

SHIP' S ROUTING SYSTEM FOR DEEP WATER ROUTE OF NINGBO-ZHOUSHAN PORT

Reference Charts:

Charts No. 50311, 52141, 53342, 52142, 53131 and 53132 published by Maritime Safety Administration of the People's Republic of China.

Ship's routing system is composed of traffic separation scheme, roundabout, deep-water routes, precautionary areas and inshore traffic zones.

1. Traffic separation scheme

Traffic separation scheme includes separation line (zone) , borderline, traffic lane.

1.1 No.1 Traffic Separation Scheme (From West Borderline of No. 0 Precautionary Area in Xiazhimen East Estuary to Xialanshan)

1.1.1 Separation Line

The separation line of No.1 traffic separation scheme is bounded by the following two geographical positions:

29°44'49"N,122°19'08"E;

29°48'32.5"N,122°14'12"E.

1.1.2 Borderline

The north borderline of No.1 traffic separation scheme is bounded by the following two geographical positions:

29°45'00"N,122°19'12"E;

29°48'41.5"N,122°14'20.5"E.

The south borderline of No.1 traffic separation scheme is bounded by the following two geographical positions:

29°44'37"N,122°19'03"E;

29°48'24.5"N,122°14'04"E.

1.1.3 Traffic Lane

The inbound lane is the water area between the separation line and north borderline of traffic separation scheme with 0.19 nautical miles in width. The length of the centre line for the traffic lane is 5.62 nautical miles. And its main traffic direction is 310° (True course).

The outbound lane is the water area between the separation line and south borderline of traffic separation scheme with 0.19 nautical miles in width. The length of the centre line for the traffic lane is 5.62 nautical miles. And its main traffic direction is 130° (True course).

1.2 No.2 Traffic Separation Scheme (From Xialanshan to Shangliuwangchong Island)

1.2.1 Separation Line

The separation line of No.2 traffic separation scheme is bounded by the following two geographical positions:

29°48'32.5"N,122°14'12"E;

29°50'06"N,122°12'41"E.

1.2.2 Borderline

The north borderline of No.2 traffic separation scheme is bounded by the following two geographical positions:

29°48'41.5"N,122°14'20.5"E;

29°50'12"N,122°12'54"E;

The south borderline of No.2 traffic separation scheme is bounded by the following two geographical positions:

29°48'24.5"N,122°14'04"E;

29°50'00.5"N,122°12'27.5"E。

1.2.3 Traffic Lane

The inbound lane is the water area between the separation line and north borderline of traffic separation scheme with 0.19 nautical miles in width. The length of the centre line for the traffic lane is 2.08 nautical miles. And its main traffic direction is 320° (True course).

The outbound lane is the water area between the separation line and south borderline of traffic separation scheme with 0.19 nautical miles in width. The length of the centre line for the traffic lane is 2.08 nautical miles. And its main traffic direction is 140° (True course).

1.3 No.3 Traffic Separation Scheme (From Shangliuwangchong Island to East Borderline of No. 1 Precautionary Area)

1.3.1 Separation Line

The separation line of No.3 traffic separation scheme is bounded by the following two geographical positions:

29°50'06" N,122°12'41" E;

29°50'36.5" N,122°12'20.5" E.

1.3.2 Borderline

The north borderline of No.3 traffic separation scheme is bounded by the following two geographical positions:

29°50'12" N,122°12'54" E;

29°50'45" N,122°12'41" E.

The south borderline of No.3 traffic separation scheme is bounded by the following two geographical positions:

29°50'00.5" N,122°12'27.5" E;

29°50'27.5" N,122°11'59" E.

1.3.3 Traffic Lane

The inbound lane is the water area between the separation line and north borderline of traffic separation scheme with 0.19 to 0.32 nautical miles in width. The length of the centre line for the traffic lane is 0.58 nautical miles. And its main traffic direction is 333° (True course).

The outbound lane is the water area between the separation line and south borderline of traffic separation scheme with 0.19 to 0.32 nautical miles in width. The length of the centre line for the traffic lane is 0.58 nautical miles. And its main traffic direction is 153° (True course).

1.4 No.4 Traffic Separation Scheme (From West Borderline of No. 1

Precautionary Area to East Borderline of No. 2 Precautionary Area in Yangxiaomao Island)

1.4.1 Separation Zone

The separation zone of No.4 traffic separation scheme, with 0.11 nautical miles in width, is bounded by the following four geographical positions:

29° 51' 38.5" N, 122° 11' 43" E;
29° 51' 41.5" N, 122° 11' 49.5" E;
29° 55' 25.5" N, 122° 09' 42" E;
29° 55' 19" N, 122° 09' 37" E.

1.4.2 Borderline

The north borderline of No.4 traffic separation scheme is bounded by the following two geographical positions:

29° 51' 49" N, 122° 12' 06.5" E;
29° 55' 42" N, 122° 09' 55" E.

The south borderline of No.4 traffic separation scheme is bounded by the following two geographical positions:

29° 51' 31" N, 122° 11' 26" E;
29° 55' 03" N, 122° 09' 23.5" E.

1.4.3 Traffic Lane

The inbound lane is the water area between the separation zone and north borderline of traffic separation scheme with 0.27 nautical miles in width. The length of the centre line for the traffic lane is 4.20 nautical miles. And its main traffic direction is 333° (True course).

The outbound lane is the water area between the separation zone and south borderline of traffic separation scheme with 0.27 nautical miles in width. The length of the centre line for the traffic lane is 4.00 nautical miles. And its main traffic direction is 153° (True course).

1.5 No.5 Traffic Separation Scheme (From West Borderline of No. 2 Precautionary Area to Liangmao Mountain)

1.5.1 Separation Zone

The separation zone of No.5 traffic separation scheme, with 0.11 nautical miles in width, is bounded by the following four geographical positions:

29° 55' 26" N, 122° 07' 12" E;
29° 55' 19" N, 122° 07' 12" E;
29° 55' 19" N, 122° 01' 33.5" E;
29° 55' 26" N, 122° 01' 36.5" E.

1.5.2 Borderline

The north borderline of No.5 traffic separation scheme is bounded by the following two geographical positions:

29° 55' 42" N, 122° 07' 12" E;
29° 55' 42" N, 122° 01' 49" E.

The south borderline of No.5 traffic separation scheme is bounded by the following two geographical positions:

29° 55' 03" N, 122° 07' 12" E;

29° 55′ 03″ N, 122° 01′ 21.5″ E.

1.5.3 Traffic Lane

The inbound lane is the water area between the separation zone and north borderline of traffic separation scheme with 0.27 nautical miles in width. The length of the centre line for the traffic lane is 4.70 nautical miles. And its main traffic direction is 270° (True course).

The outbound lane is the water area between the separation zone and south borderline of traffic separation scheme with 0.27 nautical miles in width. The length of the centre line for the traffic lane is 4.95 nautical miles. And its main traffic direction is 090° (True course).

1.6 No.6 Traffic Separation Scheme (From Liangmao Mountain to East Borderline of No. 3 Precautionary Area)

1.6.1 Separation Zone

The separation zone of No.6 traffic separation scheme, with 0.11 nautical miles in width, is bounded by the following four geographical positions:

29° 55′ 26″ N, 122° 01′ 36.5″ E ;

29° 55′ 19″ N, 122° 01′ 33.5″ E;

29° 55′ 59.5″ N, 122° 00′ 49.5″ E;

29° 56′ 05″ N, 122° 00′ 54.5″ E.

1.6.2 Borderline

The north borderline of No.6 traffic separation scheme is bounded by the following two geographical positions:

29° 55′ 42″ N, 122° 01′ 49″ E;

29° 56′ 18.5″ N, 122° 01′ 07″ E.

The south borderline of No.6 traffic separation scheme is bounded by the following two geographical positions:

29° 55′ 03″ N, 122° 01′ 21.5″ E;

29° 55′ 46″ N, 122° 00′ 37″ E.

1.6.3 Traffic Lane

The inbound lane is the water area between the separation zone and north borderline of traffic separation scheme with 0.27 nautical miles in width. The length of the centre line for the traffic lane is 0.86 nautical miles. And its main traffic direction is 316° (True course).

The outbound lane is the water area between the separation zone and south borderline of traffic separation scheme with 0.27 nautical miles in width. The length of the centre line for the traffic lane is 0.96 nautical miles. And its main traffic direction is 136° (True course).

1.7 No.7 Traffic Separation Scheme (From West Borderline of No. 3 Precautionary Area to Roundabout in Tunizui)

1.7.1 Separation Zone

The separation zone of No.7 traffic separation scheme, with 0.11 nautical miles in width, is bounded by the following four geographical positions:

29° 56′ 51.5″ N, 122° 00′ 05″ E;

29° 56′ 46.5″ N, 122° 00′ 00″ E;

29° 57' 55" N, 121° 58' 45" E;
29° 57' 59.5" N, 121° 58' 50.5" E.

1.7.2 Borderline

The north borderline of No.7 traffic separation scheme is bounded by the following two geographical positions:

29° 57' 05" N, 122° 00' 17" E;
29° 58' 16" N, 121° 58' 58" E.

The south borderline of No.7 traffic separation scheme is bounded by the following two geographical positions:

29° 56' 33" N, 121° 59' 48" E;
29° 57' 49" N, 121° 58' 26" E.

1.7.3 Traffic Lane

The inbound lane is the water area between the separation zone and north borderline of traffic separation scheme with 0.27 nautical miles in width. The length of the centre line for the traffic lane is 1.52 nautical miles. And its main traffic direction is 316° (True course).

The outbound lane is the water area between the separation zone and south borderline of traffic separation scheme with 0.27 nautical miles in width. The length of the centre line for the traffic lane is 1.60 nautical miles. And its main traffic direction is 136° (True course).

1.8 No.8 Traffic Separation Scheme (From West of Roundabout in Tunizui to North of Wanhua in Daxie)

1.8.1 Separation Zone

The separation zone of No.8 traffic separation scheme, with 0.11 nautical miles in width, is bounded by the following four geographical positions:

29° 58' 11.5" N, 121° 57' 50.5" E;
29° 58' 05.5" N, 121° 57' 53" E;
29° 57' 56.8" N, 121° 57' 20.5" E;
29° 58' 03.0" N, 121° 57' 18.2" E.

1.8.2 Borderline

The north borderline of No.8 traffic separation scheme is bounded by the following two geographical positions:

29° 58' 27" N, 121° 57' 51" E;
29° 58' 17.2" N, 121° 57' 12.9" E.

The south borderline of No.8 traffic separation scheme is bounded by the following two geographical positions:

29° 57' 54" N, 121° 58' 06" E;
29° 57' 42.8" N, 121° 57' 25.7" E.

1.8.3 Traffic Lane

The west bound lane is the water area between the separation zone and north borderline of traffic separation scheme with 0.27 nautical miles in width. The length of the centre line for the traffic lane is 0.5 nautical miles. And its main traffic direction is 252° (True course).

The east bound lane is the water area between the separation zone and south

borderline of traffic separation scheme with 0.27 nautical miles in width. The length of the centre line for the traffic lane is 0.5 nautical miles. And its main traffic direction is 072° (True course).

1.9 No.9 Traffic Separation Scheme (From North of e-jiao to South of Main Navigation Span for Jintang Bridge)

1.9.1 Separation Line

The separation line of No.9 traffic separation scheme is bounded by the following two geographical positions:

$29^{\circ}59'47.5''$ N, $121^{\circ}48'26.4''$ E

$30^{\circ}02'25.8''$ N, $121^{\circ}48'19.5''$ E.

1.9.2 Borderline

The east borderline of No.9 traffic separation scheme is bounded by the following two geographical positions:

$29^{\circ}59'47.5''$ N, $121^{\circ}48'42''$ E;

$30^{\circ}02'26.4''$ N, $121^{\circ}48'32.2''$ E.

The west borderline of No.9 traffic separation scheme is bounded by the following two geographical positions:

$29^{\circ}59'47.5''$ N, $121^{\circ}48'11''$ E;

$30^{\circ}02'25.2''$ N, $121^{\circ}48'06.8''$ E.

1.9.3 Traffic Lane

The north bound lane, with 0.22 nautical miles from the linear transition to the 0.15 nautical miles in width, is the water area between the separation line and east borderline of traffic separation scheme. The length of the centre line for the traffic lane is 2.60 nautical miles. And its main traffic direction is 358° (True course).

The south bound lane, with 0.15 nautical miles from the linear transition to the 0.22 nautical miles in width, is the water area between the separation line and west borderline of traffic separation scheme. The length of the centre line for the traffic lane is 2.63 nautical miles. And its main traffic direction is 178° (True course).

1.10 No.10 Traffic Separation Scheme (From South of Main Navigation Span for Jintang Bridge to North of Main Navigation Span for Jintang Bridge)

1.10.1 Separation Line

The separation line of No.10 traffic separation scheme is bounded by the following four geographical positions:

$30^{\circ}02'25.8''$ N, $121^{\circ}48'19.5''$ E;

$30^{\circ}03'08.6''$ N, $121^{\circ}48'18''$ E;

$30^{\circ}04'09''$ N, $121^{\circ}48'15.7''$ E;

$30^{\circ}05'09.2''$ N, $121^{\circ}48'13.5''$ E.

1.10.2 Borderline

The east borderline of No.10 traffic separation scheme is bounded by the following four geographical positions:

$30^{\circ}02'26.4''$ N, $121^{\circ}48'32.2''$ E;

$30^{\circ}03'09.5''$ N, $121^{\circ}48'29.2''$ E;

$30^{\circ}04'09.7''$ N, $121^{\circ}48'27''$ E;

$30^{\circ}05'10''$ N, $121^{\circ}48'26''$ E.

The west borderline of No.10 traffic separation scheme is bounded by the following four geographical positions:

30°02′25.2″ N,121°48′06.8″ E;

30°03′08.6″ N,121°48′06.6″ E;

30°04′08.7″ N,121°48′04.4″ E;

30°05′08.7″ N,121°48′01″ E.

1.10.3 Traffic Lane

The north bound lane is the water area between the separation line and east borderline of traffic separation scheme with 0.15 nautical miles in width. The length of the centre line for the traffic lane is 2.70 nautical miles. And its main traffic direction is 358° (True course).

The south bound lane is the water area between the separation line and west borderline of traffic separation scheme with 0.15 nautical miles in width. The length of the centre line for the traffic lane is 2.70 nautical miles. And its main traffic direction is 178° (True course).

1.11 No.11 Traffic Separation Scheme (From North of Main Navigation Span for Jintang Bridge to North of Traffic Separation Scheme)

1.11.1 Separation Line

The separation line of No.11 traffic separation scheme is bounded by the following two geographical positions:

30°05′09.2″ N,121°48′13.5″ E;

30°05′36.8″ N,121°48′12.4″ E.

1.11.2 Borderline

The east borderline of No.11 traffic separation scheme is bounded by the following two geographical positions:

30°05′10″ N,121°48′26″ E;

30°05′37″ N,121°48′25″ E.

The west borderline of No.11 traffic separation scheme is bounded by the following two geographical positions:

30°05′08.7″ N,121°48′01″ E;

30°05′36.4″ N,121°47′59.8″ E.

1.11.3 Traffic Lane

The north bound lane is the water area between the separation line and east borderline of traffic separation scheme with 0.15 nautical miles in width. The length of the centre line for the traffic lane is 0.46 nautical miles. And its main traffic direction is 358° (True course).

The south bound lane is the water area between the separation line and west borderline of traffic separation scheme with 0.15 nautical miles in width. The length of the centre line for the traffic lane is 0.46 nautical miles. And its main traffic direction is 178° (True course).

1.12 No.12 Traffic Separation Scheme (From Roundabout in Tunizui to West of Diaojiao)

1.12.1 Separation Zone

The separation zone of No.12 traffic separation scheme, with 0.11 nautical miles

in width, is bounded by the following four geographical positions:

29° 58' 47" N, 121° 58' 12" E;
29° 58' 44.5" N, 121° 58' 05.5" E;
30° 02' 15" N, 121° 56' 18" E;
30° 02' 18.4" N, 121° 56' 24.6" E.

1.12.2 Borderline

The east borderline of No.12 traffic separation scheme is bounded by the following two geographical positions:

29° 58' 48" N, 121° 58' 33" E;
30° 02' 24.5" N, 121° 56' 42" E.

The west borderline of No.12 traffic separation scheme is bounded by the following two geographical positions:

29° 58' 29.5" N, 121° 57' 52" E;
30° 02' 09" N, 121° 56' 00.5" E.

1.12.3 Traffic Lane

The north bound lane is the water area between the separation zone and east borderline of traffic separation scheme with 0.27 nautical miles in width. The length of the centre line for the traffic lane is 3.82 nautical miles. And its main traffic direction is 336° (True course).

The south bound lane is the water area between the separation zone and west borderline of traffic separation scheme with 0.27 nautical miles in width. The length of the centre line for the traffic lane is 3.82 nautical miles. And its main traffic direction is 156° (True course).

1.13 No.13 Traffic Separation Scheme (From West of Diaojiao to South of Main Navigation Span for Xihoumen Bridge)

1.13.1 Separation Zone

The separation zone of No.13 traffic separation scheme, with 0.11 nautical miles from the linear transition to the 0 nautical miles in width, is bounded by the following three geographical positions:

30° 02' 18.4" N, 121° 56' 24.6" E;
30° 02' 15" N, 121° 56' 18" E;
30° 03' 22.7" N, 121° 55' 28" E.

1.13.2 Borderline

The east borderline of No.13 traffic separation scheme is bounded by the following two geographical positions:

30° 02' 24.5" N, 121° 56' 42" E;
30° 03' 30.5" N, 121° 55' 37" E.

The west borderline of No.13 traffic separation scheme is bounded by the following two geographical positions:

30° 02' 09" N, 121° 56' 00.5" E;
30° 03' 15" N, 121° 55' 19" E.

1.13.3 Traffic Lane

The north bound lane, with 0.27 nautical miles from the linear transition to the 0.17 nautical miles in width, is the water area between the separation zone and east

borderline of traffic separation scheme. The length of the centre line for the traffic lane is 1.40 nautical miles. And its main traffic direction is 321° (True course).

The south bound lane, with 0.17 nautical miles from the linear transition to the 0.27 nautical miles in width, is the water area between the separation zone and west borderline of traffic separation scheme. The length of the centre line for the traffic lane is 1.32 nautical miles. And its main traffic direction is 149° (True course).

1.14 No.14 Traffic Separation Scheme (From South of Xihoumen Bridge to North of Xihoumen Bridge)

1.14.1 Separation Line

The separation line of No.14 traffic separation scheme is bounded by the following two geographical positions:

30° 03' 22.7" N, 121° 55' 28" E;

30° 04' 10.8" N, 121° 54' 40" E.

1.14.2 Borderline

The east borderline of No.14 traffic separation scheme is bounded by the following two geographical positions:

30° 03' 30.5" N, 121° 55' 37" E;

30° 04' 21" N, 121° 54' 49" E.

The west borderline of No.14 traffic separation scheme is bounded by the following two geographical positions:

30° 03' 15" N, 121° 55' 19" E;

30° 04' 00.5" N, 121° 54' 31" E.

1.14.3 Traffic Lane

The north bound lane is the water area between the separation line and east borderline of traffic separation scheme with 0.17 nautical miles in width. The length of the centre line for the traffic lane is 1.10 nautical miles. And its main traffic direction is 320° (True course).

The south bound lane is the water area between the separation line and west borderline of traffic separation scheme with 0.17 nautical miles in width. The length of the centre line for the traffic lane is 1.10 nautical miles. And its main traffic direction is 140° (True course).

1.15 No.15 Traffic Separation Scheme (From North of Xihoumen Bridge to Jindongzui)

1.15.1 Separation Line

The separation line of No.15 traffic separation scheme is bounded by the following two geographical positions:

30° 04' 10.8" N, 121° 54' 40" E;

30° 05' 06" N, 121° 53' 59" E.

1.15.2 Borderline

The east borderline of No.15 traffic separation scheme is bounded by the following two geographical positions:

30° 04' 21" N, 121° 54' 49" E;

30° 05' 17.5" N, 121° 54' 13" E.

The west borderline of No.15 traffic separation scheme is bounded by the

following two geographical positions:

30° 04' 00.5" N, 121° 54' 31" E。

30° 04' 54.5" N, 121° 53' 45" E.

1.15.3 Traffic Lane

The north bound lane, with 0.17 nautical miles from the linear transition to the 0.27 nautical miles in width, is the water area between the separation line and east borderline of traffic separation scheme. The length of the centre line for the traffic lane is 1.07 nautical miles. And its main traffic direction is 326° (True course).

The south bound lane, with 0.27 nautical miles from the linear transition to the 0.17 nautical miles in width, is the water area between the separation line and west borderline of traffic separation scheme. The length of the centre line for the traffic lane is 1.05 nautical miles. And its main traffic direction is 146° (True course).

2. Roundabout

Set the roundabout in the north of Tunizui water area. The in-partition of the roundabout is: 29°58'19"N, 121°58'24" and 0.1 nautical miles as the radius. The centre of the roundabout is: 29°58'19"N, 121°58'24"E and 0.5 nautical miles as the radius of the roundabout. Ships should counter-clockwise circumambulate along the roundabout.

3. Deep-water routes

The route is bounded by the lines connecting the following four points as the axis-line:

(1)29°41'15.9"N, 122°31'21.5"E; (2)29°41'33.3"N, 122°30'15.6"E; (3)29°43'52.7"N, 122°21'26.7"E; (4)29°44'17.6"N, 122°19'52.2"E and 195 meters wide on both sides at the outside of Xiazhimen Estuary. Its traffic bottom marker is -22.1 meters high (theoretical depth datum plane) and 10.5 nautical miles long overall.

4. Precautionary Areas

No.0 precautionary area is bounded by the following four points:

29°45'21.5"N, 122°19'21"E;

29°44'51"N, 122°20'06"E;

29°43'41"N, 122°19'37"E;

29°44'12"N, 122°18'54"E.

No.1 precautionary area is bounded by the following four points:

29°50'27.5"N, 122°11'59"E;

29°50'45"N, 122°12'41"E;

29°51'49"N, 122°12'06.5"E;

29°51'31"N, 122°11'26"E.

No.2 precautionary area is bounded by the following four points:

29°55'42"N, 122°09'55"E;

29°55'03"N, 122°09'23.5"E;

29°55'03"N, 122°07'12"E;

29°55'42"N, 122°07'12"E.

No.3 precautionary area is bounded by the following four points:

29°55'46"N, 122°00'37"E;

29°56'18.5"N, 122°01'07"E;

29°57'05"N, 122°00'17"E;

29°56'33"N, 121°59'48"E.

5. Inshore Traffic Zones

The navigable water area between borderlines and near shore should be used in accordance with the <Convention on the International Regulations for Preventing Collisions at Sea, 1972>.

6. Special Regulations

6.1 Ships inapplicable to the system shall keep far away from the water area of ship's routing system.

6.2 Ships entering into or departing from the precautionary area should pay great attention and keep good seamanship.

6.3 Overtaking is prohibited in the navigation area 500 meters both in the front and after the Xialanshan light pole in the Xiazhimen traffic lane. Ships of 20000 gross tonnage or above should avoid rendezvousing while navigating in the area mentioned above.

6.4 Ships navigating in the water area of ship's routing system must keep restricted speed. The high-speed for passenger ships couldn't exceed 22 knots during fair-current and 20 knots during counter-current. Other ships couldn't exceed 16 knots during fair-current and 14 knots during counter-current.

6.5 Anchoring, aquatics cultivating and fishing are prohibited for all ships in traffic lanes, precautionary areas and areas near its terminations. Other operations of ships shall be performed with permission of the competent authority in the water area of the ship's routing system.

6.6 All of the ships navigating in the water area of ship's routing system must abide by the regulations of ship's routing system..

6.7 The rule with the deep-water route of the Xiazhimen Estuary is executed by Safety Manage Regulation in the deep-water route of Xiazhimen Estuary.

6.8 Any ship violating the ship's routing system would be punished by maritime administration in accordance with relevant laws and regulations.