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Study on the influence of rational exploitation of marine resources on regional economy

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Abstract: In this paper, a modelling method for the influence of rational exploitation of marine resources on regional economy is proposed. Designed a reasonable marine resource development and regional economic data collection architecture, and collected relevant data through the detection and update of bad block information, data reading and writing, data erasure, etc. The minimum two parameter identification method is used to calculate the model parameters, and the impact model of rationalised marine resources development on regional economy is built according to the parameter identification results, and the relevant impact analysis results are obtained. The experimental results show that the average recall rate and precision rate of this method are 96.1% and 96.1%, respectively, the impact score is the closest to the actual value.

Keywords: rationalisation; marine resources development; regional economy; data reading and writing; data erasure.

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1 Introduction

At the current stage, the marine economy has become a new economic development path. Therefore, in order to effectively develop and utilise marine resources, it is necessary to take the actual form of the market as the basis, strengthen the attention to marine economic issues, ensure the rationalisation of marine resources development, realise the high-quality development of marine economy, and drive the further improvement of regional economic development level (Zhang, 2021; Ding et al., 2020). Especially in recent years, the concept of green environmental protection has been deeply rooted in the hearts of the people, and the awareness of marine protection and rational development

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has been constantly strengthened. Therefore, it is necessary to rationally develop and allocate marine resources in combination with the actual situation, so as to drive the rapid development of the surrounding regional economy (Wen et al., 2020), and exploring the impact of rational marine resources development on the regional economy can clarify the task of building a marine power, optimise the relevant structural system. To realise the high-quality development of marine economy, it is of great significance to study the impact of rational marine resources development on regional economy.

In view of the important research topic of the impact of rationalised marine resources development on regional economy, Gu (2020) proposes a data vector grid based modelling method for the impact of rationalised marine resources development on regional economy. By collecting the data of marine resources development and economic development, and normalising and vector grid processing these data, input the processed data into the model to obtain the relevant impact analysis results. However, in the practical application, it is found that the recall rate of the data acquisition results of this method is low. Xu et al. (2021) proposes a modelling method for the impact of rationalised marine resources development on regional economy based on multi-source data. This method is based on the output value and GDP related data of the tertiary industry in several coastal areas, normalises and denoises these data, builds a variable coefficient model according to the processed data, and analyses the impact of rationalised marine resources development on regional economy by using this model. This method can get the relevant analysis results, but the accuracy of the data collection results is low, and the actual application effect is poor. Zheng (2019) proposes a quantitative statistical modelling method for the impact of rationalised marine resource development on regional economy. This method is based on the regional economic data under the rationalised marine resource development, and uses the quantitative statistical method to determine the model parameters such as economic scale effect and industrial structure effect from multiple directions, so as to build relevant impact analysis models, get the relevant analysis results of the impact of rationalised marine resources development on regional economy. However, in the practical application, it is found that the analysis result of this method has a certain gap with the actual value and a large gap with the ideal application effect.

Due to the poor integrity and effectiveness of the data collected in the design process of the above methods, and the difficulty in estimating the model parameters of the impact of rational marine resource development on the regional economy, the problems of low recall and precision of the follow-up collection results and large gap between the impact score and the actual value have emerged. The research goal is to solve the problems existing in the above methods, a new modelling method for the influence of rational exploitation of marine resources on regional economy is designed. Therefore, the model has the characteristics of high recall and precision of data collection results, and the impact score is close to the actual value. It has an important contribution to the rational allocation of marine resources and the development of regional economy.

1 The reasonable marine resources development and regional economic data collection architecture is designed, and the reasonable marine resources development and regional economic data are collected through the detection and update of bad block information, the reading and writing of data, and the erasure of data, including the amount of marine resources, port load, profit, port charges, marine resources development input, and GDP data. These data are used as the basis for modelling.

2 Based on the data collection results, the minimum two parameter identification method is used to estimate the model parameters, and the model parameters such as freight generation coefficient, port production load coefficient, marine resource output, net profit rate, port service fee rate, rationalisation level and capital volume are obtained. According to the parameter identification results and contribution degree, the impact model of rationalised marine resources development on regional economy is built, and these parameters are input into the model to obtain the scoring results of the impact of rationalised marine resources development on regional economy.

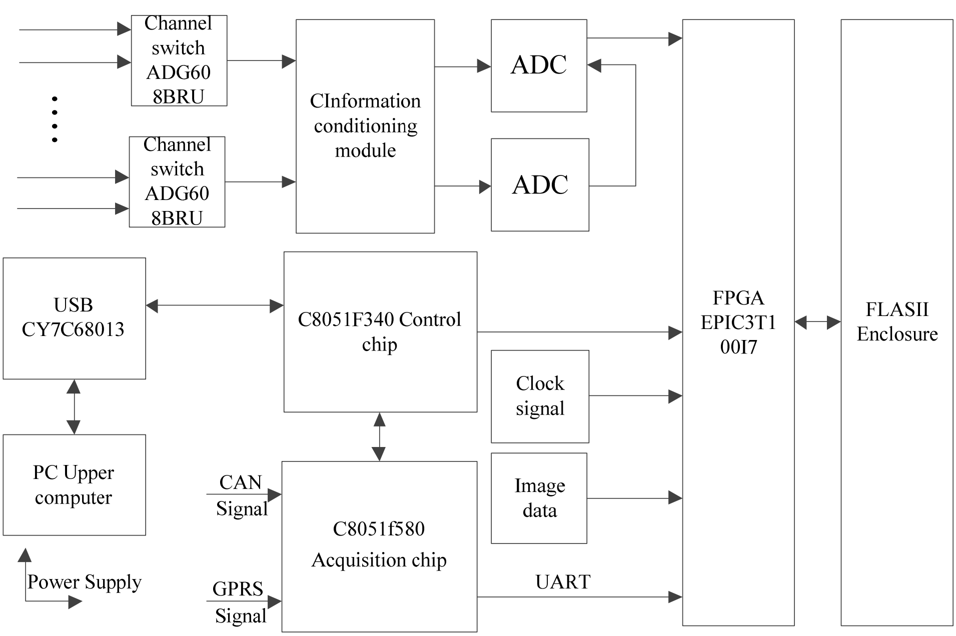
3 The comparison results of recall rate, precision rate, impact score value and actual value of data collection results are taken as experimental indicators to verify the advantages of this method.

2 Modelling the impact of rationalised marine resources development on regional economy

2.1 Data acquisition and processing

Due to the poor integrity and effectiveness of the data collected in the traditional method design process, in order to ensure the quality of modelling and analysis of the impact of rationalised marine resources development on regional economy, this paper focuses on the design of the rationalised marine resources development and regional economic data collection architecture, as shown in Figure 1.

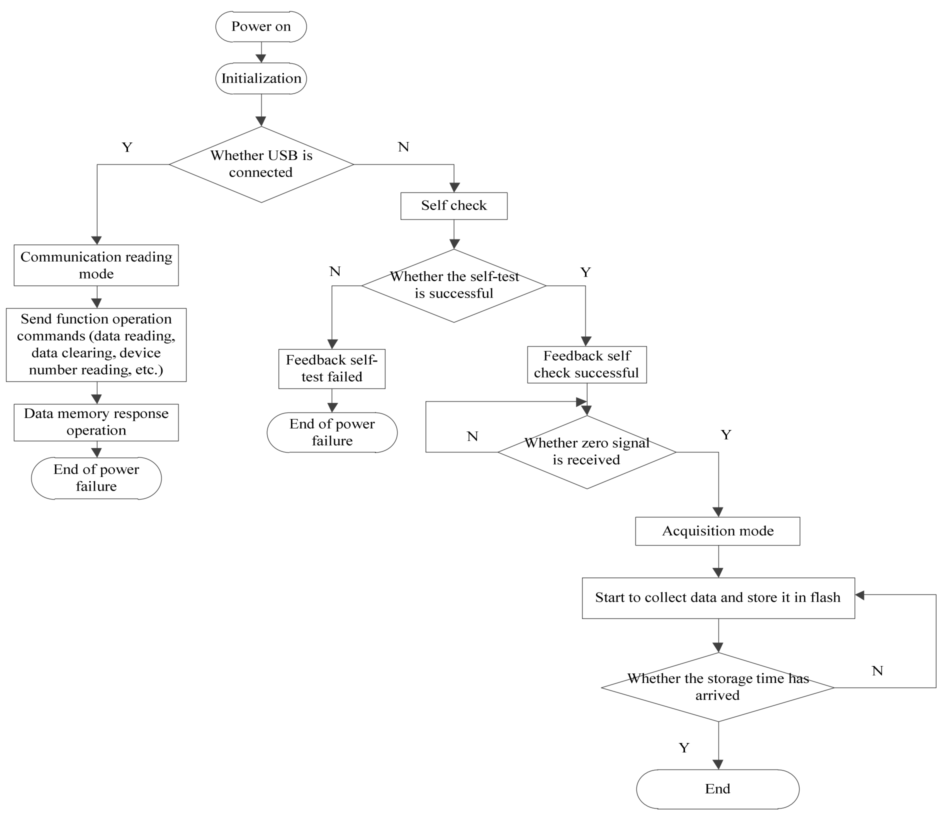
Figure 1 Data acquisition architecture



Analysis of Figure 1 shows that the rationalised marine resource development and regional economic data collection architecture is mainly divided into data collection, power conversion, data flow control, and data flow transmission. The analogue circuit module mainly includes multi-channel signal selection, signal conditioning and ADC analogue-to-digital conversion; the digital circuit module mainly includes the control of data flow by MCU, the acquisition and editing of signals by FPGA, the design of memory and the interface circuit of data transmission. The multi-channel selection switch is transmitted to the front-end conditioning circuit (Basmi et al., 2020; Bzhra et al., 2022), and the signal is filtered, amplified, etc., and then transmitted to the ADC converter for analogue-to-digital conversion. The external crystal oscillator provides the FPGA with a 22 MHz clock source. I/O provides the clock source to the ADC. The zero-point start signal is monitored in real time through the MCU, and the FPGA is notified to perform packaging processing according to the predetermined protocol, and then save the data to the memory; the USB communication module mainly waits for the end of the test, and connects with the USB through the host computer, thus realising the data acquisition architecture and command interaction and data transmission between PCs.

Rationalised marine resource development and regional economic data collection process is shown in Figure 2.

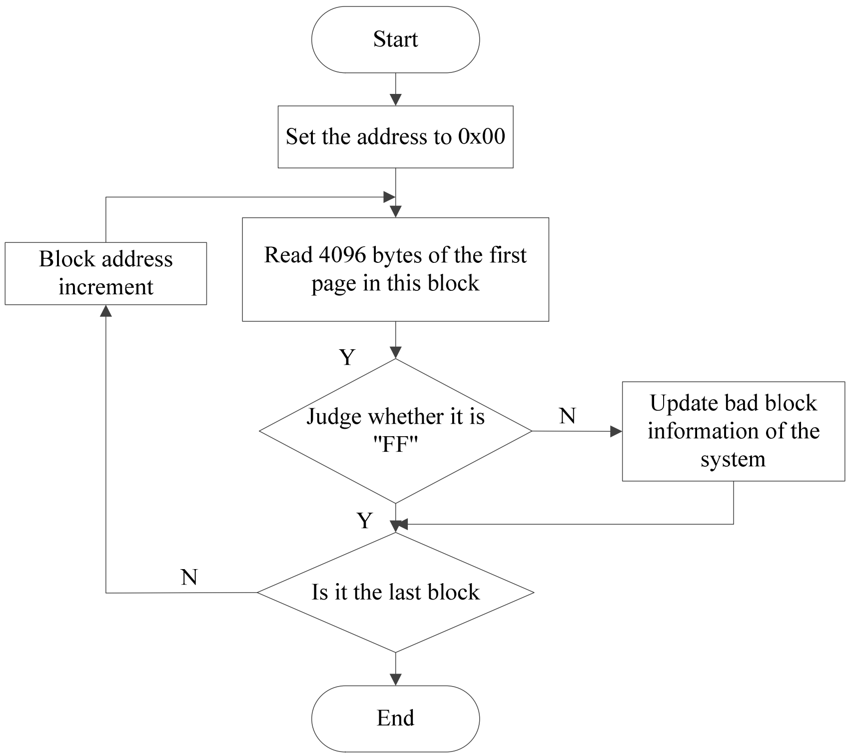
Figure 2 Data collection process



In the rationalisation of marine resource development and regional economic data collection framework, the control of FLASH by single-chip microcomputer is mainly divided into the detection and update of bad block information, data read and write, and data erasure (Du, 2020).

The process of detecting and updating bad block address information is shown in Figure 3.

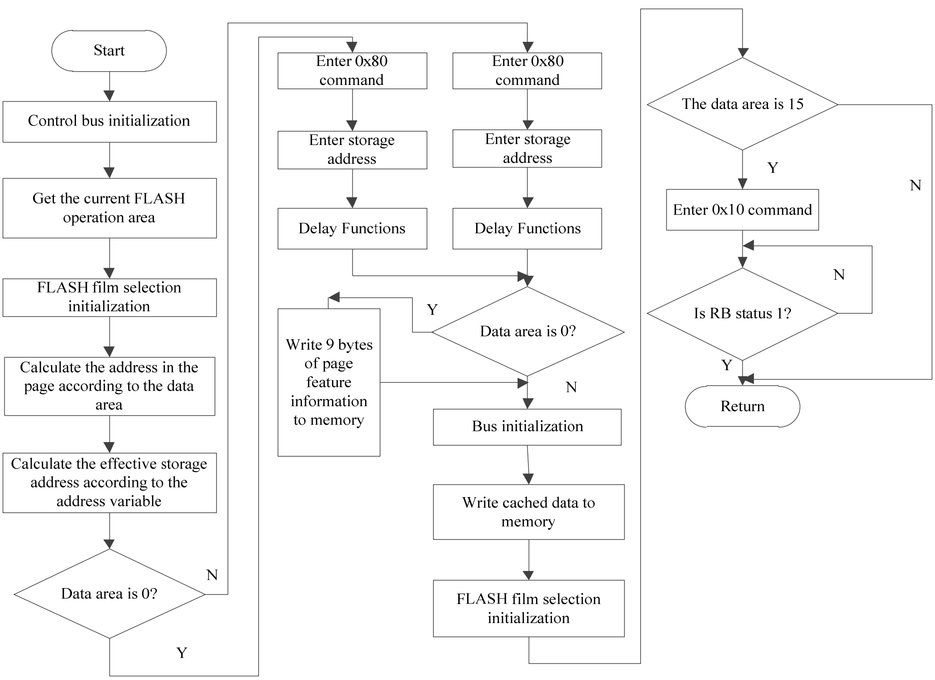
Figure 3 Bad block address information detection and update process



Analysis of Figure 3 shows that FLASH must first establish a bad block address information list before using it. The data acquisition architecture must perform a block erase operation after each power-on. If it is found that a page is not all 'FF" Indicates that the block where the page is located is a bad block, first update the bad block address information, and then perform an erase operation on the next block until the entire memory area is detected (Chang and Cui, 2021; Shrestha and Sheikh, 2021). In subsequent write and erase operations, the bad block information list can be directly called so that the bad block area can be effectively avoided. In this paper, FPGA is used as the acquisition module of the analogue signal, and the single-chip C8051F580 is used as the acquisition module of the CAN signal, and the received CAN signal is transmitted to the FPGA through UART for unified encoding processing. When the FIFO buffer reaches the specified limit, the FLASH is written.

The data acquisition architecture adopts multiple loop recording methods, and the data writing process is shown in Figure 4.

Figure 4 Data writing process



Analysis of Figure 4 shows that when FLASH performs several page programming on a single page during one power-on process, the first operation sequence is 0x80, page feature information, data content; then the operation sequence is 0×85, data content; The last operation sequence is, 0×85, data content, 0×10. Send 0×80 or 0×85, 0×10 command to write analogue data into memory. Each page starts from the 0th byte and writes 9 bytes of page characteristic information (Hantke et al., 2019; Medeiros et al., 2021).

The read operation of FLASH is that the user uses the PC to interact with the data acquisition system, and obtains the required information through the control of commands, such as data single page reading, command single page reading, device number reading, and recovery of specified data, etc. The specific operation process is shown in Figure 5.

Analysis of Figure 5 shows that it is judged whether the command from the host computer is received. If received, the FLASH is read according to the command. The command and address are first written to the FLASH, and then the rationalised marine resource development and regional economic data are read, and completed once. After the process, it is then judged whether there is a new command issued by the upper computer, so as to repeat the operation according to the rules.

The erasing control of the FLASH by the microcontroller can be erased by block, or erased in a designated area or as a whole. When the MCU receives the erasing instruction sent by the host computer, it will erase the FLASH according to the instruction requirements. After the erasing is completed, the corresponding string will be returned, which will be fed back to the host computer through the MCU, thereby prompting the user that the erasing is completed. The erase operation is shown in Figure 6.

Figure 5 Read operation flow

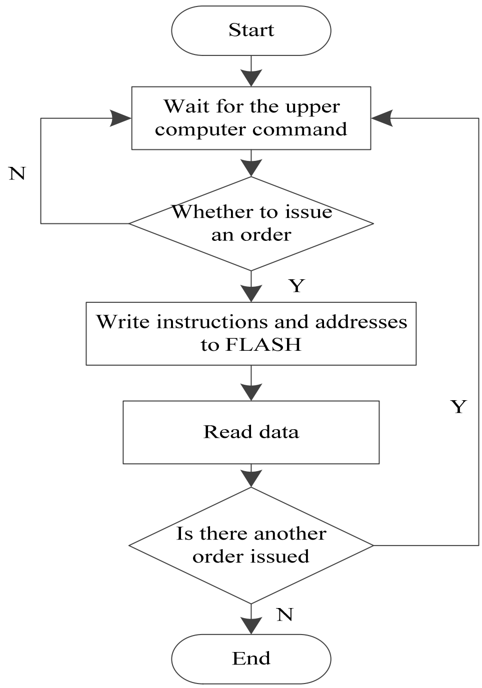
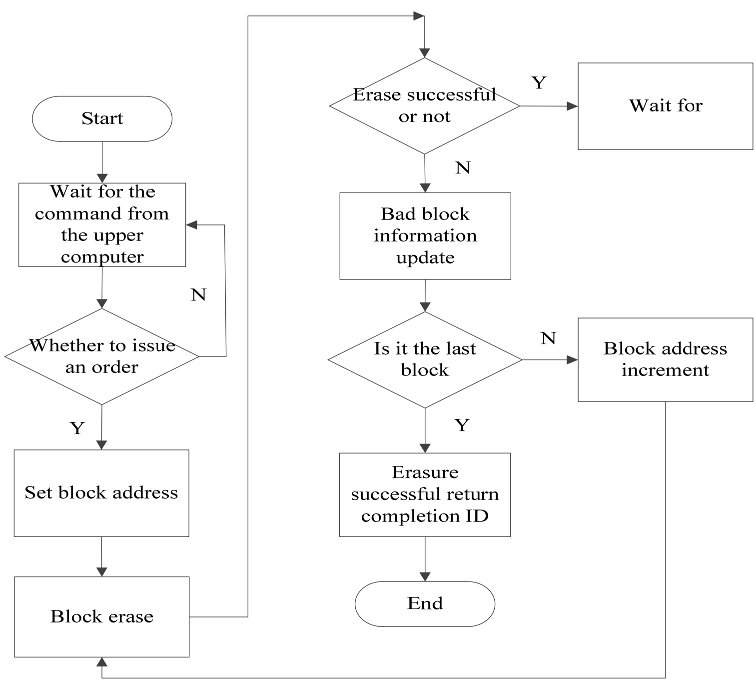


Figure 6 Erase operation flow



When the PC is connected to the system via USB, the erasing operation is carried out through the command control and rationalisation of marine resource development and regional economic data collection architecture. When using the erase function for the first time, the bad block information needs to be updated by running the erasing function. According to different needs, the system can be erased by block or collectively erased.

To sum up, complete the rationalisation of marine resource development and regional economic data collection. The collected data includes marine resources, port loads, profits, port charges, marine resources development investment, and GDP data, etc. These data are used as the basis for modelling, laying a solid foundation for the subsequent modelling of the impact of rationalised marine resource development on the regional economy.

2.2 Modelling the impact of rationalised ocean resource development on regional economy

On the basis of the above data collection results, the minimum two parameter identification method is used to calculate the model parameters such as freight generation coefficient, port production load coefficient, marine resource output, net profit rate, port service fee rate, rationalisation level and capital amount, so as to build the impact model of rationalised marine resource development on regional economy, and input these parameters into the model, get the scoring results of the impact of rationalised marine resources development on the regional economy.

The selection of model parameters for the impact of rationalised marine resources development on regional economy is a field that people are generally concerned about and have most doubts and misunderstandings. In fact, the basic structure of the model is information feedback, and the behaviour of the feedback model is insensitive to parameter changes. The mode and result of its model behaviour mainly depend on the model structure rather than the parameter size. It is very important to use different parameter estimation methods to estimate the model parameters of the impact of rationalised marine resources development on the regional economy. Therefore, based on the collected data, this paper uses the minimum two parameter identification method to obtain the model parameters, and inputs these data into the impact model of rationalised marine resources development on the regional economy to realise the impact analysis.

The least square method is the most widely used estimation method in the field of system identification and parameter estimation. It can be used in both linear and nonlinear systems; It can be used in both online and offline systems; It can be used in both dynamic and static systems. When using the least square method, it is not necessary to know the probability statistical information of the observation data, but the results obtained by this method have quite good statistical properties. Therefore, this paper uses this method to estimate the model parameters of the impact of the rationalised marine resources development on the regional economy. For the impact model of the rationalised marine resources development on the regional economy, the input is *n* dimensional vector $U = (u_1, u_2, ..., u_n)$ and the output is *Y*, The system equation can be expressed by the following formula:

$$Y = \theta_1 u_1 + \theta_2 u_2 + \cdots + \theta_n u_n \tag{1}$$

The measured values of *Y* and *U* are obtained in different periods. Assuming that there are *m* measured values in total, a matrix can be formed, which is expressed by the following formula:

$$Y = U\theta \tag{2}$$

where

$$Y = \left[y_1, y_2, \ldots, y_n\right]^T \tag{3}$$

$$\theta = \left[\theta_1, \theta_2, \ldots, \theta_n\right]^T \tag{4}$$

The matrix expression of *U* is as follows:

$$U = \begin{bmatrix} u_1(1) & u_2(1) & \cdots & u_n(1) \\ u_1(2) & u_2(2) & \cdots & u_n(2) \\ \vdots & \vdots & \ddots & \vdots \\ u_1(m) & u_2(m) & \cdots & u_n(m) \end{bmatrix} \tag{5}$$

The idea of the least square method is to find an estimated value $\hat{\theta}$ of θ, so that the sum of squares of the difference between the measured value *Y* and the estimated value $Y = U\hat{\theta}$ determined by $\hat{\theta}$ is the smallest, that is

$$J\left(\hat{\theta}\right) = \left(Y - U\hat{\theta}\right)^T \left(Y - U\hat{\theta}\right) = \min \tag{6}$$

To make the above expression have a minimum value, according to the limit theorem, the derivative of it is:

$$\frac{\partial J}{\partial \theta}\Big|_{\theta=\hat{\theta}} = -2U^T\left(Y - U\hat{\theta}\right) = 0 \tag{7}$$

If the above formula is further sorted out, the least square estimation of θ is:

$$\hat{\theta} = \left(U^T U\right) U^T Y \tag{8}$$

The least square method can minimise the sum of squares of the deviations of all equations, take into account the approximation degree of all equations, and minimise the overall error. The minimum two parameter identification method is used to calculate the model parameters such as freight generation coefficient, port production load coefficient, marine resource output, net profit rate, port service fee rate, rationalisation level and capital amount. The specific calculation process is as follows:

According to the curve relationship between the output value of each industry and the freight volume, a ternary linear regression model is established. The specific description of the calculation formula of freight generation coefficient (Tian et al., 2021) is as follows:

$$\ln FR = a_0 + a_1 \ln X_1 + a_2 \ln X_2 + a_3 \ln X_3 + u_t \tag{9}$$

In the above formula, *FR* represents the ocean freight volume, X_1, X_2 and X_3 represent the added value of the primary, secondary and tertiary industries of coastal cities (Wang, 2022), u_t represents disturbance term, and a_0, a_1, a_2 and a_3 represent different constants.

The software is used to estimate the parameters and least square estimation, and the regression equation is as follows:

$$\ln FR = 9.26 + 0.30 \ln X_1 + 0.33 \ln X_2 + 0.20 \ln X_3 \tag{10}$$

$$\overline{R^2} = 0.97 \quad \mathrm{F} - \mathrm{s} \tag{11}$$

where, M represents the carrying capacity, F represents the conversion coefficient, and s represents the loss parameter, then the calculation formula of water transport sharing coefficient is as follows:

$$d = M \times F \times FR \tag{12}$$

The port production load factor is the ratio of the actually completed cargo throughput i of the port to the approved throughput j of the port (Kong et al., 2021). The calculation formula of this index is as follows:

$$z = \frac{i}{j} \tag{13}$$

The calculation formula of marine resource output is as follows:

$$Y = A_t(\delta_1 K^{-\rho} + \delta_2 K^{-\rho})^{-\nu/\rho} \tag{14}$$

where A_t represents the rationalisation index of marine resources development, K represents the amount of capital, δ_1, δ_2 represents the weight of capital and labour input, ρ represents the substitution parameter, ν represents the order parameter, and δ_1, δ_2 satisfies the following conditions:,

$$\delta_1, \delta_2 \geq 0, \delta_1 + \delta_2 = 1 \tag{15}$$

Take the logarithm of formula (15) to obtain:

$$\ln Y = \ln A_t + \nu[\delta \ln K + (1-\delta)\ln L] - \frac{1}{2}\nu\rho\delta(1-\delta)(\ln K - \ln L)^2 \tag{16}$$

Make

$$B_0 = \ln A_t \tag{17}$$

$$B_1 = \nu\delta \tag{18}$$

$$B_2 = \nu(1-\delta) \tag{19}$$

$$B_3 = -\frac{1}{2}\nu\rho\delta(1-\delta) \tag{20}$$

Then formula (16) can be rewritten into the following form:

$$\mathrm{lnY} = B_0 + B_1 \mathrm{lnK} + B_2 \mathrm{lnL} + B_3 (\mathrm{lnK} - \mathrm{lnL})^2 \tag{21}$$

The least squares estimation is performed on it, and the following regression model is obtained.

$$\ln Y = 7.59 + 1.75 \ln K + 9.64 \ln L + 0.06\left(\ln K - \ln L\right)^2 \tag{22}$$

$$\overline{R^2} = 0.99 \quad F - s = 313.22 \tag{23}$$

From this, the values of the parameters of the production function can be calculated:

$$\delta = \frac{B_1}{B_1 + B_2} = \frac{1.75}{1.75 + 9.64} \tag{24}$$

$$\nu = B_1 + B_2 \tag{25}$$

$$\rho = -\frac{2B_3(B_1 + B_2)}{B_1 B_2} \tag{26}$$

The contribution of rationalised marine resource development to the growth rate of regional economic GDP is calculated by the following formula:

$$\frac{\Delta A}{A} = \frac{\Delta Y}{Y} - \alpha \frac{\Delta K}{K} - \beta \frac{\Delta L}{L} \tag{27}$$

Among them, α represents the net profit margin, β represents the port fee rate, ΔA and A represent the average and initial value of the rationalisation level of marine resource development, ΔY and Y represent the average and initial value of the output, and ΔK and K represent the capital respectively. The average value and the initial value of the amount, ΔL and ΔL represent the average value and initial value of the investment contribution rate, respectively. The formulas for α and β are as follows:

$$\alpha = \frac{\partial Y}{\partial K}\frac{K}{Y} = \frac{\delta \nu K^{-\rho-1} A_t \left[\delta K^{-\rho} + (1-\delta) L^{-\rho}\right]^{-\nu/\rho-1} K}{A_t \left[\delta K^{-\rho} + (1-\delta) L^{-\rho}\right]^{-\nu/\rho}} = \frac{\nu}{1 + \frac{1-\delta}{\delta} \cdot \left(\frac{L}{K}\right)^{-\rho}} \tag{28}$$

$$\beta = \frac{\partial Y}{\partial K}\frac{K}{Y} = \frac{(1-\delta)\nu L^{-\rho-1} A_t \left[\delta K^{-\rho} + (1-\delta) L^{-\rho}\right]^{-\nu/\rho-1} L}{A_t \left[\delta K^{-\rho} + (1-\delta) L^{-\rho}\right]^{-\nu/\rho}} = \frac{\nu}{1 + \frac{\delta}{1-\delta} \cdot \left(\frac{K}{L}\right)^{-\rho}} \tag{29}$$

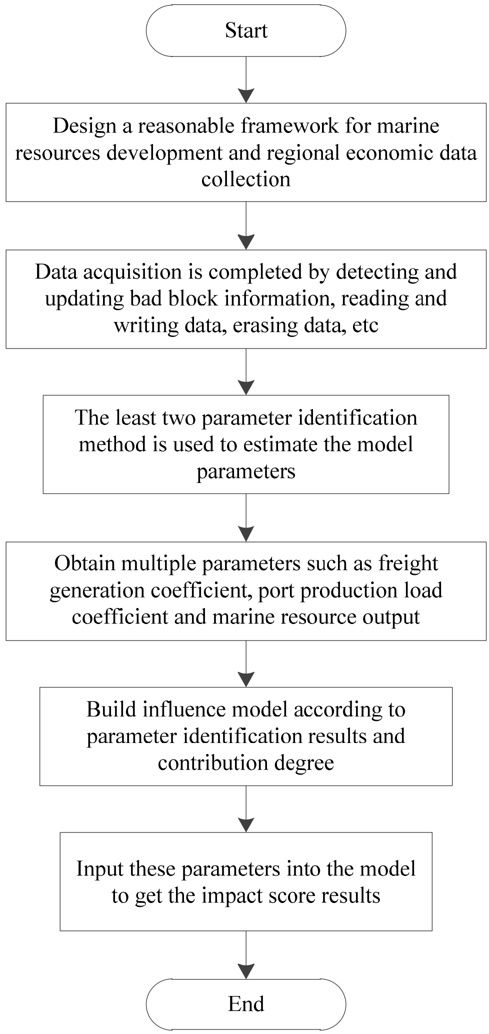
The impact model of rationalised marine resource development on regional economy is as follows:

$$sdcpi_t = FR + d(m2/m1)_t + z(stp/gdp)_t + Yexr_t + \nu_t \tag{30}$$

where $(m2/m1)_t$ represents the observable variable, $(stp/gdp)_t$ represents the consumer price index, exr_t represents the real effective exchange rate, and v_t represents the random disturbance term.

The modelling process of the impact of rational marine resource development on regional economy is shown in Figure 7.

Figure 7 Modelling process of the impact of rationalisation of marine resources development on regional economy



It can be seen from the analysis of Figure 7 that this paper has designed a data acquisition architecture to collect reasonable marine resource development and regional economic data through the detection and update of bad block information, data reading and writing, data erasure, etc. Based on the data collection results, the minimum two parameter identification method is used to estimate the model parameters and obtain the freight generation coefficient, port production load coefficient and other parameters. According to the parameter identification results and contribution degree, a model of the impact of rational marine resources development on regional economy is built, and these parameters are input into the model to obtain the score results of the impact of rational marine resources development on regional economy.

3 Experimental analysis

3.1 Experimental scheme

In order to verify the effectiveness of the modelling method designed in this paper for the the influence of rational exploitation of marine resources on regional economy, a simulation experiment is carried out in this paper. The specific experimental scheme is as follows:

1 *Experimental environment*: GTX1070 CPU and Inet i7-8700 central processing unit are used, the memory is 16G, the number of CPUs is 2, the language version is Python 3.6, the storage hard disk is SAS model, the number of hard disks can be expanded to 6, and the configuration 542MB Flash The array controller, the network adopts the Ethernet card, and the simulation software is MATLAB 7.2.

2 *Experimental data*: Take a coastal city as the research object, use various channels and means to collect rationalised marine resource development data and regional economic data, integrate and de-noise the experimental data, and use the obtained data as experimental sample data. Divide the experimental sample data into a test set and an experimental set, input the data in the test set into the simulation software for trial operation, adjust the simulation parameters in real time according to the experimental test, input the experimental data into the simulation platform for experimental testing, and obtain the relevant data.

3 *Experimental indicators*: The recall rate and precision rate of marine resource development and regional economic data collection results and the impact score of rationalised marine resource development on regional economy are used as experimental indicators. Among them, the higher the recall rate of marine resource development and regional economic data collection results, the more comprehensive the data collection results; the higher the precision rate of marine resource development and regional economic data collection results, the more accurate the data collection results; The closer the impact score of the regional economy is to reality, the higher the model accuracy and the better the actual application effect.

3.2 Experimental results

The impact of rationalised marine resources development on regional economy is analysed, and the results are shown in Figure 8.

Analysis of the data in Figure 8 shows that with the increasing investment in rationalised marine resource development, the regional economy has shown a rising trend, indicating that rationalised marine resource development has a positive impact on regional economic development. Development investment and efforts, in order to maximise the promotion of regional economic development.

The recall rates of Gu (2020) method Xu et al. (2021) method, and the method in this paper are compared for the results of marine resource development and regional economic data collection. The comparison results are shown in Table 1.

Figure 8 Analysis results of impact of rationalised marine resources development on regional economy

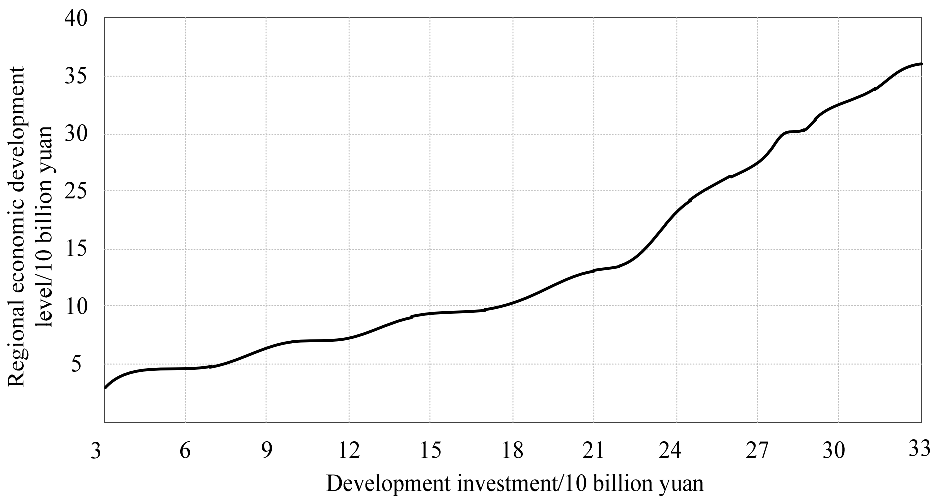


Table 1 Comparison results of recall rate (unit: %)

Number of experiments	*Gu* (2020) *method*	*Xu et al.* (2021) *method*	*Method in this paper*
10	86.5	75.6	96.8
20	87.4	74.1	98.7
30	85.9	72.3	95.8
40	87.1	75.9	96.7
50	72.5	74.6	94.8
60	83.4	73.5	96.3
70	85.6	75.9	95.8
80	84.1	79.8	96.7
90	85.6	74.6	92.8
100	84.7	75.4	96.3
Average value	84.3	75.2	96.1

According to the data in Table 2, the maximum recall rate of the marine resources development and regional economic data collection results of this method is 98.7%, which is 11.3% and 18.9% higher than that of Gu (2020) method and Xu et al. (2021) method, respectively; The average recall rate of the marine resources development and regional economic data collection results of this method is 96.1%, which is 11.8% and 20.9% higher than Gu (2020) method and Xu et al. (2021) method, respectively. It shows that compared with the experimental comparison method, the recall rate of the marine resources development and regional economic data collection results of this method is higher and the data collection results are more comprehensive.

Table 2 Comparison results of accuracy rate (unit:%)

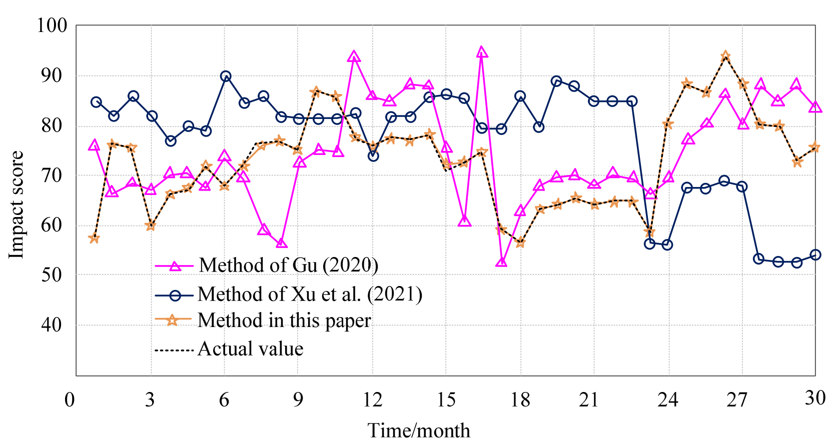
Number of experiments	*Gu (2020) method*	*Xu et al. (2021) method*	*Method in this paper*
10	79.8	80.4	98.7
20	75.6	81.6	97.8
30	73.8	87.6	95.6
40	75.8	83.5	96.7
50	72.5	81.3	95.8
60	79.6	80.6	97.6
70	80.3	84.7	95.7
80	78.6	85.3	98.1
90	73.5	84.4	97.5
100	72.1	85.6	95.3
Average value	76.2	83.5	96.7

The accuracy rate of marine resources development and regional economic data collection results of Gu (2020) method Xu et al. (2021) method and method in this paper are compared. The comparison results are shown in Table 2.

By analysing the data in Table 2, it can be seen that the maximum accuracy rate of the marine resources development and regional economic data collection results of this method is 98.7%, which is 18.4% and 11.1% higher than Gu (2020) method and Xu et al. (2021) method, respectively; The average precision of the marine resources development and regional economic data collection results of this method is 96.1%, which is 20.5% and 13.2% higher than Gu (2020) method and Xu et al. (2021) method, respectively. It shows that compared with the experimental comparison method, the precision of the marine resources development and regional economic data collection results of this method is higher and the data collection results are more accurate.

The impact scores of rationalised marine resources development on regional economy by different methods are compared, and the results are shown in Figure 9.

Figure 9 Impact score of rationalised marine resources development on regional economy (see online version for colours)



By analysing the data in Figure 9, it can be seen that with the continuous change of the experimental time, the impact score of the rationalised marine resources development on the regional economy in the region also presents a changing value. Among them, the impact score of the rationalised marine resources development on the regional economy in Gu (2020) method and Xu et al. (2021) method has a large gap with the actual value, indicating that the modelling effect of these two methods is poor, and compared with these two methods, The impact score of the rationalised marine resources development on the regional economy of this method is the closest to the actual value, which indicates that the modelling effect of this method is good and the reliability of the results is higher.

4 Conclusion

With the rapid development of society and economy, natural resource development projects continue to deepen. In order to effectively alleviate the contradiction between social energy supply and demand, relevant experts and scholars have shifted their research direction to the development of marine resources. The rationalisation of marine resource development can ensure the rational and orderly development of marine resource development and improve the level of regional economic development. Therefore, it is of great significance to analyse the impact of rationalised marine resource development on regional economy. However, the current research on the impact of rationalised marine resources development on regional economy has problems such as low recall and precision of data collection results and a large gap between the impact score and the actual value. Therefore, this paper designs a new modelling method for the the influence of rational exploitation of marine resources on regional economy. The experimental results show that the average recall rate of the marine resource development and regional economic data collection results of the method in this paper is 96.1%, and the average precision rate is 96.1%. The impact score of rationalised marine resource development on the regional economy is the closest to the actual value, the practical application effect is good, and it can lay a solid foundation for the high-quality development of the marine economy. This method has an important contribution to optimise and rationally develop marine resources, drive the rapid development of the surrounding regional economy and other aspects, especially to the construction of a marine power, optimise the relevant structural system, and achieve high-quality development of the marine economy.

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