New Development of Ships Routeing in Chinese Navigable Waterways

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ABSTRACT: After entering 21 century Chinese waterborne transportation keep high speed development, mmarine traffic order and marine traffic safety become more important issues. In order to enhance marine traffic safety and efficiency, ships routeing systems were implemented in important navigable waters in recent years. After implementation of these ships routeing systems, evaluations on the effects are carried and prove that these ships routeing systems have got obvious effects both on safety and economic efficiency.

1 INTRODUCTION

Ships Routeing is an effective measure to enhance maritime traffic safety and to promote traffic efficiency and to protect marine environment. Up to now, more than two hundreds of ships routeings systems have been developed by national maritime safety administrations, some of them were adopted by IMO. With high speed development of international and national waterborne transportation and other waterborne activities, serious lost of lives and properties as well as serious damages to the marine environment resulting from marine traffic accidents caused more and more public attentions, in resent years Chinese government have taken all kinds of measures to solve such problems, including establishment of ships routeing systems in important Chinese navigable waterways to keep good order of waterborne traffic and to improve maritime safety and to prevent marine pollutions from ships. This paper is aimed to give outlines of new developments of ships routeing in China.

2 HISTRICAL DEVELOPMENT OF SHIPS ROUTEING IN CHINA

As a marine country, China has very good resources for shipping. There are coastline navigable waters, from the north to the south, including Baohai Sea, Yellow Sea, Donghai Sea and Nanhai Sea, and inland navigable waters, including Helongjiang River, Changjiang River and the Zhujiang River. In these Chinese navigable waters, there are five key areas, in which, ships density is high, sea routes are crossing, traffic is contested, and marine accidents occur frequently. They are named as Baohai Straight (Liaotieshang Channel), Chengshanjiao waters, Changjiangkou waters, Zhujiangkou waters and Qongzhou Straight.

The earliest ships routeing measure introduced on basis of option in 1970s was recommending route measure, named South-North Route, between Changjiangkou waters and Baohai Sea, which was established to separate optional traffic flow so as to avoid collisions. South-North Route was on basis of rich navigation experiences and good seamanship, reference to traffic separate scheme implemented in Dover Straight. The first ships routeing system developed refer to IMO standard of ships routeing was implemented in Dalian Harbour in 1984, which consist of traffic separate scheme, precautionary area and inshore traffic zones, to separate entering traffic and leaving traffic, and to separate through traffic and inshore traffic see Figure 1.

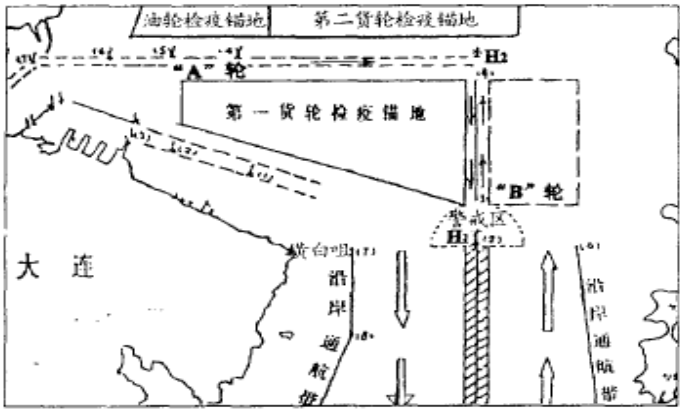

Fig. 1. The first ships routeing system in Dalian Harbour

Both ships routeing measure have got predicted achievements on preventing collisions between ships. Chengshanjiao waters is a very important passage in Chinese coaster navigable waters, ships entering and leaving ports and harbours located in Baohai Sea and Yellow Sea must pass through this waters. Chengshanjiao water is also important fishing area, the ships density is very high in fishing seasons. More fog days and strong windy days are other negative factors effecting marine safety in Chengshanjiao waters. In order to change the situation of high frequency of marine accidents, the first ships routeing measure in coaster waters was developed in 1991, in accordance to IMO standard of ships routeing, in Chengshanjiao waters. After nine years successful implementation, it was presented to IMO and adopted by IMO in 2000, see Figure 2.

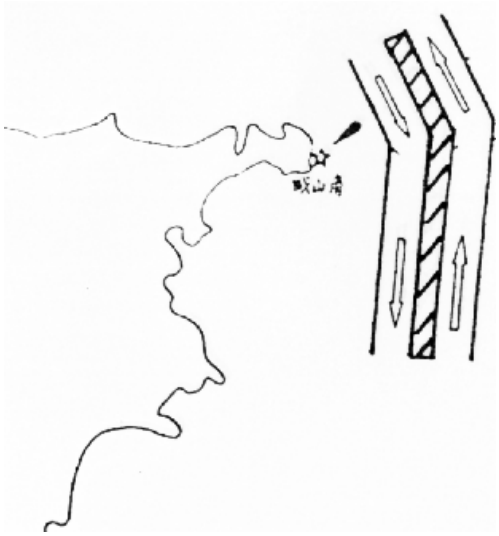

Fig. 2. Ships routeing in Chengshanjiao waters

3 NEW DEVELOPMENT OF SHIPS ROUTEING IN CHINESE COASTER NAVIGABLE WATERS

After entering 21 century Chinese economy keep high speed development, waterborne transportation also keep high speed development at the same time. In recent years construction of ports and fairways very fast, the number of ships entering and leaving increase in a large scale in these ports and nearby waters. Keeping good traffic order and better traffic safety become more important tasks for maritime safety administrations to be carried out. Besides other measures, ships routeing system is selected as an effective measure of marine traffic management. From 2002 to 2007, eight ships routeing systems were developed and implemented in important navigable waters as follows:

In September of 2002 Changjiangkou routeing system was implemented, as shown in, see Figure 3.

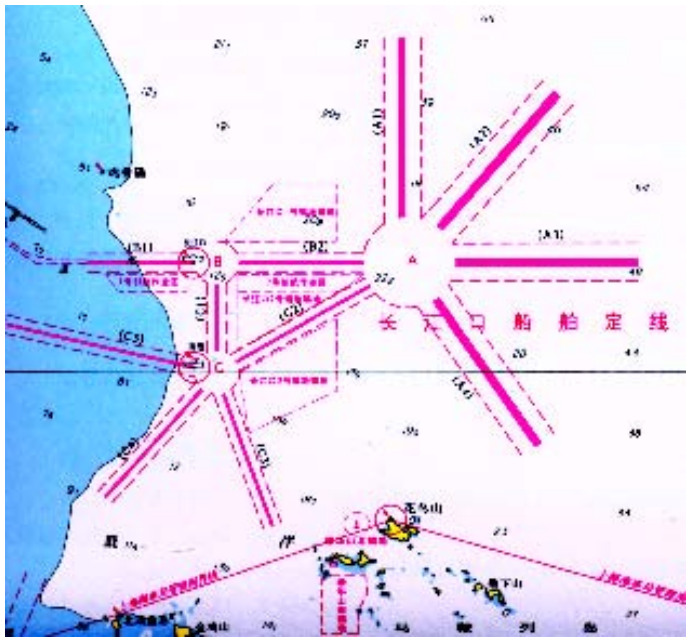

Fig. 3. Changjiangkou routeing system

In July of 2003 Changjiang Jiangsu routeing system was implemented, as shown in Figure 4.

Fig. 4. Changjiang Jiangsu routeing system

In March of 2004 Zhujiangkou routeing system was implemented, as shown in Figure 5.

Fig. 5. Zhujiangkou routeing system

In October of 2005 Changjiang Anhui routeing system was implemented, as shown in Figure 6.

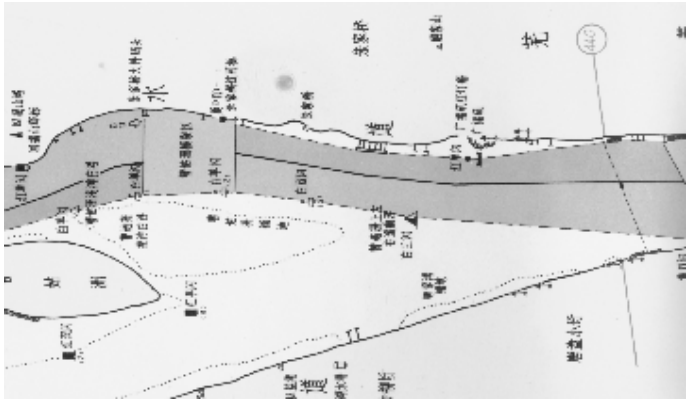

Fig. 6. Changjiang Anhui routeing system

In March of 2006 Changjiang Shanghai routeing system was implemented, as shown in Figure 7.

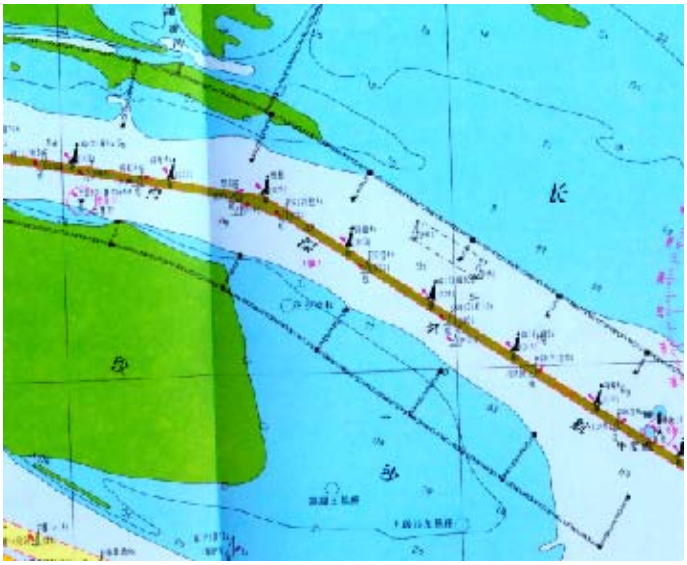

Fig. 7. Changjiang Shanghai routeing system

In June of 2006 Liaotieshan Channel routeing system was implemented, as shown in Figure 8.

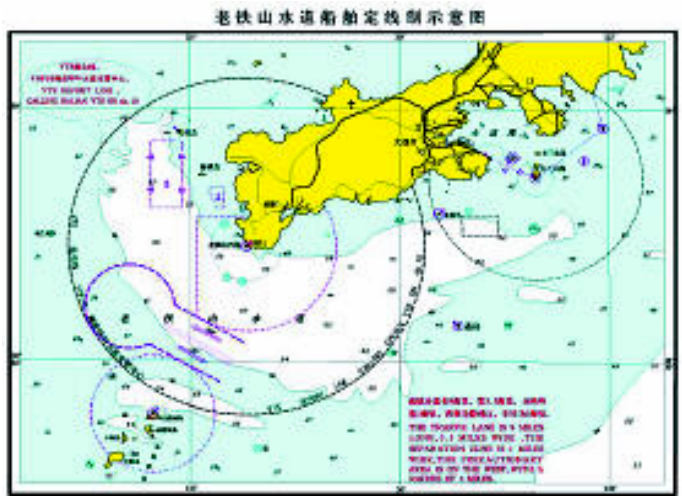

Fig. 8. Liaotieshan Channel routeing system

In January of 2007 Qongzhou Straight routeing system was implemented, as shown in Figure 9.

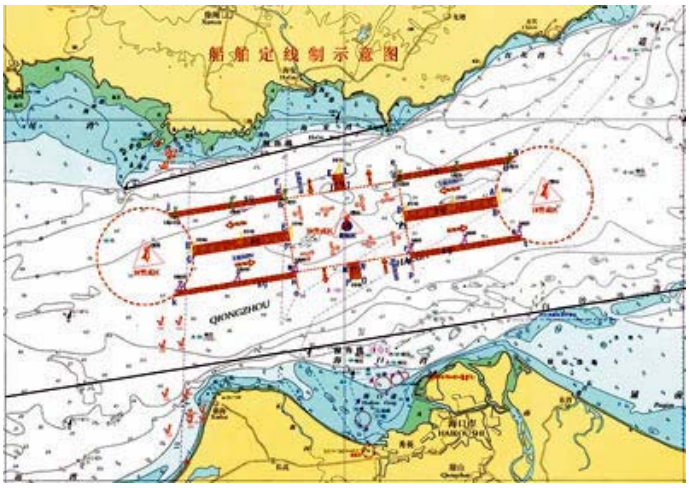

Fig. 9. Qongzhou Straight routeing system

In December of 2005 Changjiang Sanxia routeing system was implemented, as shown in Figure 10.

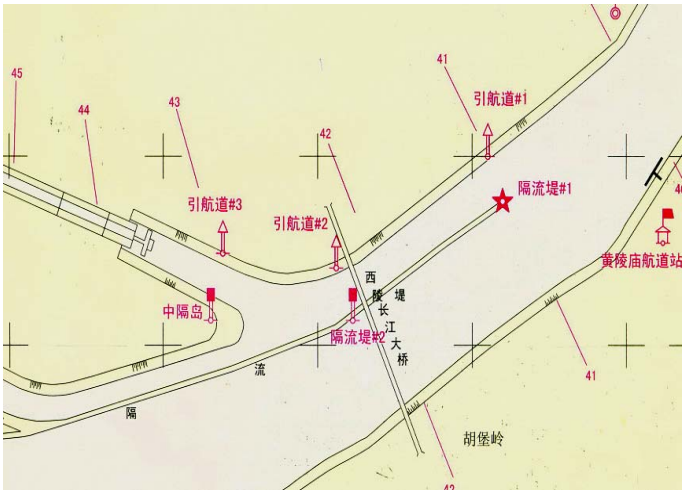

Fig. 10. Changjiang Sanxia routeing system

4 EFFECTS OF SHIPS ROUTEING IN CHINESE COASTER NAVIGABLE WATERS

After implementation of these ships routeing systems, evaluations on the effects are carried. General speaking, all above ships routeing systems have got obvious affects both on safety and economic efficiency. From the views of marine traffic safety, one year later in the Jiangsu section of Changjiang River, the number of total marine accidents and collisions decrease 31.5% and 39.6% separately. One year later in the Zhujiangkou waters, the number of marine accidents, the lost of lives, the number of foundering ships and direct economic losses decrease 57%, 39%, 78% and 43% separately. After implementation of the Changjiang Sanxia routeing system there is no collision occur in the Sanxia waters. From the view of traffic efficiency and economic interest, the after implementation of the Changjiang Jiangsu routeing system, Jiangsu section of Changjiang River have realized night time safety navigation of very large ships and create economic efficiency more than one hundred million Chinese Yuan. After implementation of the Zhujiangkou routeing system, ships proceed from Guaishan anchorage to Huangpu port take five hours and save two hours than before. In other hand, good orders of traffic have been established in these important waters, which are called “waterborne highways” by some seafarers.

5 CONCLUSION

From the outline of ships routeing systems implemented in Chinese navigable waterways in recent years, it could be known that, in order to enhance marine traffic safety and to promote marine traffic efficiency, Chinese government have made very good use of ships routeing systems as a effective measure of marine traffic management. Now ships routeing systems of some Chinese sea ports, such as Caofeidian port, Shenzhen port and Xiamen port, have being developed by research groups which consist of experts and officers. It is believed that ships routeing systems shall play more important role in Chinese navigable waterways.

REFERENCE

Editor’s comments. Practical effects of the ships routeing systems. New safety. Second issue. 2006. www.people.com.cn