

*China Perspectives*

# **CHINA'S MARITIME BOUNDARIES IN THE SOUTH CHINA SEA**

**HISTORICAL AND  
INTERNATIONAL LAW PERSPECTIVES**

*Jinming Li*



# China's Maritime Boundaries in the South China Sea

Maritime boundary disputes in the South China have existed for centuries, and researchers from a variety of countries have analyzed the situation from a great many points of view. Yet, and despite its status as one of the major countries in the region, Chinese perspectives have often been absent from the international literature. This book redresses that balance.

Bringing together scholarship from history and international law, this book provides a lens through which maritime territorial disputes in the South China Sea can be interrogated. Not only does it detail the historical and jurisprudential evidence that support maritime boundaries in the South China Sea for different stakeholders, but it also clarifies some misconceptions related to China's nine-dash lines by referring to the United Nations Convention on the Law of the Sea. Moreover, the book offers in-depth discussion and observation on the most recent developments in the South China Sea.

This book is an essential resource for researchers, teachers, and students who specialize in Southeast Asian Studies, China maritime studies, and the international law of the sea.

**Jinming Li** is Professor Emeritus of the Research Center for Southeast Asian Studies at Xiamen University. He has long been engaged in studies on the history of China – foreign relations, the history of China's overseas trade, South China Sea disputes and the law of the sea. His publications include *History of Overseas Trade in the Ming Dynasty* and *History of Overseas Trade in Ancient China*.

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Perspectives

**Jinming Li**

The translation of this book is funded by the Chinese Fund for the Humanities and Social Sciences (Grant No. 18WZS017)

First published in English 2021  
by Routledge  
2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

and by Routledge  
52 Vanderbilt Avenue, New York, NY 10017

*Routledge is an imprint of the Taylor & Francis Group, an informa business*

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Translated by LIAO Jing and FU Rongbo

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English Version by permission of Heilongjiang Education Press.

*British Library Cataloguing-in-Publication Data*

A catalogue record for this book is available from the British Library

*Library of Congress Cataloging-in-Publication Data*

A catalog record for this book has been requested

ISBN: 978-0-367-54674-8 (hbk)

ISBN: 978-1-003-09015-1 (ebk)

Typeset in Times New Roman  
by Apex CoVantage, LLC

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**Part I**

**Introduction**



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# 1 Geographical overview of China's maritime boundaries in the South China Sea

Nanhai (南海), also called the South China Sea, refers to the vast expanse of water stretching from latitude 23°27' North to 3° South and longitude 99°10' to 122°10' East in the southeast of China. It is located between mainland China, the Indochinese Peninsula, Borneo, Palawan, Luzon, and the Taiwan Island of China, and surrounded by Sumatra, Bangka, Borneo, Palawan, Mindoro, Luzon, Taiwan Island, Hainan Island and the Indochinese Peninsula. Spreading 1,380 kilometers east to west and 2,380 kilometers north to south, it embraces an area of about 3.5 million square kilometers. The South China Sea is an important maritime hub linking two oceans and three continents. Its strategic significance has been presented from the following aspects:

- 1 the South China Sea, as one of the richest fishing grounds around the globe, has seven of the world's top 30 fishing nations by annual catch;
- 2 it has the two dominant ports of Asia: Hong Kong and Singapore;
- 3 it has one of the most hotly contested island territories in the world—the Nansha Islands;
- 4 it has promising offshore oil and gas reserves;
- 5 it has several Pacific/Indian Ocean choke-points, that is, the Strait of Malacca, the Singapore Strait, the Sunda Strait and the Lombok Strait;
- 6 more than 10,000 merchant ships pass through the sea each year. It is one of the major oceanic routes for crude oil tankers from the Persian Gulf to Asia, and one of the major east-west oceanic routes for goods from Asia to rest of the world.<sup>1</sup>

The South China Sea territory of China in this book refers to the area located south of the southern end of the Taiwan Strait and the southern shores of Guangdong Province (23°N), north of James Shoal (4°N), east of the Natuna Islands of Indonesia and the southern shores of Vietnam (108°E), west of the coasts of the Malaysian states of Sarawak and Sabah, and the Philippine islands of Palawan and Luzon (120°E), including three archipelagos and one submerged bank: the Xisha Islands, the Nansha Islands, the Dongsha Islands and the Zhongsha Islands (in English, the Paracel Islands, the Spratly Islands, the Pratas Islands and

#### 4 Introduction

the Macclesfield Bank, respectively) which together constitute the oft-mentioned “Nanhai Zhudao” (the South China Sea Islands).

Spreading north to south from the Beiwei Tan (North Vereker Bank) around 21°N to Zengmu Ansha (James Shoal) and Yaxi Ansha (Tanjong Payong) around 3°40'N and extending east to west from the Huangyan Island (Scarborough Shoal) at 117°50'E to the Wan'an Tan (Vanguard Bank) at 109°30'E, Nanhai Zhudao consists of over 200 islands, cays, shoals and reefs that scatter across the vast area south and east of the Hainan Island. It stretches about 900 kilometers along the latitude and about 1,800 kilometers along the longitude.

### 1.1 Geographical overview of the Dongsha Islands

The Dongsha Islands, comprised of Dongsha Dao (Pratas Island) and two coral banks, Beiwei (North Vereker) and Nanwei (South Vereker), is the northernmost archipelago of Nanhai Zhudao.

Dongsha Dao is located at 20°42'N, 116°43'E, on the western edge of Dongsha Jiao (Pratas Reef) which encloses a lagoon. The island, flat and sandy, rises in the northeast and dips in the southwest. It is about 5 kilometers long, 1.5 kilometers wide and 12 meters above sea level. Its north end is about 140 nautical miles away from Shantou, its northwest end 120 nautical miles away from Jiazimen, a port in Guangdong, and its northeast end is 240 nautical miles away from Taiwan. Lying 170 and 400 nautical miles away from Hong Kong and Manila respectively, the island constitutes a hub to vessels en route between the two cities. When the Northeast Monsoon blows, the weather is frequently thick and hazy, and the breakers on the island may not be seen until within 1 nautical mile. On its west side, there is a deep inlet, which affords shelter to the Chinese fishermen from Fujian and Guangdong. In the northeast of the island lies a fishing village. In 1866, an Englishman called Pratas came across a storm on the sea and sought shelter here. The British therefore named the island after him. The Chinese, however, have been calling it “Da Dongsha” (Great Dongsha). Both the south and north sides of the island are connected to the lagoon by a waterway. The southern waterway is comparatively wider and deeper, navigable by boats with a draft of under 4.6 meters, and the northern waterway about 2.25 nautical miles north of the island, though 2.3 meters to 3.7 meters deep in most parts, are rife with coral heads and some parts can be as shallow as 0.6 meters.

Dongsha Dao is a windy place. It is recorded in the *Local Records of Guangdong Province* compiled and published by Guangdong Provincial Department of Civil Affairs in 1934: “Every three days a strong wind would attack; with it are loud noises like the explosion of firecrackers. When wind rises on the island, no ship within 100 meters could feel it. Hence, the island was nicknamed ‘fengku’ (wind cave) by the seafarers.” Despite the weather, fishermen from Fujian and Canton have frequented here for the abundant resources and always returned with ships fully loaded. The number of fishing vessels heading here “exceeds a hundred in an average year, not counting the numerous small boats that come for fishing or for both fishing and prospecting. Large ships can always make a good

profit.” So there was a popular saying among the fishermen then: “To seek fortune, go to Dongsha.”<sup>2</sup>

Nanwei Tan and Beiwei Tan are two submerged coral banks located 45 nautical miles northwest of Dongsha Dao. Beiwei Tan lies 5 nautical miles away to the northeast of Nanwei Tan and is comparatively larger. It is 11 nautical miles in length with a least depth of 64 meters and an average depth of 185 meters. About 334 meters of deep water separate Beiwei from Nanwei, which is 10 nautical miles in length and has a least depth of 50 meters.

## **1.2 Major features of the Xisha Islands**

The Xisha Islands, lying to the west of the main Hong Kong-Singapore route between 15°46'N and 17°08'N latitude and 111°11'E and 112°54'E longitude, are made up of extensive coral islands and reefs. The archipelago is 240 nautical miles south of Haikou in Hainan, 390 nautical miles southwest of Hong Kong, 240 nautical miles east of the central shores of Vietnam, and 150 nautical miles southeast of Yulin Port in Hainan.

The Xisha archipelago has two major island groups—Xuande Qundao and Yongle Qundao (known as the Amphitrite Group and the Crescent Group in English)—and several small islands and reefs.

Xuande Qundao consists of two parts separated by a deep-water channel about 4 nautical miles wide. The northern portion has two main reefs bisected by Zhaoshu Pass (Zappe Pass) 0.5 kilometers wide.

The reef on the western side is about 6 kilometers long and 1.75 kilometers wide. Near its western extremity lies a sandy cay named Xi Sha (West Sand). And about 2 nautical miles away from the eastern extremity of the reef is an island called Zhaoshu Dao (Tree Island).

Zhaoshu Dao is situated at 16°59'N, 112°16'E, about 32 nautical miles northwest of the eastern reef. It is covered with tropical bushes and surrounded by a white sand beach. The reef base of the island stretches about 1.5 nautical miles eastward and 4.5 nautical miles westward.

The reef on the eastern side is about 4 kilometers in length, including three islands and three cays—Bei Dao (North Island), Zhong Dao (Middle Island), Nan Dao (South Island), Bei Shazhou (North Sand), Zhong Shazhou (Middle Sand) and Nan Shazhou (South Sand). Bei Dao is located about 2 nautical miles east-southeast of Zhaoshu Dao across Zhaoshu Pass. A reef extends about 0.5 nautical miles northwest from Bei Dao and about 4 nautical miles southeast. Zhong Dao and Nan Dao lie to the south of the reef and are about 0.5 nautical miles and 1 nautical mile away from Bei Dao respectively. The three islands are all covered with tropical bushes. So are the three cays near the southeast end of the reef.

Zhaoshu Pass is about 0.5 nautical miles wide between the reefs. With a depth of mere 4.6 meters, it is navigable only by small craft.

The southern portion of Xuande Qundao can be divided into two parts. In the eastern part is a reef upon which lie Yongxing Dao (Woody Island) and Shi Dao (Rocky Island); in the western part is a bank, known as Yinli Tan (Iltis Bank).

## 6 Introduction

Yongxing Dao is located at 16°50'N, 112°20'E, about 9 nautical miles southeast of Zhaoshu Dao. It is the largest island of the Xuande Qundao. With an elliptical shape, it is 1,950 meters in length and 1,350 meters in width, covering an area of about 2.1 square kilometers. The island is covered with tropical shrubs, coconut trees, papaya trees and the like. It is also surrounded by a white sand beach.

Shi Dao lies about 730 meters northeast of Yongxing Dao. In a slightly circular shape, the island is 375 meters long and 340 meters wide, covering an area of about 0.08 square kilometers. With a height of 13.7 meters, it is the highest of the islands. In its vicinity lies an exposed reef that extends about 0.75 nautical miles toward the northeast of Yongxing Dao and about 0.4 nautical mile northward. The reef is about 18.3 meters deep.

Yinli Tan is located about 7 nautical miles southwest of Yongxing Dao. With depths of 14.6 to 18.3 meters, it is about 3 nautical miles long, 0.5 nautical miles wide, and is quite steep-to. There is another bank, 21.9 meters deep, lying 4 nautical miles south of Yongxing Dao.

Yongle Qundao is situated 37 nautical miles southwest of Yongxing Dao. The island group comprises several islands, reefs and sand islets that form a crescent, so the Westerners call it the Crescent Group. Its major features include:

Jinyin Dao (16°27'N, 111°31'E), 6.1 meters high and brush-covered, lies at the western end of a reef which is separated from the southwest horn of the crescent by a channel about 1.5 nautical miles wide. On the same reef lie several sand cays that are situated to the east of Jinyin Dao.

Linyang Jiao (Antelope Reef) constitutes the southwest horn of the crescent. The reef is about 3 nautical miles long, 2 nautical miles wide, and is partly exposed above water. A sand cay is located on its southeast extremity.

Ganquan Dao (Robert Island) is about 7.9 meters high and lies 0.5 nautical miles north of Linyang Jiao. The island is fringed by a reef and covered with vegetation. The water is 9.1 meters deep where it extends about 0.5 nautical miles northeast.

Shanhu Dao (Pattle Island), 2.5 nautical miles long, 0.25 nautical miles wide, about 9.1 meters high, lies about 2 nautical miles northeast of Ganquan Dao. The island is covered with tropical bushes. A reef surrounding the island extends some distance southwest and about 1.75 nautical miles northeast. Near the reef about 0.2 nautical miles north of the island, a rock rises above water. And on the other side there is a clear channel. In the south of the island lies a bight where boats can land at low tide, but there are rocks close to the shore.

Yin Yu (Observation Bank) forms the northern extremity of Yongle Qundao. Located about 6 nautical miles northeast of Shanhu Dao, the islet is joined with a brush-covered sand cay. And a reef surrounding the cay extends about 1 nautical mile northwest and southeast. There is a detached reef between Yin Yu and the reef extending toward the northeast of Shanhu Dao. Close to the reef's southern end a small reef patch lies 5 meters underwater, and near its northeast end is another small detached reef. Between this reef and the reef extending towards the west of Yin Yu there stretches a channel where a small reef patch lies 7.8 meters deep.

Jinqing Dao (Drummond Island), lying about 7.5 nautical miles southeast of Yin Yu, is 900 meters long, 493 meters wide, about 4.6 meters high and is covered with tropical bushes. A reef surrounding it extends some distance to its south. And meanwhile, the reef stretches about 4 nautical miles northeast, then curving northwest about 4 nautical miles. The area between the island and Yin Yu features a complex reef-studded sea floor. There are also several sand cays whose height varies from 0.9 meters to 3.0 meters, some of them covered with shrubs.

Chenhang Dao (Duncan Islands), lying on the southeast horn of the crescent, is made up of two islets. The island lies about 1.5 nautical miles southwest of Jinqing Dao across a channel. It is formed by coral reefs joined by a sand spit. Surrounding the brush-covered island, a reef extends some distance northward and about 0.5 nautical mile southward.

Apart from the previously mentioned two island groups, other small islands and reefs include:

Bei Jiao (North Reef) (17°05'N, 111°30'E), whose eastern end is about 41 nautical miles west-northwest of Zhaoshu Dao, stretches about 6 nautical miles westward. Rocks break the surface all around the edge of the reef and breakers on the reef can be heard at a considerable distance. The reef encloses a lagoon and there is a passage on the southwest side, allowing only small ships.

Dong Dao (Lincoln Island) (16°40'N, 112°44'E), occupying the eastern corner of the Xisha Islands, lies on the end of a narrow region that rises from the sea floor. With varied depths up from 73.2 meters, it extends about 20 nautical miles toward the northeast of Binmei Tan and Zhanhan Tan. The island is 4.6 meters high and the depth increases sharply on the northeastern side. It is brush-covered and fringed by a drying coral reef. The island stretches a short distance southwest, about 0.3 nautical miles northeast and over 1 nautical mile northwest, reaching 18.3 meters deep.

Gaojian Shi (Pyramid Rock), 5.2 meters high and cone-shaped, lies about 7 nautical miles southwest of Dong Dao. Seen from afar, it could be mistaken for a junk, so it is also called "Shuangfan (double sails)."

Xidu Tan (Dido Bank), with a depth of 23.8 meters, lies about 12 meters northeast of Dong Dao. It is a steep-to sand bank.

Zhongjian Dao (Triton Island) (15°47'N, 111°12'E) lies in the southwest of the Xisha Islands. It is a sand cay about 3 meters high. It sits on a coral reef which extends about 1 nautical mile northeast and about 0.5 miles in other directions. The reef is steep-to, with at most 1.8 meters of water over it.

Panshi Yu (Passu Keah) lies about 36 nautical miles northeast of Zhongjian Dao. It is a sand cay located on the western end of a steep-to reef which extends about 4 nautical miles eastward.

Huaguang Jiao (Discovery Reef) lies about 8 nautical miles north of Panshi Yu, with a lagoon inside. The reef is steep-to and on it several rocks lie above water, one of which is 3.7 meters higher than any other part of the reef. Boats can enter the lagoon through channels on both the northern and southern sides of the reef, the narrower channel being the one on the northern side. There are quite a few channels on the reef.

## 8 Introduction

Yuzhuo Jiao (Vuladdore Reef) is located about 10 nautical miles northeast of Huaguang Jiao. The reef is 13 kilometers long, 4 kilometers wide, and is quite steep-to. It has a few rocks above-water, which submerge at high tide.

Langhua Jiao (Bombay Reef), surrounding a lagoon, lies about 39 nautical miles east of Panshi Yu and occupies the southeast end of the Xisha Archipelago. The sea frequently breaks on the reef where there are several rocks awash, four above-water rocks, and the remains of many old wrecks.

Songtao Tan (Herald Bank) lies about 23 nautical miles southwest of Langhua Jiao, with a depth of over 235.9 meters.

Binmei Tan (Bremen Bank) lies about 13 nautical miles north of Langhua Jiao, its southwest end over 12.8 meters in depth.

Zhanhan Tan (Jehangire Bank) lies about 4 nautical miles northeast of Binmei Tan, consisting of three detached patches with varied depths. The southwest patch is 27.4 meters deep, the northern patch 14 meters and the southeast one 12.8 meters.

Haiwang Tanor or BeiBian Lang (Neptuna Bank), located to the north of Binmei Tan, consists of two coral patches. Its northeast patch lies about 6.5 meters southwest of Gaojian Shi and has a depth of 14.6 meters; its southwest patch lies 3 nautical miles farther southwest, with a depth of 18.3 meters. The two patches are almost invisible. Near their northeast end, the depth exceeds 182.2 meters.

### 1.3 The Zhongsha Islands

The Zhongsha Islands are situated to the east of the main Hong Kong–Singapore route, its southwest end about 66 nautical miles east-southeast of Langhua Jiao. It spans the area roughly between 15°24'N and 16°15'N latitude and 113°40'E and 114°57'E longitude. It is a submerged atoll whose coral rim has a greatest depth of less than 18.3 meters and a least depth of 11.9 meters at the northeast side of Biwei Ansha (Pygmy Shoal) on the northeast end. Within the lagoon, there scatter several banks with depths less than 18.3 meters, the shallowest point being Manbu Ansha (Walker Shoal), with a depth of 9.2 meters.

Other shoals and reefs include:

Shenhu Ansha (Saint Esprit Shoal) (19°23'N, 113°02'E) lies near the edge of the Zhongsha Islands, stretching southeast with a depth of less than 182.9 meters. Its shallowest point is 12.8 meters deep, about 160 nautical miles northeast of the Xisha Islands and about 35 nautical miles west of the main Hong Kong–Singapore route.

Xianfa Ansha (Truro Shoal) (16°20'N, 116°44'E) lies about 90 nautical miles northwest of Huangyan Dao, with a depth of 18.3 meters.

Yitong Ansha (Helen Shoal) (19°12'N, 113°53'E) lies about 53 nautical miles southeast of Shenhu Ansha, 15 nautical miles east of the main Hong Kong–Singapore route, and 185 nautical miles and 157 nautical miles southwest of Dongsha Dao and Nanwei Tan respectively. The shallowest point is about 11.9 meters, but surrounding it the depth can reach 182.9 meters. Strong rips have been observed in the vicinity of Yitong Ansha and deep water is found there. The current usually sets with the wind.

Huangyan Dao (Scarborough Shoal), also known as Minzhu Jiao (Democracy Reef), is located about 160 nautical miles southeast of the Zhongsha Islands between latitude 15°08'N and 15°14'N and longitude 117°44'E and 117°48'E. In 1748, an English ship named *Scarborough* grounded here, so the Westerners named it Scarborough Reef. The edge of the island is steep and formed by a narrow reef belt enclosing a lagoon. Rocks scatter on the island, standing about 0.3 to 1.5 meters high. Among them, South Rock is the highest, lying on the southeast extremity of the island. To the north of South Rock runs a channel about 400 meters wide with general depths of 9.1 to 11 meters leading into the lagoon. The channel is encumbered with reef patches, leaving the entrance quite shallow, with a depth of mere 2.7 meters.

#### 1.4 The “Dangerous Ground” of the Nansha Islands

The Nansha Islands are located in the south of Nanhai Zhudao between latitude 3°40'N and 11°55'N and longitude 109°30'E and 117°50'E. They stretch over 400 nautical miles east to west and over 500 nautical miles north to south, covering an area of more than 820,000 square kilometers. The archipelago is comprised of over 230 islands, reefs and sandbanks. Among them, there are 25 islands exposed above water, 128 reefs and 77 shoals and cays. The central part of the Nansha Islands is studded with reefs and sand banks, known as the Dangerous Ground. Features around this area can be divided into three groups. The eastern group mainly consists of coral banks, the western group reefs, and the southern group shoals and sunken reefs. Specific information about the major features will be provided shortly.

##### 1.4.1 Features West of the Dangerous Ground

Zhenghe Qunjiao (Tizard Bank), 15 nautical miles northeast of Xiaoxian Jiao, consists of a lagoon bordered by shoals and reefs of irregular depths. There are islets on two of the reefs and a sand cay on another. Several coral heads with depths of 50 to 90 meters lie in the lagoon. Fishermen from Hainan Island visit the islands annually in December and leave at the commencement of the Southwest Monsoon.

Taiping Dao (Itu Aba Island) (10°23'N, 114°22'E), surrounded by a reef that extends 0.5 nautical miles outward, lies on the northwest corner of Zhenghe Qunjiao. Generally distributed along an ENE-WSW axis, the island is 1,400 meters long and 460 meters wide, occupying an area of about 0.42 square kilometers, the largest in the Nansha Islands. A bank more than 5.5 meters deep lies about 0.75 nautical miles southwest of the western extremity of the island's surrounding reef. About 2 nautical miles east of the island lies a reef submerged at high tide. Between the reef and the island is a channel in whose center lies a bank over 7.3 meters deep. Meanwhile about 3.5 nautical miles east of the reef lies a sand cay 4.6 meters high near which is another reef extending about 1.5 nautical miles offshore.

## 10 Introduction

Hongxiu Dao (Namyit Island) ( $10^{\circ}11'N$ ,  $114^{\circ}22'E$ ), on the southern side of Zhenghe Qunjiao, about 20 nautical miles southwest of Anda Jiao, is 6.1 meters high and covered with small trees and brush. It lies on a reef which extends about 1 nautical mile westward and 0.35 nautical mile eastward. A small reef with a depth of 5.5 meters lies about 1 nautical mile northeast of the island and a bank with a depth of 6.9 meters lies 2 nautical miles in the southwest.

Bolan Jiao (Petley Reef), a steep coral reef, oval-shaped and about 1 nautical mile long, extends about 5 nautical miles northeast of Zhenghe Qunjiao.

Anda Jiao (Eldad Reef), forming the external extremity of Zhenghe Qunjiao, lies about 7 nautical miles southeast of Bolan Jiao. Several big above-water rocks and plenty of small rocks lie on the reef. The northeast end is relatively narrow and steep-to with a long raised area stretching about 1 nautical mile. The area extends outward about 1 nautical mile and its depth keeps increasing until reaching 91.4 meters.

Nanxun Jiao (Gaven Reefs) is comprised of two reefs, the northwest one lying about 2.5 nautical miles away from the southwest end of Zhenghe Qunjiao and the southeast one lying about 6 nautical miles west of Hongxiu Dao. Both reefs are submerged. Some small coral reefs lie in between and one of them is 6.4 meters deep, located about 0.75 nautical miles northwest of the southeast reef.

Dunqian Shazhou (Sand Cay) lies 6 nautical miles east of Taiping Dao at the center of a coral reef. The reef has a slightly circular shape and a diameter of about 0.75 nautical miles.

Daoming Qunjiao (Loaita Bank) lies to the north of Zhenghe Qunjiao. The reef group is steep-to and consists of a lagoon surrounded by shoals and reefs of irregular depths. In the southern end are reefs and two sand cays, namely, Yangxin Shazhou and Shuanghuang Shazhou. An island forms its southern extremity, known as Nanyao Dao.

Nanyue Dao (Loaita Island) ( $10^{\circ}40'N$ ,  $114^{\circ}25'E$ ), 1.8 meters high, is covered with tropical brush. The island is located in the south of Daoming Qunjiao, about 16 nautical miles north of Zhenghe Qunjiao. Fringed by rocks above water, it extends about 0.5 nautical miles northward and little distance in other directions.

Yangxin Shazhou (Lankiam Cay), 6.5 nautical miles northeast of Nanyue Dao, is a sand cay located at the center of a reef which extends outward about 0.5 nautical miles. Two drying reefs lie 3 nautical miles and 4 nautical miles northeast of the cay.

Shuanghuang Shazhou (Loaita Nan), lying in the southwest corner of Daoming Qunjiao, is a small sand cay above water in the middle of a coral patch. In its east is a shoal about 5.4 to 9 meters deep.

Shuangzi Qunjiao (North Danger Reef), a steep-to coral formation located between  $11^{\circ}23'N$  and  $11^{\circ}28'N$  latitude and  $114^{\circ}19'E$  and  $114^{\circ}25'E$  longitude, is about 20 to 28 nautical miles north of Zhongye Dao. Its inner portions are remarkably flat with an average depth of less than 36.6 meters. The surrounding reef is shallow and variable in width, its depths less than 9.1 meters. The reef continues to extend on its northeast and southwest, the extensions exposed above water at low tide. In the northwest end lie two small islands—Beizi Dao and Nanzi Dao—from which Shuangzi Qunjiao derived its name (Shuang means “double”).

Beizi Dao (Northeast Cay) (11°27'N, 114°21'E) is about 2.4 meters high, lying on a reef that is partly above water and extends about 0.1 to 0.5 nautical miles offshore.

Nanzi Dao (Southwest Cay) is about 4 meters high, lying about 2 nautical miles southwest of Beizi Dao. The two cays are separated by a channel that is 9.1 meters deep and filled with small reefs. A coral reef partly above water surrounds the cay, extending about 0.05 nautical miles southeast and about 0.3 nautical miles in other directions.

Lesi Ansha (Lys Shoal) is located between 11°19'N and 11°22'N latitude and 114°35'E and 114°39'E longitude, about 13 nautical miles east-southeast of Shuangzi Qunjiao. The shoal, enclosing a lagoon, is steep-to and made up of numerous small reefs with a maximum depth of less than 18.3 meters. Close to its southwest end lies a small reef 5 meters deep and near its northeast end lie some others with depths of about 9.1 meters.

Yongdeng Ansha (Trident Shoal), lying about 2 nautical miles north of Lesi Ansha, is a steep-to coral formation fringed by a number of small reefs. It is less than 18.3 meters deep, enclosing a deep lagoon. A small drying reef lies north of it; a second lies east of it, about 4.1 meters deep; and a third lies northwest of it with a depth of 7.3 meters.

Zhongye Qunjiao (Thitu Island and Reefs) consists of several dangerous patches upon two coral banks separated by a deep, narrow channel.

Zhongye Dao (Thitu Island) (11°03'N, 114°17'E), 3.3 meters high, lies on the western end of the two coral banks about 14 nautical miles northeast of Zhubi Jiao. The island is overgrown with scrub brush. Its top point is about 18.3 meters high and in the vicinity a reef breaks the surface of water, extending about 0.5 nautical miles northeast.

Zhubi Jiao (Subi Reef) lies about 21 nautical miles northwest of Nanyue Dao. It dries, surrounds a lagoon, is steep-to, and usually breaks. There is no apparent entrance into the lagoon.

### *Reefs Southwest of Zhenghe Qunjiao*

Yongshu Jiao (Fiery Cross Reef) lies near the western edge of the Dangerous Ground, about 27 nautical miles east of Xiaoyao Ansha. The reef is steep-to and composed of coral patches, several of which dry while others still submerge. Between the patches, the depth reaches over 50 meters. Near the southwest end of the reef stands a rock about 0.6 meters high and visible above water at high tide.

Daxian Jiao (Discovery Great Reef) (10°00'N–10°08'N, 113°35'E) lying about 54 nautical miles east-northeast of Yongshu Jiao, is mostly above water. The reef has several drying rocks on it and an inner lagoon, but there is no apparent entrance into it. A shoal or a bank 73.2 meters deep is found 10 nautical miles northeast of the reef.

Xiaoxian Jiao (Discovery Small Reef) is a round, steep-to coral patch lying about 10 nautical miles east of the southern extremity of Daxian Jiao.

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Fulusi Jiao (Flora Temple Reef) ( $10^{\circ}14'N$ ,  $113^{\circ}38'E$ ) lies about 17 nautical miles west-northwest of the northern extremity of Daxian Jiao. The reef, steep-to and dangerous, has submerged rocks on its southwest, with depths of 1.8 to 5.5m.

Yinqing Qunjiao (London Reefs) is located to the south of Yongshu Jiao, its western end about 21 nautical miles northeast of Nanwei Dao. It consists of four reefs: Xi Jiao, Zhong Jiao, Dong Jiao and Huayang Jiao.

Xi Jiao (West London Reef) is located between  $8^{\circ}49'N$  and  $8^{\circ}53'N$  latitude and  $112^{\circ}12'E$  and  $112^{\circ}17'E$  longitude, about 21 nautical miles northeast of Nanwei Dao, forming the western extremity of Yinqing Qunjiao. The reef has several detached, above-water coral patches around its edges and a sand cay 0.6 meters high on its east. In the center there are many coral heads, and the depths range from 11 meters to 18.3 meters. Approach can only be made from the southeast side, but the numerous coral patches make navigation extremely dangerous.

Zhong Jiao (Central Reef) is small submerged coral reef with a shallow inner lagoon, lying about 8 nautical miles northeast of Xi Jiao. At the southwest end of the reef is a sand cay awash in high tide. Unlike Dong Jiao and Xi Jiao, Central Reef is not always marked by breakers.

Dong Jiao (East Reef) lies about 16 nautical miles east of Xi Jiao, enclosing a lagoon. It is marked by heavy breakers. One or two above-water rocks lie on its western end. There is no entrance into the lagoon.

Huayang Jiao (Cauteron Reef) is located about 9 nautical miles east of Dong Jiao and about 6 nautical miles to the west of the Dangerous Ground. The reef is awash, steep-to and encloses a lagoon.

Xiaoyao Ansha (Daulle Shoal) ( $9^{\circ}28'N$ ,  $112^{\circ}24'E$ ), located about 36 nautical miles north of Zhong Jiao with a depth of 1,938.5 meters, is part of Yinqing Qunjiao.

### *Anbo Shazhou and Nanwei Dao*

Anbo Shazhou (Amboyna Cay) ( $7^{\circ}53'N$ ,  $112^{\circ}56'E$ ) is 2.4 meters high, located about 70 nautical miles east of Nanwei Dao and close to the southwest edge of the Dangerous Ground. The cay comprises two parts. The eastern part is a sand beach, broken by coral, while the western part is covered with guano and rubble. Coral ledges which are partly above water and on which the sea breaks heavily at high tide, extend 0.2 nautical miles offshore.

Yindun Ansha (Stag Shoal) ( $8^{\circ}27'N$ ,  $112^{\circ}57'E$ ), lying about 33 nautical miles north of Anbo Shazhou, consists of several above-water rocks.

Riji Jiao (Ladd Reef), lying about 42 nautical miles north of Nanwei Jiao, is formed by coral reefs and encloses a lagoon with a white sand bed. The reef is partly above water and partly awash. There is no way through the lagoon for ships.

Nanwei Dao (Spratly Island), 2.4 meters high, flat, lies about 15 nautical miles east of Riji Jiao, on the western end of a coral reef 1 nautical mile long and 0.75 nautical miles wide. The island has a margin of white sand and broken coral and is surrounded by drying ledges. Flocks of birds can often be seen resting on it. About 0.75 nautical miles north of the island the water is 6.4 meters

deep. To the northeast, depths of 12.8 to 14.6 meters are found about 0.5 nautical miles off the island. The reef is steep-to and marked by heavy breakers except in fair weather.

#### *Other reefs and banks*

Wan'an Tan (Vanguard Bank) lies about 60 nautical miles southeast of the main Hong Kong-Singapore route, its southern end about 173 nautical miles north-northeast of Laut Island. The bank is 16.5 meters deep. Its eastern end lies in position 7°30'N, 109°55'E with a depth of 20.1 meters and its southern end extends about 30 nautical miles northeast.

Xiwei Tan (Prince Consort Bank), 12 nautical miles north-northeast of Wan'an Tan, is formed by sand and coral. The bank has a depth of 18.3 meters near its northeast edge and depths of 21.9 to 23.8 meters are found on its western edge. The shallowest point is at its southern end.

Lizhun Tan (Grainger Bank), with depths of 11 to 14.6 meters, lies about 35 nautical miles northeast of the eastern end of Wan'an Tan. The coral bottom of the bank is distinctly visible.

Guangya Tan (Prince of Wales Bank) lies about 12 nautical miles north of Lizhun Tan. The bank is of coral and its depths are very irregular.

Renjun Tan (Alexandra Bank), lying about 2 nautical miles southeast of Guangya Tan, has a depth of 5.5 meters on its east over coral bottom that is distinctly visible.

Nanwei Tan (Rifleman Bank) is formed by sand and coral. The bank has many shallow patches of coral around its edge and a comparatively greater depth at its center. Pengbo Bao (Bombay Castle), its northern end and shallowest point, lies in position 7°56'N, 111°42'E, about 64 nautical miles east of Renjun Tan. The shoal has a depth of 3.2 meters and breaks in all but the finest weather. Changjun Ansha (Johnson Patch), with a depth of 7.3 meters, lies on the western side of Nanwei Tan; Jindun Ansha (Kingston Shoal), with a depth of 11 meters, lies at the southern end; and Ao'nan Ansha (Orleana Shoal), with a depth of 8.2 meters, lies on the eastern end.

Aoyuan Ansha (Owen Shoal) is formed by coral, 6.4 meters deep and about 22 nautical miles northeast of Nanwei Tan.

### ***1.4.2 Features South of the Dangerous Ground***

#### *Northern dangers*

Nantong Jiao (6°20'N, 113°14'E) lies about 50 nautical miles east-northeast of Mengyi Ansha. This coral reef is 1.2 to 1.8 meters high and has a depth of 91.4 meters around its edge.

Huanglu Jiao (Royal Charlotte Reef) lies about 42 nautical miles north-northeast of Nantong Jiao and is nearly rectangular in shape. Several boulders, 0.6 to 1.2 meters high, lie near its southeast side and some rocks, awash, lie on its northeast side.

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Danwan Jiao (Swallow Reef), lying about 27 nautical miles north-northeast of Huanglu Jiao, is formed of a belt of coral surrounding a shallow lagoon. At its eastern part are some rocks 1.5 to 3 meters high; and at its southeast part also lie some rocks exposed above water.

Xibo Jiao (Ardasier Breakers) is 4.1 meters deep, with its shallowest point in position 7°57'N, 114°02'E.

### *Southern dangers*

Beikang Ansha (North Luconia Shoals) lies about 100 nautical miles northwest of Tanjung Baram and 15 to 52 nautical miles north of Nankang Ansha. It consists of a mass of coral reefs and shoals and no safe passage through is recorded.

Nanping Jiao (Hayes Reef) is a small, steep-to above-water reef lying at the southern end of Beikang Ansha. The sea breaks heavily on the reef all year around.

Nan'an Jiao (Seahorse Breakers), 3.7 to 11 meters deep and steep-to on the east, lies about 10 nautical miles north-northwest of Nanping Jiao. Close to its southern side is a detached coral reef and about 2 nautical miles to its west is an above-water coral patch upon which the sea breaks heavily.

Mengyi Ansha (Friendship Shoal) (5°57'N, 112°32'E) lies at the northern end of Beikang Ansha with a depth of 8.2 meters.

Nankang Ansha (South Luconia Shoals), lying north and northeast of Chengping Jiao, consists of a mass of coral reefs. The broken and steep-to reefs in this area can be seen from high on the mast.

Haining Jiao (Herald Reef) lies at the southern end of Nankang Ansha and about 84 nautical miles west-northwest of Tanjung Baram. It is small coral atoll with a diameter of 0.4 nautical miles. The reef has 5.5 meters of water over it and is 54.9 meters deep at its center. It is steep-to and hard to recognize.

Qiongtai Jiao (Luconia Breakers) lies about 3.25 nautical miles northeast of Haining Jiao. The reef is above water and marked by heavy breakers.

Hai'an Jiao (Stigant Reef) (5°02'N, 112°29'E), with a horseshoe shape and depths of 4.6 to 11 meters, lies about 9 nautical miles west-northwest of Haining Reef. Near its northwest end is a small reef 4.9 meters deep.

Tanmen Jiao (Richmond Reef) lies about 2.5 nautical miles northeast of Qiongtai Jiao. The water is at least 4.9 meters deep around its center. To its north-northeast and south-southwest is a narrow raised area about 2 nautical miles long.

Yinbo Ansha (Connell Reef), with a least depth of 8.2 meters lies about 6.5 nautical miles northwest of Tanmen Jiao.

Chengping Jiao (Sierra Blanca) is situated about 89 nautical miles west of Tanjung Baram. A small exposed sand cay, surrounded by clear water, lies about 25 nautical miles to its south-southwest.

Lidi Ansha (Lydis Shoal) lies about 71 nautical miles west-northwest of Tanjung Kidurong. It is a small, 24.7 meter-deep coral shoal with depths of 45.7 to 49.4 meters around its edge.

Baxian Ansha (Parsons Shoal), 23.8 meters deep, and Zengmu Ansha (James Shoal), 21.9 meters deep, lie respectively about 14 nautical miles east and 16 nautical

miles east-northeast of Lidi Ansha. They are both formed by coral and extend a little distance offshore. During the Northeast Monsoon, their edges on the east are marked by breakers.

Yaxi Ansha (Tanjong Payong) consists of two small coral shoals. The southeast one is 16 meters deep, about 39 nautical miles northwest of Tanjung Kidurong, and the northwest one is 16.9 meters deep, about 6 nautical miles northwest of Dongnan Ansha (Sabine Patches).

#### ***1.4.3 Features East of the Dangerous Ground***

Haima Tan (Seahorse Shoal) is situated to the north of Dangerous Ground and on the western side of Palawan Passage. Its southern end lies about 67 nautical miles northwest of Table Cape. Another small shoal 8.2 meters deep lies about 0.75 nautical miles to its north. The shoal has depths of 34.7 to 50.7 meters on the reef and 11 meters in other places.

Yixin Shi (Madagascar Rock) lies in position 9°27'N, 116°56'E, with its northeast end about 0.6 meters above water.

Pengbo Ansha (Bombay Shoal) is located on the western side of Palawan Passage, about 28 nautical miles north-northeast of Jianzhang Jiao. The Shoal consists of a steep-to reef which completely encloses a lagoon that is 29.3 to 32.9 meters deep and has a sandy bottom. On the reef are several rocks which dry about 0.6 meters; those in the west and northwest are comparatively more conspicuous.

Jianzhang Jiao (Royal Captain Shoal) is located west of the narrowest portion of Palawan Passage, about 23 nautical miles east-northeast of Banyue Jiao. The reef is formed by an unbroken coral reef about 0.05 to 0.2 nautical miles wide. A few drying rocks are found on the reef. Shilong Yan (Observation Rock), which dries about 0.6 meters, lies on the northern extremity of the reef. The reef is steep-to around its edge and within 0.05 nautical miles the depth exceeds 182.9 meters. Ships can cross the reef into the lagoon at high tide. Depths of 27.4 to 31.1 meters, sand and coral, are found in the lagoon which is also encumbered with coral heads.

Banyue Jiao (Half Moon Shoal) lies on the western side of Palawan Passage, about 60 nautical miles northwest of Cape Buliluyan. The reef is formed by a submerged coral belt. A number of rocks lie on the reef and dry about 0.6 meters. Two channels, located respectively 0.2 nautical miles and 0.5 nautical miles southeast of the reef, lead to the lagoon. In the south of the channels, a group of rocks, standing about 0.6 meters above water, mark the entrance in the near south. Depths around the entrance are 7.3 to 16.5 meters. The lagoon is 25.6 to 29.3 meters deep, containing lots of coral heads.

Zhixiang Jiao (Director Reef), whose name is derived from *Director*, a British barque that grounded here in 1887, is at 8°28' North latitude and 115°55' East longitude.

Nanle Ansha (Glasgow Shoal) (8°29'N, 115°31'E) is composed of sand and rocks. The shoal extends about 3 nautical miles to its northeast edge and in some places it is 6.1 to 9.1 meters above the sea.