

Preliminary Study on Marine Ecological Environment Problems and Prevention Points in Fujian Province

Xiao Lin¹

¹ College of Environmental & Resource Sciences, Shanxi University, Taiyuan, China

Correspondence: Xiao Lin, College of Environmental & Resource Sciences, Shanxi University, Taiyuan, Shanxi, China.

Received: March 19, 2022

Accepted: April 15, 2022

Online Published: May 28, 2022

doi:10.20849/jess.v5i1.1183

URL: <https://doi.org/10.20849/jess.v5i1.1183>

Abstract

With the gradual promotion and implementation of the strategy of Fujian Province as a strong marine economy, the marine economy of Fujian Province has been effectively developed. However, due to various historical reasons, long-term indiscriminate exploitation of marine resources, dredging, damming and predatory development of marine tourism have led to the destruction of marine ecosystems and seriously restricted the sustainable development of marine economy. Based on the reading and research of numerous relevant literature, this paper integrates and expounds the current situation and background of marine pollution investigation in Fujian Province, analyzes and puts forward the corresponding prevention and control measures and key points.

Keywords: marine ecological and environmental problems, sustainable protection, prevention and control points

1. Introduction

Fujian Province has experienced the concept change from "land over sea" to "land and sea", and along with the implementation of the "12th Five-Year Plan" period, the marine economy has achieved sustainable and healthy development. In addition, the marine economy industrial system has been formed with marine fishery, coastal tourism, marine transportation and marine construction, marine chemical industry and marine ship industry as the pillar industries. Fujian's "13th Five-Year Plan" proposes to expand new space for marine development, adhere to the overall planning of land and sea, promote the construction of national pilot provinces for marine economic development, build a strong province with marine economy, and make marine economic development reach the national advanced level.

2. Marine Ecological Environment Problems and Impacts

At present, Fujian's coastal marine ecological environment has improved, but not optimistic. For a long time, land and inland environmental law enforcement is responsible by the environment department, and the marine environmental law enforcement is responsible by the marine department. Due to the different pace of marine related departments, they can't form a joint force, which restricts the further implementation of marine environmental protection law enforcement.

2.1 Long-Term Inordinate and Disorderly Indiscriminate Exploitation of Marine Resources, Resulting in Damage to the Marine Ecosystem

With the acceleration of urbanization and the development of port industry, land pollutants such as domestic sewage and industrial wastewater directly or indirectly entering the sea are increasing. With the rapid development of marine aquaculture, fishing and transportation, ship pollution, port operation pollution and mariculture pollution are becoming more and more serious, and the quality of marine environment is becoming worse and worse. According to the "Marine Environmental Protection Plan of Fujian Province" (2011-2020), the proportion of coastal sea water quality in the province reaching the water quality standard of clean sea area is 39.0%, the proportion of cleaner sea area is 20.5%, the proportion of slightly polluted sea area is 10.1%, the proportion of moderately polluted sea area is 18.3%, and the proportion of seriously polluted sea area is 12.1%. The moderately polluted and seriously polluted sea areas are mainly distributed in the coastal waters of Ningde, Luoyuan Bay, Minjiang Estuary, Quanzhou Bay and some coastal waters of Xiamen. The main pollutants are inorganic nitrogen and active phosphate.

Fujian's pollution sources into the sea include land-based pollution sources and marine pollution sources:

land-based pollution sources are mainly industrial wastewater, urban domestic sewage and agricultural non-point source pollution; Marine pollution sources are mainly mariculture and ship pollution. The monitoring of 74 sewage outlets in the province includes 38 key sewage outlets and 36 general sewage outlets. The total amount of sewage discharged into the sea is about 9.185 billion tons, and the total amount of main pollutants is 364000 tons, including the following six aspects shown in the Figure 1.

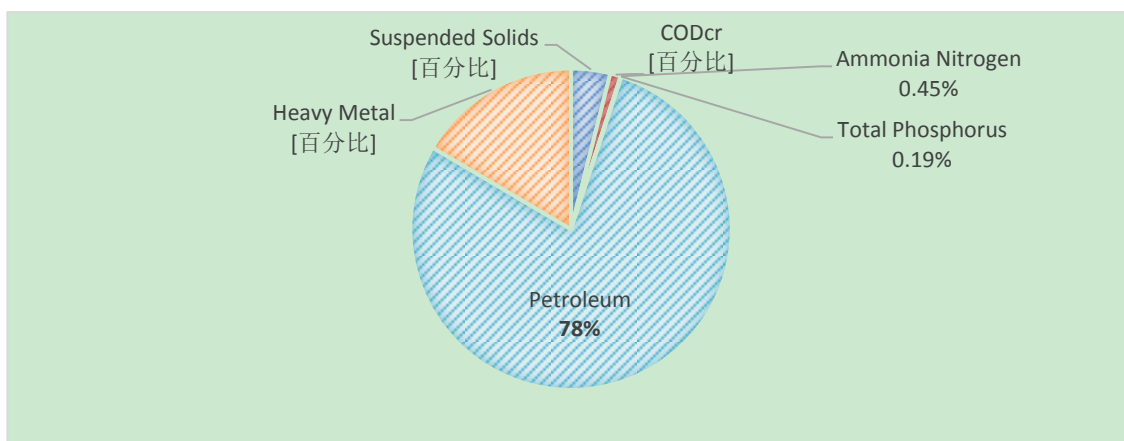


Figure 1. Percentage of each pollutant category

2.2 Partial Destruction of Typical Marine Ecosystems Due to Reclamation and Dam Construction

In recent years, large-scale coastal engineering construction, such as land reclamation from the sea, embankment and gate construction, bay closure, port industry and port area construction, has continued to reduce the area of beach wetlands. After being reclaimed, the ecological environment of the water area has been irreversibly and destructively damaged, resulting in a sharp reduction in the places where economic fish, shrimp, crab and shellfish live and reproduce. Beach reclamation leads to the change of marine hydrodynamic force, the reduction of tidal capacity, the siltation of channel, the accumulation of pollutants and the change of port water depth conditions, which affect flood control and drainage.

2.3 Excessive Exploitation of Marine Biological Resources Leads to a Decrease in Biodiversity

Due to the lack of scientific planning, the breeding density in some sea areas is too large and the layout is unreasonable. In addition, residual bait, excreted waste and organic debris enrich the base of the breeding farm, resulting in the deterioration of the sediment environment and the eutrophication of the breeding water body. At present, with the development of cage aquaculture, the environmental impact caused by self pollution will be further aggravated.

2.4 The predatory Development of Marine Tourism Has Caused Irreversible Damage

In recent years, in the process of building hotels, guesthouses, resorts, and residential areas on seashores and islands, there have been serious phenomena of deforestation, random construction, and excavation of rocks and sand, resulting in environmental deterioration. Meanwhile, hotel companies in marine tourism areas lack effective and orderly management, the untreated domestic and production sewage is directly discharged into the sea, and the fuel leakage pollution of cruise ships occurs from time to time.

3. Corresponding Prevention and Control Points

Marine ecological environment protection is a brand new proposition. During the "13th Five-Year Plan" period of Fujian Province, we should seize the opportunity and take advantage of the situation to raise the attention of marine development from the "pure economic concept" to the "comprehensive environmental protection concept", and vigorously promote the prosperity and development of the marine economy.

3.1 Raise Awareness of Marine Environmental Protection and Establish a Sustainable Marine Environmental Ethics

Vigorously advocate the overall values of harmony and unity between human and the ocean, establish the marine

environmental ethics of sustainable development of harmony and unity between human and nature, and carry out multi-level, multi-perspective and multi-channel publicity and education on marine environmental protection.

3.2 Improve the Comprehensive Marine Management System and Deepen the Coordinated Development Mechanism

Fujian Province has basically formed a marine reserve system with national marine reserves as the core, provincial marine reserves as the focus and municipal and county-level marine nature (special) reserves as the basis. Coastal governments at all levels should accordingly integrate the strength of various sea related departments, further explore new modes of marine administration, planning and use, and give overall consideration to management, law enforcement, science and technology, services and other work.

3.3 Scientifically Plan the Layout of Marine Protected Areas to Achieve Sustainable Development and Utilization of Marine Resources

According to the characteristics of natural resources and through strict scientific demonstration, relevant departments strengthen the survey and exploration of the reserves and distribution of various marine resources, investigate and understand the current situation and development trend of the marine environment, and further improve the functional zoning of marine resources and marine environment, so as to coordinate the implementation of development and construction activities such as port, shipping, reclamation, aquaculture, tourism and port industry.

3.4 Optimizing the Industrial Layout and Promoting the Ecologicalization of the Marine Industry

Give full play to the advantages of Fujian's port and shipping services, port industrial base, modern marine fisheries, ship construction, marine transportation, marine biomedicine, coastal tourism and other fields, and strive to form Fujian's characteristics in the international competition of marine economy.

Specific recommendations are as follows:

(1) Divide marine functional areas scientifically and reasonably according to the principle of focusing on natural attributes.

The purpose of division is to scientifically and reasonably arrange the contents of resource development and environmental protection in each functional area, so as to provide scientific decision-making basis and management basis for the development of marine resources and marine economy. It is also a prerequisite for the implementation of the sustainable development of marine resources in Fujian Province.

(2) Promote the optimization of marine protection and utilization pattern

Make full use of the superior location, transportation and marine resources, strengthen the planning and implementation of marine tourism in Fujian, and focus on the construction of characteristic tourism sections and products along the coastline of Fujian. Explore the development of high-end tourism products such as yacht clubs and marine theme parks, and gradually build the first place for high-end marine tourism products in Fujian. Reasonably determine the ecological capacity of coastal and island tourism, and realize the sustainable development of ecological construction with the benefits of tourism development.

(3) Strengthen marine ecological security barrier

The natural ecological environment in the coastal waters of Fujian Province is fragile, the marine disasters such as storm surge are serious, the crustal activity is strong, and the sea level shows an upward trend. The effective measure to improve the ability to resist marine disasters is to pay attention to strengthening the construction of marine ecological environment infrastructure engineering.

3.5 Implementation and Application of Auxiliary Decision Support System for Marine Ecological Disaster Prevention and Control

The system uses GIS and database technology, based on Net development platform to build a B/S system framework, which integrates business functions and GIS functions to realize the visual management of auxiliary decision-making for marine ecological disaster prevention and control. Analyzing it according to the real-time monitoring data and predicting and judging it in combination with the mode can quickly and accurately provide it with digital, information and intelligent auxiliary decision support.

4. Conclusion

The ocean is the cradle of life. The marine ecological environment is related to our future development and well-being, and to the future and destiny of mankind. During the 13th Five Year Plan period, China vigorously carried out marine ecological protection and restoration and achieved remarkable results. Based on the above

background analysis and suggestions, I hope to effectively assist the task of building Socialism with Chinese Characteristics in the new era.

References

- Circular of Fujian Provincial Department of Environmental Protection on the state of environmental quality in the province in 2018[EB/OL]. Retrieved September 26, 2018, from <http://www.fujian.gov.cn/ggfwpt/gysy1/hbxx/kqzl/201809/htm>
- Gan, X. (2012). Reflections on the Environmental Problems of Marine Ecology in Fujian Province. *Business*.
- Li, X. (2021). Implementation and Application of Decision Support System for Marine Ecological Disaster Prevention and Control in Fujian Province. *Marine Development and Management*, (6).
- People's Daily Online. Fujian: Expanding Ocean Economy Article[EB/OL]. Retrieved April 6, 2018, from <http://news.163.com/18/0406/07/63QGVSH000146BC.html>
- Xiru, S. (2020). Pay equal attention to development and protection to realize the sustainable utilization of marine resources. *VIP Journal Professional Edition*.
- Zheng, D., Chen, D., & Lin, Q. (2020, June). Research on the Influencing Factors of the Development Level of Marine Economy in Fujian Province. *Journal of Coastal Research*, (4).

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).