

# **Role of the Ships' Routeing of JiangSu in the development of Port and Channel**

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## **Abstract**

Yangtze River channel is in natural condition for a long time. There are more to be done in grade of navigation and transport. Since 1980's the rate of vessel in JiangSu channel is going up every year, especially for ocean vessels. Meanwhile, the serious factors such as no sailing at night have become a battlement causing the long period for vessels, high cost for shipowners, lower competitiveness for JiangSu ports along the Yangtze River. It also can not meet the port logistic development. After the Ships' Routeing in JiangSu has been carried out. It has improved the safety of navigation in JiangSu area and reduced the risk of pollution or other damage to the marine environment caused by ships colliding or anchoring in or near JiangSu channel. By analyzing, compareing, calculating and model forecasting. The main focus of the paper is put on the study the development of port, channel in JiangSu and efficiency in many fields. Navigation efficiency of the sailing at night; Safety efficiency of reducing the risk by ships; More efficiency of the higher cargo volumes of the other ports in Yangtze River with the increase cargo volume of JiangSu ports along Yangtze River. The purpose of this study is: To get the social and economical efficiency after the Ships' Routeing in JiangSu has been carried out. Also the role of the Ships' Routeing of JiangSu in the development of Port and Channel.

Key words: Ships' Routeing; port and channel; economical efficiency;

## **1. Introduction**

After the Ships' Routeing in JiangSu has been carried out. It has improved the safety of navigation in JiangSu area and reduced the risk of pollution or other damage to the marine environment caused by ships colliding or anchoring in or near JiangSu channel. Lower the cost for shipowners; expanded the capacity of the channel for the vessels in and out the given area. It will stimulate the development of the JiangSu Area's social and economical efficiency. It becomes a milestone in the history of development in the inland ports and in Yangtze. Only one year from July 1.2003 to July 1.2004. The Ships' Routeing in JiangSu has produced good results in society and economical.

## **2. Date and Analysis of real-time observation of the vessels in and out the Ships' Routeing in JiangSu Area.**

### **2.1 Date and Analysis of real-time observation of the vessels**

In order to get the date of real-time observation of the vessels in and out the Ships' Routeing in JiangSu Area. And to make the result correctly. The real-time observation of the vessels traffic survey was made during 3 days, 72 hours, from Sept.24 to Sept.26 2003 for the vessels in and out the Ships' Routeing in JiangSu Area. The results were showed in Table 1 and Fig.1.

**Table 1 the real-time observation of the vessels traffic survey ring 3 days, 72 hours**

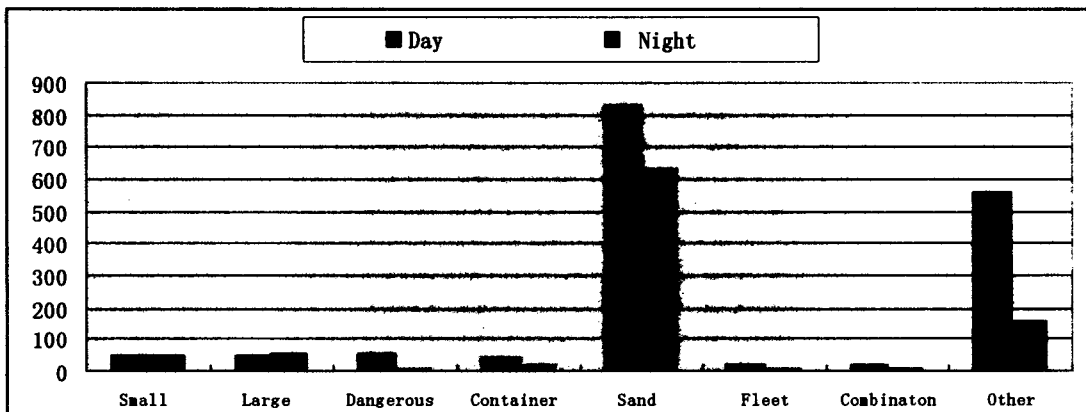
Marine traffic volume	Small vessel	Large vessel	Dangerous Goods ship	Container ship	Sand carrier	Fleet	Tug Barge Combination	Other
Day	46	47	56	41	828	18	20	561
Night	48	52	4	17	631	5	6	159

The real-time observation results during 3 days was showed : 2539 vessels in all, 922 vessels sailing at night,36% of all the vessels.97 vessels sailing at night of China Shipping(Group)Company, 41 vessels sailing at night of NanJing Tanker Corporation.

The results from ChangJiang Pilot Centre: 122 vessels sailing at night during 2 seasons before the Ships' Routeing in JiangSu has been carried out. 128 vessels sailing at night during 1 season after the Ships' Routeing in JiangSu has been carried out. Increasing 110%.

**2.2 Analysis of data of the vessels traffic survey**

The investigation and the real-time observation of the vessels traffic survey in the Ships' Routeing in JiangSu Area is important for the data of the numbers of the vessel, kinds of the vessel, the numbers of the vessels sailing at night. It is an important scientific basis for studying the social and economical efficiency after the Ships' Routeing in JiangSu has been carried out.



**Fig.1. the real-time observation of the vessels traffic survey during 3 days, 72 hours**

From Tab.1 some conclusions could be reasonably concluded: The numbers of the vessels in and out the given waterway sections is increased .The tonnage of the vessels is higher. The ships of over ten thousand tons are increased. The numbers of the vessels sailing at night is increased. All kinds of different vessels have got economical efficiency after the Ships' Routeing in JiangSu has been carried out.

**3. The main social and economical efficiency caused by the Ships' Routeing in JiangSu**

**3.1The cargo volume of ports in JiangSu**

The cargo volume of ports in JiangSu changes every year along the law of the development of history before the Ships' Routeing in JiangSu has been carried out. By analyzing, compareing, calculating and model forecasting. The cargo volume of ports in JiangSu exceeds last year's by 10% after the Ships' Routeing in JiangSu has been carried out. The role of promoting regional and national economy is very clear.

**3.2 Economical efficiency caused by all day navigation**

The serious factors such as sea route ,route markings, natural condition have become a battlement

causing the no sailing at night for vessels, especially for ocean vessels. The results is the long period for vessels, high cost for shipowners ,lower competitiveness for JiangSu ports along the Yangtze River. It also can not meet the port logistic development.

### 3.2.1 Navigation at any time before midnight

After the Ships' Routeing in JiangSu has been carried out. Sailing conditions is so good that it can meet the requirement that the vessels can navigate at any time before midnight. Since the traffic flow is random, let's say there are 24 vessels in and out at different time in one day, 57 waiting hours in all is lost, and that is averagely 2.375hours for one vessel. There are more than 330 workable days in a year. After the Ships' Routeing in JiangSu has been carried out, it is not necessary for vessel to wait before midnight. The economical efficiency caused by all day navigation before midnight is 131 million in a year.

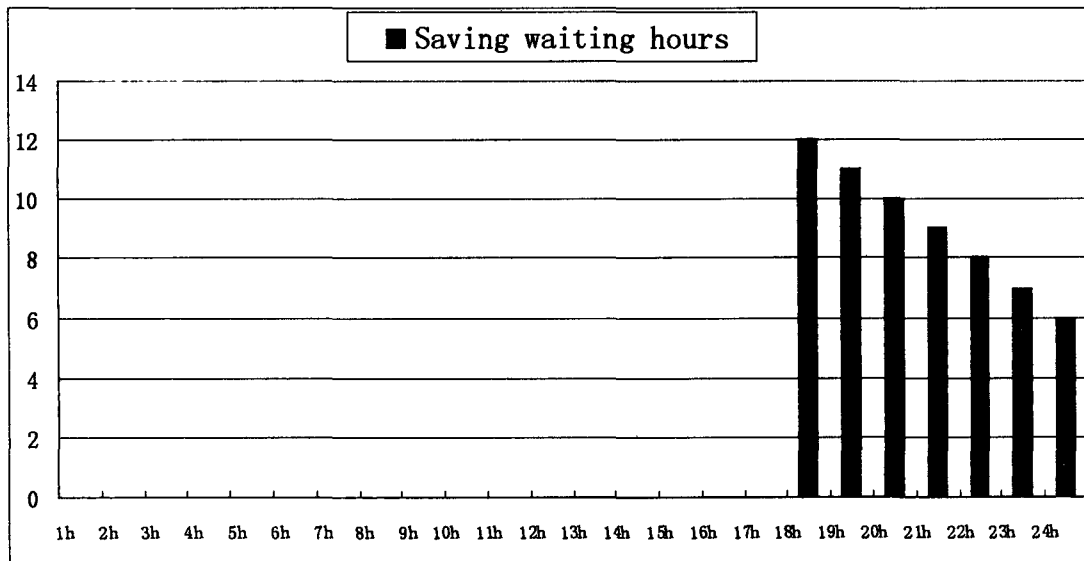


Fig.2. saving waiting hours before midnight

### 3.2.2 Navigation at any time all day

It is long time after the Ships' Routeing in JiangSu has been carried out. Sailing conditions is so good that it can meet the requirement that the vessels can navigate at any time all day. If there are 24 vessels in and out at different time in one day, 78 waiting hours in all is lost, that is averagely 3.25hours for one vessel. There are more than 330 workable days in a year. After the Ships' Routeing in JiangSu has been carried out, it is not necessary for vessel to wait all day. The economical efficiency caused by all day navigation all day is 179 million in a year.

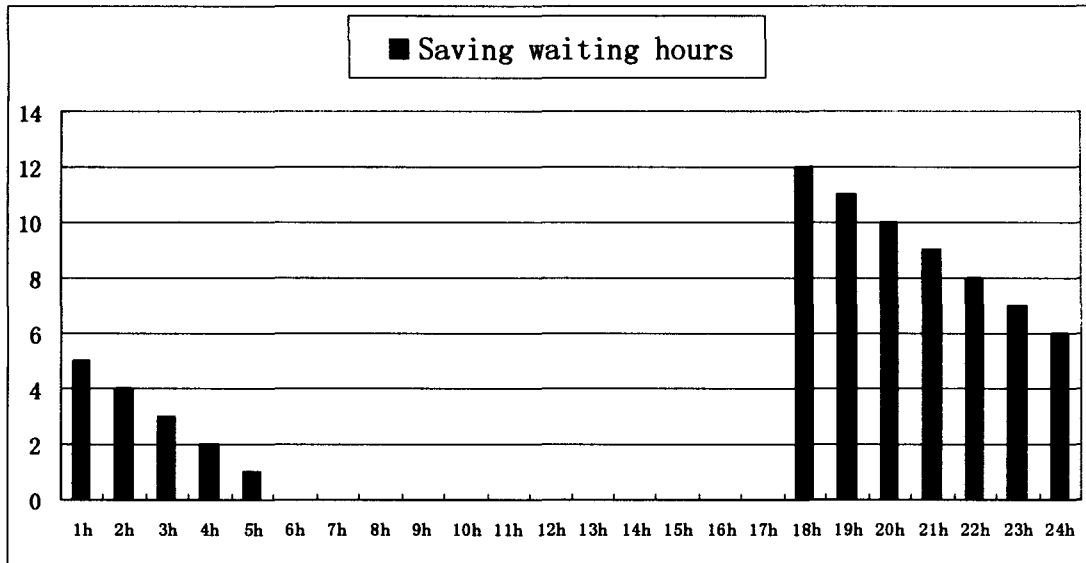


Fig.3. saving waiting hours all day

### 3.3 Economical efficiency of the safety caused by the Ships' Routeing in JiangSu

3.3.1 There are 342 cases of accident from Mar.2001 to May.2004. 135 million Yuan is lost. That is averagely 0.39 million for one cases of accident.

3.3.2 There are 282 cases of accident from Mar.2001 to Jun.2003. Averagely 10.07 cases of accident for one month before the Ships' Routeing in JiangSu. There are 62 cases of accident from Jul.2003 to May.2004. averagely 5.64 cases of accident for one month after the Ships' Routeing in JiangSu. The accident of vessel has reduced 4.43 cases for one month, 53 cases for one year and 44% compared with cases of accident before the Ships' Routeing in JiangSu. Lost of 20.85million is saved for one year. Lost of 25 million is saved due to the growth of the vessel by 19.83% every year

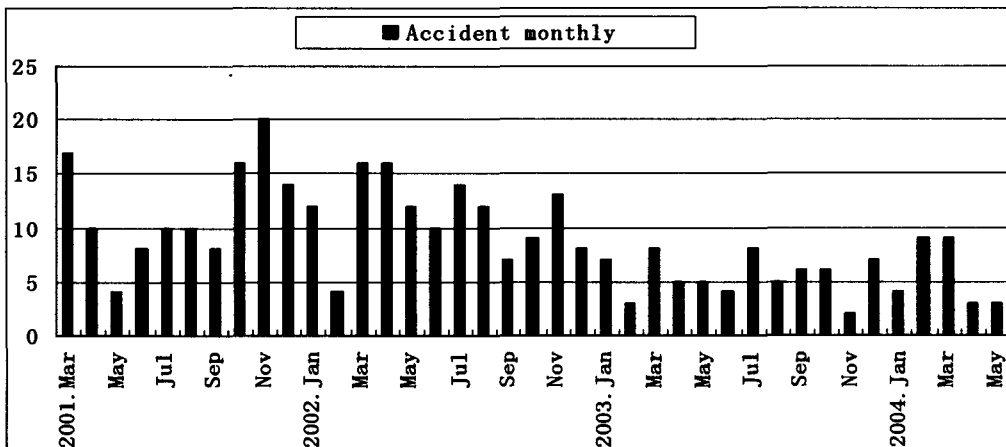


Fig.4. comparative analysis of accident monthly in JiangSu area

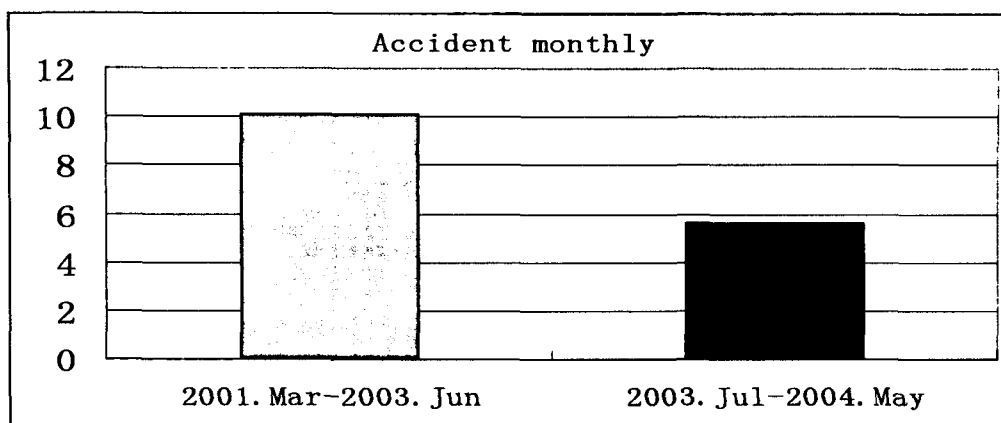


Fig.5. comparative analysis of accident monthly before and after the Ships' Routeing

### 3.4 Economical efficiency of the Yangtze Delta and the whole Yangtze River Region caused by the Ships' Routeing in JiangSu

After the Ships' Routeing in JiangSu has been carried out. It will get higher cargo volumes of the other ports in Yangtze River Region with the increasing of cargo volume in JiangSu ports along Yangtze River. One reason is that the Ships' Routeing in JiangSu has been carried out. In 2003, cargo volume in JiangSu ports along Yangtze River reached 268million. Cargo volumes of the other ports in Yangtze River Region reached 182million.

### 3.5 Analysis of the other influence caused by the Ships' Routeing in JiangSu

Cut down the injuries and deaths due to lower accident;

Get more voyages due to lower accident;

The work of the master, pilot and officer on bridge is easy

### 4. Conclusions

To sum up, based on the social and economical efficiency after the Ships' Routeing in JiangSu has been carried out. By quantitative and qualitative analysis.

4.1. After the Ships' Routeing in JiangSu has been carried out. It is an opportunity to enhance JiangSu port's international competitiveness and to improve the navigational condition of the given waterway. The cargo volume is increasing. It will stimulate the development of the JiangSu Area's social and economical efficiency. The maximum efficiency of social and economical will be got in near future.

4.2 It has improved the safety of navigation in JiangSu area and reduced the risk of pollution or other damage to the marine environment caused by ships colliding or anchoring in or near JiangSu channel.

4.3 The Ships' Routeing in JiangSu will promote the healthy development of the port and channel in JiangSu. It will accelerate its integration into international port and channel management.

4.4 JiangSu is pressing ahead towards the goal of building a world ports. The development of JiangSu ports and shipping needs both hardware and software, leading to the upgrading of the port's comprehensive strength.

4.5 The future development of JiangSu is the cities and ports along Yangtze River. The development of JiangSu ports and shipping is the Ships' Routeing in JiangSu.

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