea and the Yangtze river delta economic zone growth significantly faster than the Yangtze river delta region. But in the context of per capita GDP, present the situation of Yangtze river delta is greater than the pearl river delta is greater than the bohai sea. Industrial structure, the three economic zones of the third industry accounted for all showed a trend of increase, but the link bohai sea area of the third industry accounts for a

significantly lower than the other two economic zone. Residents income, also similar to the above analysis, performance for the Yangtze river delta is greater than the pearl river delta is greater than the bohai sea.

Second, based on the traditional analysis method of the empirical results show that the pearl river delta economic zone of Marine economic output on economic contribution of the total output value is highest, at 20.02%, the bohai sea economic zone and the contribution of the Yangtze river delta economic zone is low, 15.5% and 13.7%, respectively, to distinguish the direct and indirect contribution, similar results. Marine industry on the regional economy in stimulating stimulating study shows that the pearl river delta economic zone (2.97%) than the link bohai sea economic zone (2.69%) than the Yangtze river delta economic zone (2.22%). From the comparison of the relative growth rate, showed a trend of decline in the bohai rim region, Yangtze river delta and the pearl river delta region is relatively balanced, order of relative growth rate and average is 139.92%, 105.26% and 135.89%.

Third, based on the econometric analysis of the empirical research results, according to the three coastal economic zone there are correlation between Marine economy and regional economy, the difference is that the link bohai sea economic zone and the Yangtze river delta economic zone is the ocean economy is the granger reason of regional economy, and the pearl river delta economic zone, by contrast, rendering is the granger reason of Marine economy and regional economy. Link bohai sea area, ocean industries output value increase 1%, the regional economic growth of 0.617704%; Ditto variable relationship in Yangtze river delta, namely the ocean

industries output value increase 1%, the regional economic growth of 0.791425%; The pearl river delta region, for every 1% increase in total cost of the regional economy, Marine industrial production rose 0.791425%.

Fourth, the empirical research of the traditional analysis results and the econometric analysis showed that the Marine industry development in the region and regional economic development are complementary to each other, Marine industry development to promote regional economic growth, at the same time, regional economic growth and promote Marine industry output growth. Realization of Marine industry and regional economic improvement, will become the regional can efficient use of Marine resources, can maximize the Marine industry the key to the leading role of regional economy. However, empirical research results have revealed that the three economic zones of unidirectional causal relationship only show the leading role, all did not form a two-way granger causality, the resources use efficiency are not optimal. Comparison, compared with bohai sea and the Yangtze river delta economic zone, the pearl river delta economic zone between Marine industry and the regional economic impact mechanism has higher efficiency, assuming that the initial power to promote regional economic growth of 1%, will drive the Marine industrial production rose by 0.791%, on the other hand, the pearl river delta of the Marine industry on the regional economic pull peak of 3.0% in the three regions, lead to the Marine industry and promoting regional economic growth, the mutual promoting to form a benign circulation. In bohai rim economic zone and the Yangtze river delta economic zone, linkage role relationship only in ocean industry role in promoting the regional economic, bidirectional energy cycle has not been formed, compared to the pearl river

delta economic zone, these two areas of Marine industry operation mechanism lags behind.

Fifth, considering the resources of the three major economic zones and economic environment, try to impact on the causal relationship between the complex inner reasons were discussed, inductive factors mainly lies in four aspects: one is the ocean resources enjoy fu and the regional Marine economy policy differences, lead to the economic zone's economic output different degree of dependence on Marine economy; Second, regional advantages Marine industry choice is different, lead to regional Marine industry as a whole to regional economic role is different; Three, Marine industry and terrestrial economy promotes mutually, based on the coordinated degree between development level difference between the two is the assembly to form the short board effect of barrel, is not conducive to the overall development; Four is the bohai sea economic zone and the Yangtze river delta economic zone contains more provinces and regions, there are large difference between policy, Marine economy development degree between the coastal cities each are not identical, to promote regional Marine cooperation much higher than the resistance of the pearl river delta economic zone.

Sixth, coastal three economic zones of Marine industry and regional economic linkage development countermeasures involve three aspects: first, in the aspect of regional cooperation, the coastal economic zone sub-regional level cities should strengthen cooperation, pooling resources jointly promote the construction of infrastructure, on this basis, the economic zone around the city should be on their own advantages of Marine industry development characteristics, realize the dislocation

competition, at the same time should strengthen the complementary area, collaboration between Marine industrial park; Second, in the level of industrial development, the economic zone should optimize the structure of industry of ocean, in view of the ocean industrial structure optimization was significantly backward area, take different measures corresponding to the first, second, third industry, the support to strategic emerging industries increased at the same time, increase the investment proportion of the sea, at the same time through the government leading, fully absorb the venture capital and private capital, play to the functions of the financial system, improve the supervision and management and exit mechanism, etc.; Finally, in the integration of the land and sea level, should adjust measures to local conditions, formulate unified planning, integration of sea and land development support in stimulating obvious Marine industry development, put forward the perfect integration safeguard measures of the construction of the land and sea.



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