Evaluation of Ecological Economy Benefit of Coastal Wetland of Yencheng

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Abstract. The reports of the Eighteenth National Congress of the CPC stressed that "resources consumption, environmental damage and ecological benefits should be included in the evaluation system of economic and social development to establish the ecological civilization." This shows that economic development is closely related to good ecological environment, and good ecological environment lies in the protection of the ecosystem. Therefore, the assessment of the ecological and economic benefits of ecosystem is also an important task in the development of the country's social economy. As the intersection of the land and the marine ecosystem, the coastal wetland ecosystem not only has multiple ecological functions (water conservation, river diversion, flood regulation, etc.), but also supports the economic development of the coastal cities. The comprehensive assessment of the coastal wetland ecosystem development is conducive to assisting the relevant departments and the government to do well in the bilateral work on environmental protection and economic development in the future.

1. Introduction
In the third Plenary Session of the 18th CPC Central Committee, the concept to "accelerate the construction of the ecological civilization system" was proposed. The conference stressed the points to "deepen the reform of the price and tax and fee of the resource products, establish the system of resources compensation and the ecological compensation system and the ecological compensation system reflecting the market supply and demand and the scarcity of resources, reflecting the ecological value and waiting for compensation." "To explore the balance sheet of natural resources. In the form of an asset accounting account, we classify and calculate the stock and increase or decrease of the main natural resources assets in the whole country or a region".

In 2015, the concept of "Green Mountains is the Golden Mountains" and the concept of "the Natural Ecology is Value" was put forward in Overall Plan for the Reform of the Ecological Civilization System compiled by the Central Committee of the Communist Party of China and the State Council. In addition, the country also encourages all regions to formulate a comprehensive and comprehensive green development index system, and to incorporate ecological benefits into the system. It is clear that the system of ecological civilization including the above content should be completed before 2020. All these policies reflect the importance of the state's protection for various ecosystems and the evaluation of ecological benefits.

Similar to the forests, grasslands, farmland and other ecosystems, coastal wetlands, as a type of wetland ecosystem, are an important part of natural assets. It can provide human beings with raw materials for aquaculture and production in industrial and agricultural production. Coastal wetlands
can maintain the sustainable economic and social development of coastal areas, maintain the ecological security in the country and the region, and constitute the necessary conditions for the service of human survival and development.

Since 1980s, the importance of coastal wetlands has been recognized in the scientific community. Driven by the Millennium Ecosystem Assessment program launched by the United Nations, scholars have called for a global assessment of ecological and economic benefits to harmoniously symbiosis with the needs of ecological protection and social and economic development. Experts at home and abroad have carried out several studies on the evaluation of ecological and economic benefits. According to the ecological economic benefit evaluation system, these studies adopt different ecosystems and the evaluation methods of corresponding service functions, which lay a solid foundation for the suitability assessment of ecological benefits of the ecosystem in the future, and promote the citizens' understanding of the ecosystem and functional benefits.

2. Rough guide of coastal wetland of Yencheng
Yencheng coastal wetland in Jiangsu is located in the central position of the coastal area of China (32°34′~32°28′N,119°27′~121°16′E), including five counties and cities of Xiangshui, Binhai, Dafeng, Dongtai and Sheyang. The whole area is located in warm temperate zone and north subtropical zone, and has excellent hydrothermal conditions. It is the largest and most intact coastal wetland in the west coast of the Pacific Ocean. The wetland area (9.97×105 hm²) is about one fourth of the total wetland area in China. The annual average temperature is 14 degrees, and the annual average precipitation is about 1000mm.

Yencheng coastal wetland is mainly governed by Yencheng National Red Crowned Crane Nature Reserve. Since the establishment of the two protected areas in 1980s, the protection of Yencheng coastal wetlands has always been the top priority of their daily work. There are mainly three types of land used in Yencheng coastal wetlands, which are constructed wetlands (mainly rice), natural wetlands (salt marsh vegetation) and smooth beaches. Natural wetland is also called salt marsh. The Suaeda salsa, Phragmites australis and Spartina alterniflora are the dominant salting vegetation species. Since the introduction of Spartina alterniflora in 1990s, its growth has been extremely rapid. As an alien invasive plant, Spartina alterniflora has caused no threat to native vegetation (Suaeda salsa and Phragmites australis). In 2009, reclamation work has been a key work in recent years as the State Council adopted the "Jiangsu Coastal Development Strategy Plan (2010-2020)". It has caused serious damage to the natural wetland ecosystem, and its degradation speed is faster than imagination. The evaluation of ecological and economic benefits can not only give local protection areas and related departments to rethink the reclamation work and adjust the direction, but also help to carry out the work of natural assets and benefit evaluation in the future.

3. Evaluation directions of Ecological Economy Benefit of Coastal Wetland of Yencheng
The so-called ecological economic benefits, as the name implies, include two aspects of ecology benefits and social and economic benefits. Different aspects of efficiency need to be selected when evaluating different indicators and methods. According to previous studies, the ecological benefit index of the coastal wetland ecosystem mainly includes four indexes, which are the functions of vegetation carbon fixation, flood peak reduction, pollutant treatment and purification, species diversity and so on, while social and economic indicators mainly include three indicators such as diversified products, leisure tourism and popular science education.

4. Evaluation results of Ecological Benefit of Coastal Wetland of Yencheng

4.1 Atmosphere benefit
Wetland ecosystem plays an important role in the carbon cycle of the earth and it is the source of abundant carbon sink. Therefore, the atmospheric benefits in the wetland ecosystem are mainly manifested in the two aspects of vegetation carbon sequestration and greenhouse gas emission
reduction. The assessment of these two aspects can be assessed by the carbon tax law. According to the vegetation coverage of the coastal wetlands, the total amount of carbon dioxide emissions per year is calculated, and the carbon tax rate is 1245 Yuan/t.

4.2 Hydrology benefit
Compared with other ecosystems, the coastal wetland ecosystem is mainly embodied in the function of flood regulation and storage in terms of hydrological efficiency. The so-called flood regulation function is unique in the wetland ecosystem, especially in the strong water storage function. In the wetland ecosystem, it can be divided into sluggish area and flood discharge area, which can quickly absorb natural precipitation and transit water, especially in summer to alleviate the threat and loss to the surrounding area caused by the flood peak, and generally use the water storage and flood control capacity to characterize the benefit. The capacity of natural wetland storage is calculated by multiplying the amount of wetland storage in the unit area by the total area of the wetland.

4.3 Pollution purification benefit
In the coastal wetland ecosystem, vegetation and sediment can promote the purification of pollutants in the ecological environment, but the specific purification effect remains to be further studied. At present, the calculation method for water quality is to multiply the ecological value of water purification under unit area and the actual area of the coastal wetland.

4.4 Species diversity benefit
In the evaluation of species diversity, we mainly examine whether wetland ecosystems provide suitable habitats for all organisms in the system. We should not only count the biomass, but also count the species, especially the rare species and the area of the wetland. Due to the establishment of protected areas in the Yencheng wetland, the most effective method of contingency valuation in the field of public commodity evaluation is no longer being used, and it is necessary to use the alternative cost calculation method to complete the estimation of the benefit. Specifically, the total amount of investment within the protected area under the jurisdiction of the wetland ecosystem should be replaced by the total amount of protection and construction funds invested by the wetland management unit.

5. Evaluation results of social and economic benefits of coastal wetland of Yencheng

5.1 Product diversification benefit
The coastal wetlands of Yencheng are rich in products, and there are various kinds of products provided by wetlands. Fish products such as fish, shrimp, crab and aquaculture can also provide abundant mineral resources such as salt, oil and gas. For the estimation of these products and the conversion of benefit value, the market value method can be used, which is combined with the survey results of the selling price of these products in the market. This method can reflect the value of the production benefit of the coastal wetland into the income account of the national Ministry of finance, which is beneficial to the improvement of the state's attention to the coastal wetland ecosystem and the protection. Among them, the benefits of aquatic products can be aggregated by the value of each aquatic product in the market by multiplying the unit price value of all aquatic products. Taking Shandong Province as an example, the total production of marine aquatic products in the coastal wetlands of the province is 4.13477 tons in the year, of which fresh water products exceed 478 thousand tons. The average annual price of local seafood is 38 yuan/kg, of which the annual average price of fresh water products is 14 yuan/kg.

5.2 Leisure tourism benefit
We should consider the two aspects of tourism consumption and investment when we estimate the efficiency of leisure tourism and use the expenditure method to estimate the total benefit. The
expenditure of consumers in the coastal wetland ecosystem usually includes the cost of tickets, meals and lodging during the trip, the time spent on the travel, and the process consumption of buying souvenirs, taking pictures and other external factors.

5.3 Education science popularization benefit

Different from the benefits of leisure tourism, the benefit of educational popularization is mainly focused on the benefit assessment of citizens' knowledge of wetland ecosystem knowledge science, propaganda and public awareness. The object oriented mainly lies in residents, schools, research institutes, television stations and so on. The benefit evaluation method can be the same as that of leisure tourism, but it is mainly for the expenses of the expenses of visiting activities, the expenditure of the lecture program and the advertising materials.

6. Conclusions

In recent years, with the progress of ecological civilization, wetland conservation will be more and more valued. In view of the current development of coastal wetland ecosystem in Yencheng, wetlands are still playing a better role in terms of ecological benefits. However, because of the invasion of Spartina alterniflora, the local vegetation communities are subjected to stress and the ecosystem structure is destroyed. Compared with before the invasion, the efficiency of purifying pollutants has declined. Because Spartina alterniflora is a C4 plant, high carbon content enhances the ability to plant carbon sequestration. In terms of social and economic benefits, the traditional sea salt processing products are gradually replaced by seafood and artificial breeding products, and the green tourism industry is developing rapidly. It is worth noting that artificial breeding and reclamation have negative feedback on the integrity of the wetland, which will make the number of habitats that birds live on less and less. Local governments and relevant departments should appropriately adjust the direction of economic development to achieve sustainable development. Of course, due to the lack of data and data in the evaluation of some benefits, the comprehensive evaluation of wetland benefits in this paper is not fully quantified, and there are still a lot of shortcomings. Further research should be carried out to improve the relevant work.

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