

CHINA'S ENERGY STRATEGY

The Impact on Beijing's Maritime Policies

中海

EDITED BY

GABRIEL B. COLLINS, ANDREW S. ERICKSON,
LYLE J. GOLDSTEIN, AND WILLIAM S. MURRAY

JOINT PUBLICATION OF THE
CHINA MARITIME STUDIES INSTITUTE AND THE NAVAL INSTITUTE PRESS

China's Energy Strategy

The Impact on Beijing's Maritime Policies

*edited by Gabriel B. Collins, Andrew S. Erickson,
Lyle J. Goldstein, and William S. Murray*



NAVAL INSTITUTE PRESS

Annapolis, Maryland

Naval Institute Press
291 Wood Road
Annapolis, MD 21402

© 2008 by The United States Naval Institute

All rights reserved. No part of this book may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and recording, or by any information storage and retrieval system, without permission in writing from the publisher.

Library of Congress Cataloging-in-Publication Data

China's energy strategy : the impact on Beijing's maritime policies / edited by
Gabriel B. Collins ... [et al.].

p. cm.

Includes bibliographical references and index.

ISBN 978-1-59114-330-7 (alk. paper)

1. Sea power—China. 2. Energy policy—Political aspects—China. I. Collins,
Gabriel B.

VA633.C55 2008

387.50951—dc22

2008009016

Printed in the United States of America on acid-free paper

14 13 12 11 10 09 08 9 8 7 6 5 4 3 2
First printing

Contents

Introduction xi

*Gabriel B. Collins, Andrew S. Erickson, Lyle J. Goldstein,
and William S. Murray*

Part I. CHINA'S ENERGY FUTURE AND NATIONAL SECURITY STRATEGY

Dilemmas and Imperatives of Beijing's Strategic Energy Dependence: The PLA Perspective 1

James Mulvenon

Energy as China's Achilles' Heel? 13

Chas W. Freeman Jr.

Scenarios for the Chinese Economy 21

Daniel H. Rosen and Trevor Houser

The Past, Present, and Future of China's Energy Sector 36

David Pietz

The Geopolitics of China's LNG Development 61

Mikkal Herberg

Chinese Efforts to Create a National Tanker Fleet 81

Gabriel B. Collins and Andrew S. Erickson

Part II. CHINA'S GLOBAL ENERGY ACCESS

China's Naval Ambitions in the Indian Ocean <i>James R. Holmes and Toshi Yoshihara</i>	117
China's Energy Strategy toward the Middle East: Saudi Arabia <i>Saad Rahim</i>	143
China's Evolving Relationship with Iran <i>Ahmed Hashim</i>	162
The Energy Component of China's Africa Strategy <i>Clifford Shelton</i>	186
China's Continental Energy Strategy: Russia and Central Asia <i>Vitaly Kozyrev</i>	202
Carving Up the East China Sea <i>Peter Dutton</i>	252
China, the South China Sea, and U.S. Strategy <i>John Garofano</i>	279

Part III. CHINA'S NAVAL DEVELOPMENT AND CONCERNS
REGARDING ENERGY ACCESS DENIAL

Chinese Naval Analysts Consider the Energy Question <i>Gabriel B. Collins, Andrew S. Erickson, and Lyle J. Goldstein</i>	299
The Energy Factor in Chinese Maritime Strategy <i>Bernard D. Cole</i>	336
China's Surface Combatants and the New SLOC Defense Imperative <i>James Bussert</i>	352

A Comparative Historical Approach to Blockade Strategies: Implications for China <i>Bruce Elleman</i>	365
---	-----

No Oil for the Lamps of China? <i>Gabriel B. Collins and William S. Murray</i>	387
---	-----

Part IV. CHINA'S ENERGY SECURITY AND
U.S.-CHINA RELATIONS

China's Naval Modernization Effort: Potential Implications for Required U.S. Navy Capabilities <i>Ronald O'Rourke</i>	411
Concerns with Respect to China's Energy Policy <i>Dan Blumenthal</i>	418
Energy Insecurity with Chinese and American Characteristics: Realities and Possibilities <i>Jonathan D. Pollack</i>	437

List of Abbreviations and Acronyms	457
------------------------------------	-----

About the Contributors	461
------------------------	-----

Index	473
-------	-----

PART III

China's Naval Development and Concerns Regarding Energy Access Denial

*Gabriel B. Collins, Andrew S. Erickson,
and Lyle J. Goldstein*

Chinese Naval Analysts Consider the Energy Question

AS CHINA RISES ON THE WORLD STAGE, one of countless interesting uncertainties concerns a possible intersection between China's developing energy strategy, on the one hand, and emergent Chinese naval strategy on the other. Beijing's extremely brisk economic development has vaulted China into the upper ranks of the world's oil importers.¹ China's seaborne oil imports continue to comprise more than 80 percent of total oil imports. While China obtains nearly one-third of its oil imports from Africa and has reduced its Middle Eastern oil import share by roughly 20 percent in recent years, it still faces serious maritime energy security concerns. In 2006, 76 percent of Chinese oil imports came from the Middle East and Africa. Whether this oil comes from Saudi Arabia, Angola, or Sudan, it must cross the long Indian Ocean sea lanes and pass through the Strait of Malacca.

Against this strategic backdrop, it is not surprising that some Chinese naval analysts believe that China needs the military capacity to protect its long and increasingly vital maritime energy supply lines.² In recent years, particularly since the mid-1990s, the pace of Chinese naval modernization has accelerated. Interestingly, this growth is not limited to diesel submarines, as one might expect of a Taiwan-centric Chinese military strategy,

but also includes impressive surface combatants. These simultaneous trends have prompted some to suggest that there may be a strong linkage between China's energy and maritime strategies. Indeed, the U.S. Department of Defense's 2007 annual report to Congress, *Military Power of the People's Republic of China*, states that "China has . . . offered economic assistance and military cooperation with countries located astride key maritime transit routes. Concern over these routes has also prompted China to pursue maritime capabilities that would help it ensure the safe passage of resources through international waterways."³

On 27 December 2006 in a speech to People's Liberation Army Navy (PLAN) officers attending a Communist Party meeting, Chinese president Hu Jintao declared, "we should strive to build a powerful navy that adapts to the needs of our military's historical mission in this new century and at this new stage" and is prepared "at any time" for military struggle.⁴ "In the process of protecting the nation's authority and security and maintaining our maritime rights," Hu emphasized, "the navy's role is very important."⁵ Hu added that China's "navy force should be strengthened and modernized"⁶ and should continue moving toward blue water capabilities.⁷ China's 2006 defense white paper offers further detail in support of Hu's assertions, stating that China's "Navy aims at gradual extension of the strategic depth for off-shore defensive operations and enhancing its capabilities in integrated maritime operations and nuclear counterattacks."⁸ There is a disparity between China's defense white paper, which hardly mentions energy, and the U.S. Department of Defense's report, which discusses energy as a major factor in China's military development. It is therefore necessary to further examine the extent to which China possesses, and will seek to develop, military capabilities to secure its substantial, rapidly growing seaborne energy imports.

The maritime dimensions of China's emerging energy strategy have received considerable attention from scholars and analysts, both inside and outside the People's Republic of China (PRC). Wu Lei, a leading China energy security expert at Yunnan University, explains: "The fact that China's future energy supply is overly dependent on the sea lanes and the fear that the U.S. might cut them off . . . drives much of Beijing's modernization of its navy."⁹ In a comprehensive survey of China's energy security by the National Bureau of Asian Research, Kenneth Lieberthal and Mikal Herberg also point out that "China's increasing dependency on [sea-borne] oil flows . . . is potentially accelerating China's development of the naval capabilities necessary to protect those lanes."¹⁰

Yet despite significant discussion of why China might not be willing to simply continue free riding on U.S. naval protection of its oil imports, few researchers have attempted to comprehensively analyze energy related writings in Chinese naval and maritime publications. In fact, Chinese maritime writings have become extremely prolific in recent years. There are at least five serious PRC professional publications concerned with naval warfare.¹¹ In addition, a variety of new books have appeared that discuss the direction of Chinese naval development; in fact, entire publishing houses appear to have been formed around this emerging theme.¹² This chapter will survey the maritime energy security discussions conducted by Chinese naval and energy analysts.

In Chinese naval and energy security source materials, maritime energy security discussions are not pervasive. There are two key reasons for this. First, with the exception of three short periods, the PRC has lacked a central energy ministry with real authority over other energy sector players.¹³ Second, analysts are apparently forbidden to publish on certain sensitive topics. For example, a well-informed Chinese scholar recently told one of the authors that "although China is not pursuing a 'String of Pearls' strategy [in the Indian Ocean], we are nonetheless forbidden to publish on that topic."¹⁴ The dearth of specific Chinese sources on maritime energy security makes it vital to consult a wide range of Chinese naval and energy security writings in order to glean insights into the maritime dimension of China's energy strategy.

A simple survey of China's official naval journal, 当代海军 (*Modern Navy*), from 2003–6 reveals only a small number of articles devoted to maritime energy issues. Nevertheless, these articles express major concern with respect to China's energy vulnerability. Moreover, China's naval weakness is highlighted as a major contributing factor to this vulnerability. The tenor of these concerns suggests a strong disinclination by Chinese naval strategists to accept U.S. or Western control over Beijing's "oil lifeline" ("石油生命线").¹⁵ There is no question that this unease helps to fuel China's naval buildup. However, one interesting finding of this study is that Chinese naval analysts are attuned to the complicated reality of China's energy challenge, and express a clear readiness to engage in cooperation with other oil-consuming great powers, including the United States, to secure oil and gas supply stability. In the end, it seems that Beijing is opting for an energy "hedging" strategy that includes diplomatic, commercial, and military aspects, among which the naval component features relatively prominently.

This analysis of energy discussions among Chinese naval analysts will proceed in six steps. First, a context for the naval strategy discussion will be established by briefly examining the broader trends in both energy and naval

strategy. Second, the chapter will investigate the distinct maritime ideology that has emerged in China over the last decade and its focus on developing and protecting off-shore resources for China's national development. The third section of the chapter will describe the geostrategic challenges China faces in protecting a supply chain that stretches deep into the Middle East and Africa. The fourth will assess the calculations of China's naval analysts concerning possible threats to this critical energy sea line of communication (SLOC). Bearing these threat assessments in mind, the fifth section will evaluate the recommendations of these analysts regarding the future trajectory of China's fleet development. A final section describes the (somewhat surprisingly) ample cooperative aspects of these naval writings on Chinese energy strategy.

The Context for Naval and Energy Strategy Development

Naval and energy policy vectors are developing within the context of China's peaceful development strategy, and more broadly in a global strategic environment at least partly conditioned by China's "new diplomacy."¹⁶ Beijing's newly agile foreign policy fully develops soft power principles in featuring highly skilled diplomats, a plethora of commercial initiatives, a flexible approach to a variety of previously intractable problems, and dramatic new willingness to shoulder responsibilities for upholding international order (e.g., peacekeeping). There is no question that China's primary focus is on its internal development—it is reassuring, for example, that Beijing's upgrading of road and rail infrastructure seems to have higher priority than the development of many weapons systems. This priority is fully consistent with the emergence of China's fourth generation leadership, which is noteworthy for its lack of experience in military affairs.

Nevertheless, China's military has made dramatic improvements in the last decade, no doubt largely due to the vastly improved economic situation. A major achievement of Chinese foreign policy during this period is that Beijing's continental flanks are now almost entirely secure. This has enabled Chinese military development to focus on improving aerospace and maritime capabilities. The Taiwan contingency has served as a precursor for the creation of the world's most capable conventional, tactical ballistic missile force. China has imported several hundred advanced fighter aircraft from Russia and has now begun serial production of its own indigenous fourth generation fighter aircraft in parallel. Improvements are also evident in the crucial arena of intelligence, surveillance, and reconnaissance capabilities. China's naval development has clearly accelerated. A priority on undersea

warfare is evident: China has been building four classes of submarines simultaneously. The "Song incident" near Okinawa on 26 October 2006, when a Chinese diesel submarine reportedly penetrated the protective screen of the U.S. Navy's *Kitty Hawk* carrier battle group in the vicinity of Okinawa, might suggest a new era of skill and confidence among China's submarine skippers.¹⁷ Clear improvements in antiship missiles, high-speed attack vessels, amphibious warfare, and—above all—air defense, when coupled with the improvements described earlier in the aerospace realm, explain why Beijing apparently has increasing confidence that it "controls" the Taiwan issue.¹⁸ Whereas strategic debates have focused on Taiwan contingencies over the last decade, the new strategic questions concern China's wider regional, and potentially global, ambitions.

To answer such questions, it will be critical to understand the state of China's current debate over energy strategy. Chinese energy security writings have become prolific in recent years, reflecting a vigorous national debate among civilian experts and scholars. "Economic liberals" like Zha Daojiong of People's University in Beijing argue that China's path to energy security lies in greater integration with the existing global energy market.¹⁹ Doing so is cheaper and aligns Beijing more closely with the oil-consuming powers that share many of its core interests in this sphere. The liberal approach enables China to benefit from a "mutual fund" effect, in which China's energy risks are lowered because its interests become tightly interwoven with those of other major "investors" in a world oil system that benefits all major consumers and that none wish to disturb.

By contrast, "neomercantilists" such as Zhang Wenmu of Beijing University of Aeronautics & Astronautics take a darker view based on the zero-sum premise that oil supplies are running out and that each consumer must fight for an exclusive piece of the pie.²⁰ A neomercantilist approach to energy security is driven by distrust of the global oil market and entails paying whatever it takes to secure access to reserves, emphasizing bilateral state-to-state deals, and building up a military force that can secure one's energy supply lines. World Security Institute researchers emphasize Chinese concerns that the United States has shown a "proclivity to embrace oil sanctions and blockades in exercising coercive diplomacy" and that "denial and coercion have been the hallmarks of U.S. oil strategy toward adversaries."²¹

China's petroleum security strategy is evolving as the National Development and Reform Commission and other Chinese energy policy-making bodies realize that equity oil (i.e., direct ownership of oil reserves) does not guarantee oil security. Instead of the previous exclusive focus on securing

overseas oil production, the new aim may be to control the transport of oil back to China.²² For further details concerning China's apparent development of a national tanker fleet for this purpose, see the chapter by Gabriel Collins and Andrew Erickson in this volume.

China's increased emphasis on the mid- and downstream segments of its oil and gas supply chain has direct military implications. Protecting upstream assets (oil fields) is very difficult and requires that substantial ground forces enter a sovereign country and secure the area. Defending midstream assets (e.g., tankers at sea) is more feasible but requires robust naval and aviation capabilities.²³ At present, it seems plausible that China's rapid naval and aerospace force modernization might be driven in part by the perception that China requires the capability to protect its resource supply lines in a crisis.

The Role of Energy in China's New Maritime Ideology

China's new maritime ideology is composed of a number of elements. There is a historical fascination with the exceptional Zheng He episode of the Ming Dynasty. There is an evident determination to grasp an ever-larger share of the world shipbuilding industry, as well as container transport and port operations. But there is also a natural resource/energy component to this emerging ideology that is somewhat Malthusian in character. The logic is that extensive foreign resources are required to sustain China's current growth trajectory and, moreover, that some of the most critical of these required (energy) resources are located along China's maritime periphery. Finally, U.S. military activism in the greater Middle East over the last five years has conditioned the views of Chinese security analysts toward energy questions.

Despite its largely insular and continental history, China appears to be decisively turning to the sea as its trade relationships blossom and resource demand grows. In 2006 maritime industries accounted for \$270 billion in economic output (nearly 10 percent of GDP).²⁴ While the Ming dynasty admiral-navigator Zheng He has become an iconic figure for contemporary China, it is also recognized that he is an exceptional figure in modern Chinese history. As early as the 1980s Chinese intellectuals criticized "the mentality of a servile, static, and defensive people who always meekly hug to mother earth to eke out a miserable living, rather than boldly venturing forth on the dangerous deep blue sea in search of a freer, more exalted existence."²⁵ This movement, which was quite consistent with the "reform and opening up" (改革开放) ethic of the Deng Xiaoping era, asked "How can the 'yellow' culture of the earth be transformed into the 'blue' culture of the ocean?"²⁶

China's new maritime ideology should not be underestimated and does appear to serve as a fundamental basis for developing Chinese naval strategy. What is interesting for the purposes of this study, however, is that energy resources appear to have a distinctly important role within this ideology.

A series of naval strategy books published in the PRC during 2003 under the overarching theme of "The Chinese Nation and the Ocean" establishes a relatively firm link between naval strategy and resource concerns in China. The introduction to one of these books, 蓝色方略 (*The Blue Strategy*), explains that "in today's world, the population is growing as land-based resources are depleted. Conflict and competition over maritime rights and interests are intensifying with each passing day."²⁷ Another book in the series, 卫海强军 (*A Mighty Force to Protect the Sea*), suggests that "whether or not the serious resource question is resolved will strongly impact how China's development strategy is realized, and whether China can accomplish its rise and rejuvenation." China's ability to resolve "the serious resource question" in a manner that supports its development strategy will require new "resource space" (资源空间) that can only be found in maritime domains.²⁸ A third book in the series, 戍海固边 (*Defend the Sea with a Solid Boundary*), observes that "turning to ocean resources and also to foreign resources has become a crucial strategic step for sustaining national economic development." In anxious tones, the authors relate, "The world has begun to enter a new era of competition and carving up of the ocean."²⁹

Demonstrating that a link between naval and economic power is now well accepted in China, Alfred Thayer Mahan's dictum that commerce is vital to maritime power, and that the best way to threaten and defend it is by engaging the naval forces in decisive battle is pervasive and cited in particular in a recent book by two Chinese naval officers, 海上力量与中华民族的伟大复兴 (*Sea Power and the Chinese Nation's Mighty Resurgence*).³⁰ Published by the PLA National Defense University in Beijing, it emphasizes the critical role of controlling sea lanes for the purposes of developing sea power, as well as developing the nation's economy. Its authors contend that sea powers have generally enjoyed great geostrategic advantages over land powers—an argument with major implications for China's future development. Once again stressing the link between economic and naval power, the two naval officers note, "from an economic power standpoint, maritime civilizations . . . are far superior to continental civilizations."³¹

Particularly relevant to this discussion of energy security, the authors observe that continental powers have frequently been surrounded and blockaded with considerable strategic effect. Taking a broad look at China's

strategic environment, they suggest that “the continental threat to China has dramatically decreased, while maritime threats are increasing on a daily basis.”³² One of the critical reasons for the deterioration of the security situation on China’s maritime flank is said to be that its “natural resources are being plundered . . . [for example] in the South China Sea.”³³

Recent American actions have greatly influenced the views of Chinese analysts with respect to energy security. According to a 2004 article on energy security in China’s foremost naval journal, *当代海军* (*Modern Navy*), “The 9.11 events gave the United States an opportunity to assert greater control over the oil-rich Middle East. The wars in Afghanistan and Iraq ensured that Middle Eastern oil and gas was ‘in the bag’ for the United States.”³⁴ Looking beyond the Middle East to the U.S.–Russian pipeline diplomacy in the Caucasus of the 1990s, this PLAN analyst takes an important lesson: “The competition was not market- or economic-type competition, but rather was a competition to control oil.” There is little doubt that the situation in the contemporary Middle East has made an impression. The author of this analysis relates: “The great powers compete for oil [because whichever state] controls the oil can also control the lifeblood of other countries’ economic development, [but whichever state] controls the Middle East can control that of the [entire] world economy.” Such perceptions are important. If Chinese policymakers see the oil market as U.S. controlled and unreliable and come to doubt Washington’s willingness to impartially keep critical oil SLOC open, they might push hard to create a blue water navy. Such actions could mark a strategic tipping point in the Sino–American relationship and could set off a cascade effect of more assertive SLOC security policies by Japan and other major oil importers.

China’s New “Grand Canal”

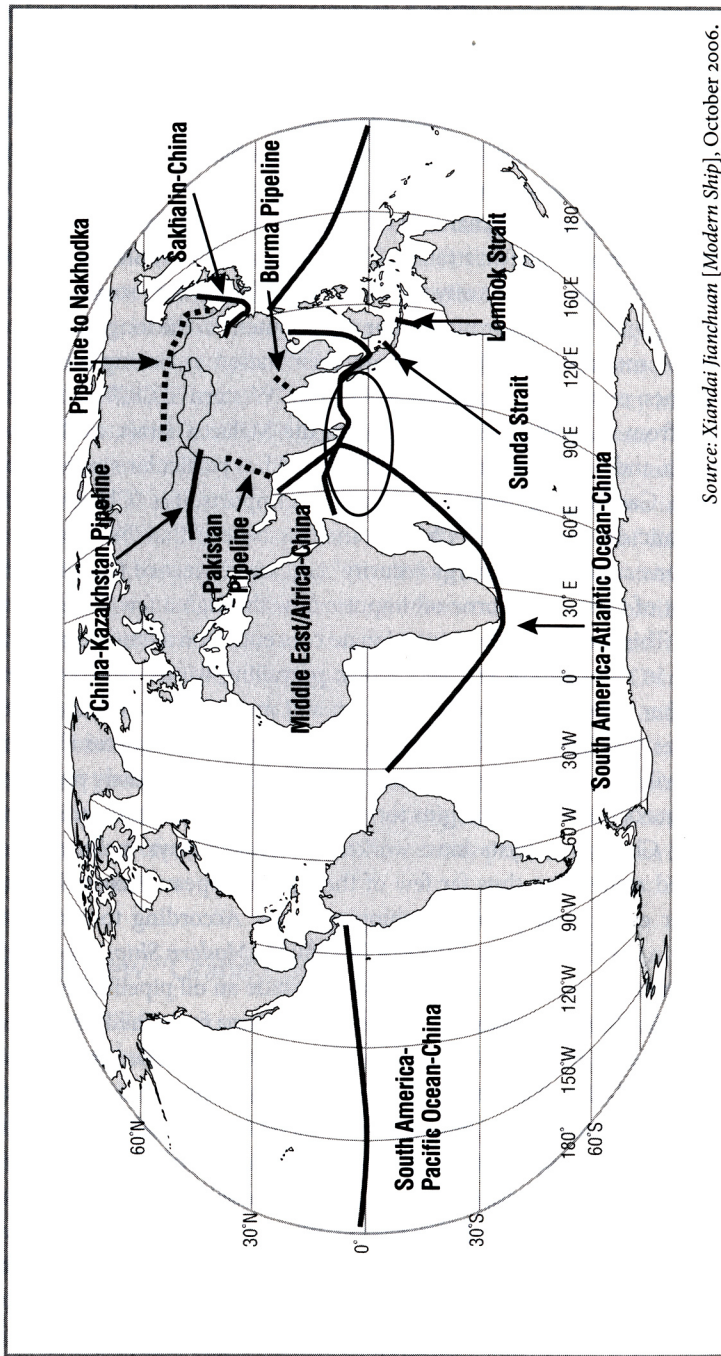
Over a millennium ago the Grand Canal connecting Hangzhou in central China with Beijing in the north became a critical artery for the dynamic growth of Chinese civilization. Over the last decade, the SLOC connecting China to the Middle East and Africa has assumed a similarly vital role as a major “center of gravity” for China’s future economic development. A recent article by a PLAN senior captain in the renowned journal *中国军事科学* (*China Military Science*) illustrates China’s growing global maritime interests, stating that today “[China’s] open ocean transport routes pass through every continent and every ocean [and] through each important international strait [to] over six hundred ports in over 150 nations and [administrative] regions”

and projects that “by 2020, China’s maritime commerce will exceed U.S. \$1 trillion. It may be[come] necessary to import three-quarters of [China’s] oil from overseas.”³⁵ Chinese defense intellectuals have clearly seized on energy SLOC security as a major issue, as evidenced by an edited volume published by the China Institute of Contemporary International Relations (CICIR), which states, “because oil is the most essential commodity of international trade, [SLOC] are also oil channels on the sea.”³⁶ In addition, the PLA’s first English-language volume on strategy, *The Science of Military Strategy*, emphasizes that to “ensure the security of [the] channel[s] of [our] strategic energy supply is . . . of great significance to our development in the long run.”³⁷

China’s modern strategists envision their nation as having four strategic sea lanes: east, south, west, and north. The “Western SLOC” (西行航线), running from the Indian Ocean, through the Malacca Strait, to the South China Sea, and finally to the Chinese mainland has particular strategic value for China. Carrying 80 percent of Chinese oil imports, it is “China’s ‘lifeline’ of economic development.”³⁸ Chinese analysts believe that “without SLOC security, one cannot have energy security” and are concerned that more than 75 percent of China’s seaborne oil imports flow through a few key maritime arteries.³⁹ This seemingly disproportionate concentration stems from the fact that even in the modern era, geography, prevailing winds, ocean currents, and weather patterns determine the safest and most efficient maritime shipping routes.⁴⁰ Shippers would likely only consider alternate routes if customers were willing to bear the additional transport costs, an unlikely prospect in an era of razor-thin profit margins for a large proportion of consumer goods.

Many Chinese analysts have worked to identify ways to bypass these established routes, but thus far few of their plans appear likely to substantially alter established global oil shipping lanes. According to a map that appeared in the October 2006 issue of *现代舰船* (*Modern Ships*) (see map 1), such alternative routes could in the future include an oil pipeline from Siberia, a pipeline from Pakistan, one running into China from the Burmese port of Sittwe, and finally the just-completed Kazakhstan pipeline that carries oil into western China. The accompanying analysis, however, is skeptical that these pipelines could solve China’s “Malacca Problem.” Regarding Russia, for example, it is suggested that Moscow’s evident distrust of China means that the Kremlin “will not accept putting its lifeline under the control of another great power.” Conversely, CICIR scholar Zhang Xuegang maintains that a proposed canal across Thailand’s Kra Isthmus “could . . . provide a strategic seaway to the Chinese navy” through which “fleets could . . . more easily protect the nearby sea-lanes and gain access to the Indian Ocean.”⁴¹

Map 1. Conceptual Map of Key Current and Potential Future Chinese Oil Transport Routes



Source: Xiandai Jianshuan [Modern Ship], October 2006.

In general, it is held that land-based oil pipelines will help diversify China's oil import channels to some extent but that they cannot replace maritime oil transport. Available overland supplies from Russia and Kazakhstan and other areas are insufficient to offset China's rapidly growing seaborne oil imports. Also, offloading seaborne crude in Burma or Pakistan to avoid Malacca makes little economic sense because relatively small volumes of crude will have to be pumped at very high cost to interior parts of China, far from the booming East Coast demand centers, and then redistributed once again from the pipeline termini to main consuming areas.

Moreover, regarding the various pipeline projects, it is suggested that "land-based oil pipelines are China's necessary choice for oil import diversification, and will no doubt advance China's oil security, but land-based pipelines cannot replace the role of sea-borne oil transport, [so] it is not possible to cast off the maritime transport [problem]."⁴² Moreover, regarding the various pipeline projects, it is suggested that "actually, the greatest threat to Chinese oil transport through the Malacca Strait is neither piracy, nor terrorism, but rather the massive sea power of the United States. The China-Pakistan and China-Burma pipelines will not diminish the hidden threat to China's oil transport from the United States, Japan and India."⁴³ Another article in *舰船知识* (*Naval & Merchant Ships*) states more succinctly, "SLOC security is much more important than pipeline transport lines."⁴⁴

It is therefore reasonable to assume that China will continue to rely on the Indian Ocean sea lanes, the Malacca and Hormuz Straits, and the South and East China Seas as its primary oil import channels.

Chinese writers have dubbed the Strait of Hormuz the "Oil Strait" (石油海峡) because China obtains approximately 40 percent to 45 percent of its oil imports from the Middle East, the vast majority of which must flow through Hormuz.⁴⁵ Chinese analysts recognize the Middle East's instability, noting that since 1951, ten of sixteen major global oil supply disruptions have originated in the region.⁴⁶ Nevertheless, they realize that despite a concerted campaign to diversify away from the Middle East, China will remain heavily reliant on the region for much of its oil supplies. Indeed, a recent PRC analysis notes that over the next ten to fifteen years, oil imports to East Asia through the straits of Hormuz and Malacca will increase, and by 2020 China could be importing nearly 4 million barrels per day of oil from the Middle East (over twice the current average level of 1.5 million barrels per day).⁴⁷ Chinese analysts pointedly note that "all [the] oil that China imports from the Middle East and Africa has to go through the Straits of Hormuz and Malacca, but [they] are beyond the reach of the PLAN's power."⁴⁸

Chinese analysts worry about the Hormuz Strait's vulnerability but are even more concerned about Malacca, which they call East Asia's "maritime lifeline" (海上生命线).⁴⁹ Eighty percent of Chinese oil imports flow through Malacca, including virtually all of China's imports from the Middle East and Africa (the latter of which represents 26 percent of China's total).⁵⁰ For this reason, states one Chinese source, "the Malacca Strait is China's maritime oil lifeline, for China's economic security it is akin to breathing itself."⁵¹

Chinese naval analysts fear that Malacca, which "has become the strategic throat of China's energy and economic security,"⁵² "is extremely narrow, easy to blockade" (十分狭窄, 易于封锁).⁵³ "Whoever controls the Strait of Malacca," therefore, "effectively grips China's strategic energy passage, and can threaten China's energy security at any time. Moreover, China must enter the world; the PLAN must enter the ocean, and has to pass through the Strait of Malacca."⁵⁴ These factors produce substantial Chinese concern: "Currently, 95% of China's oil imports are transported by sea; of these, 80% transit the Malacca Strait. This strait is easy to blockade . . . but [this mission] is beyond the power of China's Navy, so that if this occurs, then China's resource security will be gravely compromised."⁵⁵

Chinese naval writings mention piracy and terrorism as threats to the oil flow through Malacca, noting that "in 2001 alone, there were over 600 piracy incidents."⁵⁶ The foremost concern, however, is clearly the strong U.S. presence in the region, which has increased with the ongoing global war on terror. China is uneasy with growing U.S.–Singapore security cooperation and the notion that the United States appears to be cementing its regional strategic position under the guise of "combating terrorism." Chinese analysts reserve special scrutiny for what they regard as an American chokepoint control strategy. As quoted in an article in *现代舰船* (*Modern Ships*), "former National Security Advisor Brzezinski stated revealingly: the Malacca Strait is a key sea area, the control of which [could] check the rise of a great power in the Asia-Pacific Region."⁵⁷ Another analyst adds, "Everyone knows that the Malacca Strait is tightly linked to the South China Sea—a so-called second Persian Gulf—and grips the throat of both the Pacific and the Indian Oceans."⁵⁸

The South China Sea is one of China's critical oil transport zones because China-bound oil flowing through Malacca must also transit on its way to southern and eastern China. As one book states, "it is China's portal to the Indian Ocean, a major maritime communications thoroughfare to the West. It also the critical economic portal of many nations to the Middle East, Europe, and Africa, especially with the rapid development of oil extraction

and commerce in the Middle East and Southeast Asian regions. The strategic position of shipping in the South China Sea is also extremely important."⁵⁹

Moreover, the South China Sea is a vital transport corridor for liquefied natural gas (LNG), carrying two-thirds of the world's current LNG trade.⁶⁰ At present, Japan and South Korea are the region's primary LNG users, but the LNG transport security question is of increasing interest to China, which by 2020 may be importing more than 30 million tons per year.⁶¹ For additional information concerning the maritime implications of Chinese LNG development, see the chapter by Mikkal Herberg in this volume.

China is also keenly interested in producing oil and gas from the South China Sea, which has been called a "second Persian Gulf" (第二波斯湾) by many Chinese observers.⁶² As two analysts state, "oil and gas reserves could reach 3.5 billion tons [or more than 25 billion barrels of oil equivalent]. . . . It is one of China's huge resource treasure houses, [and is] extremely important for China's economic development."⁶³ A PLA publication also claims that the South China Sea possesses "rich oil reserves equivalent to that of Middle East."⁶⁴

While Chinese analysts' reserve estimates are perhaps excessively optimistic, their statements are worth considering insofar as they reveal that Beijing may attach a high value to the region's oil and gas production potential. This could become particularly important if China increases exploration and production activities in the South China Sea as a way to reduce oil and gas import dependency, and thereby reduce vulnerability to SLOC disruption. Some naval analysts have advocated this as one component of a strategy to reduce China's vulnerability to a U.S. energy blockade.⁶⁵ In collaboration with China National Offshore Oil Corporation (CNOOC), Hong Kong-based Husky Resources recently made a world-class gas find 250 km south of Hong Kong.⁶⁶ If China discovers more fields of this magnitude, it could further increase Beijing's interest in the area.

Chinese observers recognize that major outside powers, particularly Japan and the United States, are determined to maintain freedom of navigation through the South China Sea.⁶⁷ As one PRC naval analyst notes, "the U.S. clearly indicates that it has important interests in the South China Sea region. Through the 'American Overseas Interests Act' the U.S. Congress has stated that freedom of navigation in the South China Sea is 'vital' to U.S. national security."⁶⁸

Like the South China Sea, the East China Sea has attracted the interest of Chinese analysts because of its energy resources, the value of which they likewise seem to exaggerate. "The East China Sea's continental shelf could

be one of the world's richest oil fields," declares one book on Chinese naval strategy. "The waters near the [disputed] Diaoyu [Senkaku] Islands could become the 'Second Middle East.'"⁶⁹ However, the East China Sea is typically mentioned in the context of energy and territorial disputes with Japan, as opposed to SLOC security per se. Nevertheless, this region contains some of China's most important ports, and, unlike the Malacca Strait and Indian Ocean energy lanes, lies near Chinese air and naval bases.

Pervasive in the Chinese naval analyses cited above is the notion that China is currently hemmed in by the natural features of its surroundings, which generally concentrate its maritime energy supply chains in areas where powerful potential adversaries might easily interdict them. One analyst states,

Looking from the standpoint of strategic geography, the outer fringe of China's sea areas is completely surrounded by island chains. . . . Power to control the SLOC approaching [China's] offshore sea areas is basically in the hands of the U.S. and Japan. These two countries will always attempt to blockade China within offshore waters, [by] installing surveillance networks under-sea, on the surface, and in the air [so that] China's naval vessels coming in and out of the island chains will receive tight scrutiny. In wartime, it is possible that PLAN vessels might suffer enclosure, pursuit, blocking, and interception by the enemy.⁷⁰

The next section will explore which threats Chinese naval analysts fear most, and under which scenarios they might arise.

The Perceived Threats to China's Major Energy SLOC

It is often said that U.S. naval supremacy is an excellent guarantor of the global commons and that Beijing actually benefits substantially from the stabilizing role that American naval hegemony plays, perhaps especially with respect to energy markets and the related question of sea lane security.⁷¹ Unfortunately, the writings surveyed here do not suggest that such views are common among Chinese naval and security analysts. Instead, they generally perceive a very substantial naval threat to China's long energy supply line. One analyst notes that oil and gas supply routes often become important military targets in wartime. Taking the Pacific war as an example, he points out that "Japanese tankers became Allied targets and in 1944, Japanese oil imports were halved. By early 1945, Japanese oil imports had basically been stopped."⁷²

In analyzing the threats to China's major energy SLOC, Chinese naval analysts contend that this threat does not emanate solely from Washington.

Despite the breakthrough bilateral naval exercises with India in 2005 and Hu Jintao's successful November 2006 visit to India, Chinese analysts are acutely aware and anxious that India commands a dominant position astride China's most important energy SLOC. Chinese naval publications keenly follow Indian naval development.⁷³ Chinese analysts are impressed by India's naval development, perhaps especially in the realm of naval aviation, and fear that such capabilities could allow New Delhi to "effectively prevent any outside great power's Navy from entering the Indian Ocean."⁷⁴ Moreover, Chinese observers also note India's enhanced capability to project power to the East. Indeed, a 2004 article in *现代舰船* (*Modern Ships*) reviews New Delhi's establishment over the past decade of a Far Eastern Fleet (远东舰队), increased operational presence in both the Andaman Sea and in the vicinity of the Malacca Strait, and increased joint exercises with the U.S. Navy.⁷⁵ Perceiving an ensuing threat to vital SLOC, one Chinese analyst observes, "the Indian Navy's attention extends from the Arabian Sea to the South China Sea. Tankers carrying China's oil imports pass through Indian Navy-controlled seas every day."⁷⁶

According to another Chinese analyst, it is the U.S. Navy presence in the Arabian Sea and the Persian Gulf, together with "the cruising of Indian naval task forces in the Indian Ocean and the Malacca Strait's western entrance, [in addition to] Japan's sending troops overseas and great deployment of Japan Maritime Self-Defense [Force] destroyers [that] invariably constitute overwhelming pressure on China's oil supply."⁷⁷ Indeed, other naval analysts have been critical of Japan's deployment to Iraq, arguing that this initiative has more to do with the politics of energy than with any humanitarian motives.⁷⁸ In appraising Japan's newly evolving defense posture, Chinese analysts are concerned that "Japan's defense scope has extended to the Taiwan Strait and could include the Malacca Strait. [Also,] Japan has used Singapore's air bases."⁷⁹ There was additional concern with respect to an emphasis on the Malacca Strait in the 2005 Japanese defense white paper.⁸⁰ Perhaps not surprisingly, PRC naval analysts also closely monitor the military activities of other regional powers near this critical SLOC (e.g., Indonesia).⁸¹

Nevertheless, as a recent maritime oil security analysis in *现代舰船* (*Modern Ships*) states, "For the foreseeable future, the U.S., Japan, and India are the three countries that have the capability to cut China's oil supply lines. However, cutting China's oil supply lines essentially means starting a war with China. . . . Only the U.S. has the power and the nerve to blockade China's oil

transport routes.”⁸² The same Chinese naval analysis suggests two possible scenarios wherein the United States might seek to embargo China’s energy supplies. The first would be a Taiwan contingency “if the mainland’s military power proved insufficient to deter the United States from intervening.”⁸³ The second is somewhat more vague: “If China’s rise is not of a peaceful character, or if the speed of the rise is too rapid, and thus poses an extremely large, extremely rapid and fundamental challenge to American hegemony and the international system, the U.S. could blockade China’s maritime oil transport lines, thereby cutting short China’s rise.”⁸⁴

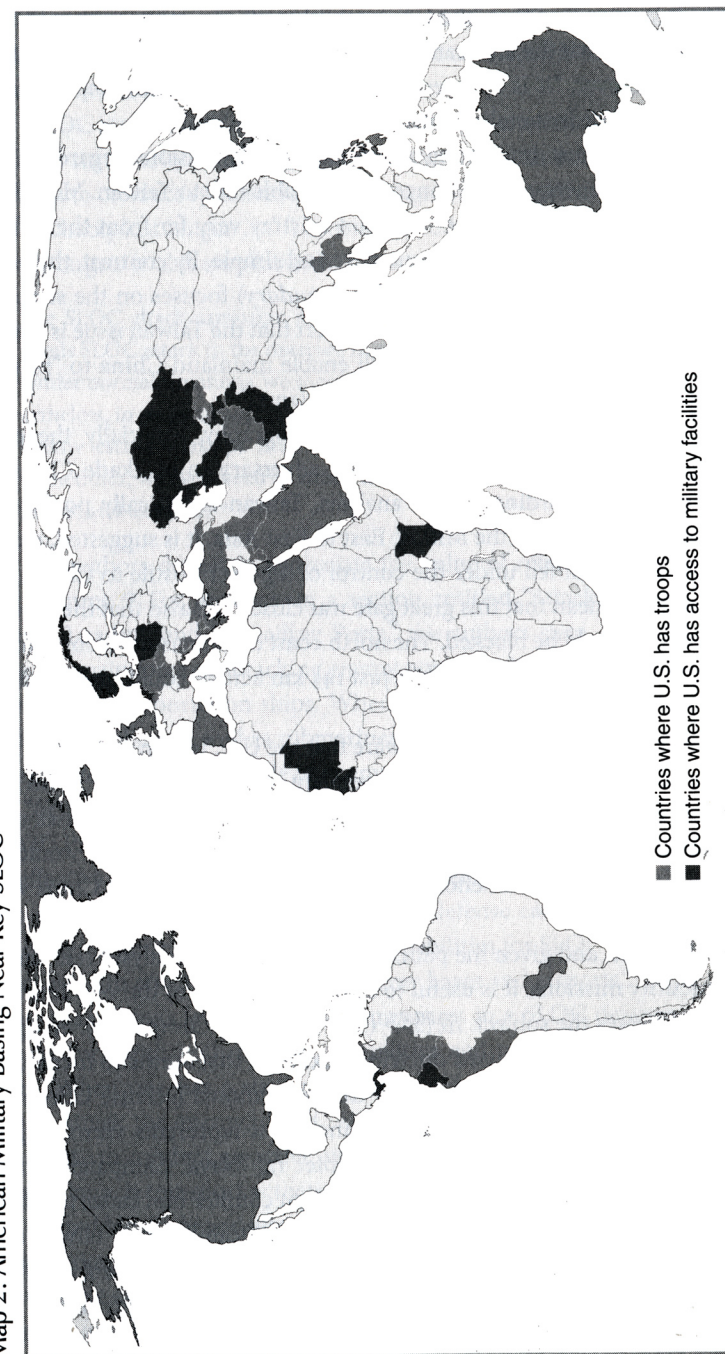
It is argued that, in addition to the Malacca Strait, American forces could block China’s energy sea lanes at multiple points. This is interpreted as a source of considerable leverage for the U.S. Navy vis-à-vis China.⁸⁵ Another analysis arrives at similarly stark conclusions: in 1993, there was

an incident in which the U.S. Navy intercepted the merchant ship ‘Yinhe’ in the Indian Ocean; ten years later there has been no fundamental improvement in the situation. The U.S. can carry out a ‘Yin He’-like interception at any time, and can speed toward and intercept China’s tankers in the Indian Ocean. Under these particular circumstances, [China] cannot eliminate the possibility of a similar situation happening again. For example, if war erupts in the Taiwan Strait, once the U.S. intervenes, it could absolutely consider this same strategy, and using its preponderance of sea power in this place far removed from mainland China, cut off China’s oil supply.⁸⁶

A similarly pessimistic naval strategy assessment concludes: “At a critical moment of America’s choosing, the U.S. military could completely control sea-borne oil transport routes from the Persian Gulf oil-producing countries through the Indian Ocean to our South China Sea by stopping and inspecting transiting ships. In a Taiwan crisis, an American embargo of seaborne oil transport and SLOC cannot be ruled out.”⁸⁷

Chinese naval analysts are particularly sensitive to the growth of U.S. influence in and around the Strait of Malacca. One PRC analysis concludes that “whoever controls the Malacca Strait can at any moment threaten China’s energy security.”⁸⁸ Its authors ask whether the Malacca Strait will become yet another American forward military position in the Asia-Pacific (see map 2).⁸⁹ Another analysis asserts that there is a “grave, hidden threat” to China’s energy security: “Which state can control the Malacca Strait? The United States, of course.”⁹⁰ PRC naval analysts have noted that during the 1990s the Seventh Fleet logistics command was moved from Subic Bay in the Philippines to Singapore’s Changi Naval Base.⁹¹ Referring to the problem of sea lane

Map 2: American Military Basing Near Key SLOC



security, it is suggested that “the U.S. establishment of a military base in Singapore indicates that the area can be placed under the control of U.S. military power.”⁹² Moreover, “it is apparent that the United States has employed the war on terror in order to take control of the Malacca Strait.”⁹³

One of the most interesting naval strategy discussions regarding the threat to China’s energy SLOC concerns a possible link to Taiwan. Most PRC analyses of the Taiwan question tend not to stray very far from the official line that Taiwan is a sovereignty issue pure and simple. By contrast, the book 戍海固边 (*Defend the Sea with a Solid Boundary*) focuses on the strategic value of the island for China. Its authors assert that the Taiwan issue is a matter of survival for China because it will enable mainland China to “project upon the Pacific Ocean’s critical strategic sea lanes.”⁹⁴

The authors suggest that unfavorable geography, especially the enemy’s position on Taiwan, has enabled the adversary to blockade China in the recent past. According to this analysis, Taiwan is critically positioned along the “oil route” from the Middle East to East Asia. It is suggested, moreover, that “if Taiwan fell under the control of a power hostile to China, not only would this mean that this great gate was closed but also that the Taiwan Strait Channel could be blocked. The north coast of China’s most convenient channel, the Gonggu Strait, which is just 145 km across, could be blockaded relatively easily by a modern navy.”⁹⁵

Chinese naval analysts are well aware that the U.S., Indian, and especially Japanese economies are also highly dependent on seaborne trade in oil and gas. It has even been suggested that, at least in the near term, China’s only viable naval response to the embargo scenarios mentioned above would be a strategy of retaliation—an effort to answer an embargo against China with “an eye for an eye.”⁹⁶

On this note, and given the paucity of available PLA analyses relevant to SLOC security missions, it is useful to examine here one of the very few that directly addresses the subject. 战役学 (*The Science of Campaigns*), an operationally and tactically focused doctrinal textbook that seems to focus on a Taiwan contingency, was published by China’s National Defense University in 2000. While its level of authority is unclear, it represents views of pre-eminent military thinkers in Beijing. Chapter 12, “Naval Campaigns,” contains detailed discussions of how the PLA might counter blockades to which it might be subject, all of which have obvious applicability to a Taiwan scenario.⁹⁷ The authors seem to subscribe to generic “Mahanian” theories of sea power. “It is decisively significant to find and assault the enemy first,”⁹⁸ the authors state, “We should try to make the first attack a success.”⁹⁹

The chapter repeatedly stresses the primacy of offensive initiative to secure command of the sea. The importance of offense is recognized even in situations of Chinese weakness.

“SLOC attack campaigns are not always conducted in situations in which we have superiority. When our naval strength is in an inferior position, and we want to conduct systematic sabotage against enemy SLOCs, the campaign will probably last longer. . . .” The need for China’s navy to attack a variety of enemy targets is also emphasized:

The SLOC attack campaign not only needs inshore SLOC attack, but also needs SLOC attack in the deep sea in order to achieve good campaign effect. Under normal situations, we should attack enemy transportation ships. Nevertheless, in order to accomplish this goal smoothly, we often need to attack enemy escort warships first, even the enemy campaign covering escort. Sometimes, we even need to attack the enemy loading and unloading ports, docks, and airports.¹⁰⁰

The authors definitely appreciate the value of offensive, not just defensive, mining.¹⁰¹ For instance, in a section entitled “Attacking and Blocking Enemy Loading and Unloading Ports,” the authors state, “we will concentrate the main force on attacking enemy ports, loading and unloading equipment, and transportation ships. When attacking enemy ports, a portion of air force bombers as well as submarines are used to deploy sea mine barriers in the water channels outside of enemy ports to blockade them.”¹⁰²

“Active defense” concepts allow for offensive actions even in a Chinese “SLOC Protection Campaign.” Thus, “active . . . local offensive operations are an effective measure to reduce and limit enemy capabilities for transportation sabotage combat in a transportation defense campaign.”¹⁰³ Specifically, “In order to weaken and limit enemy capabilities for SLOC attack, we sometimes need to attack and blockade enemy bases and airports.”¹⁰⁴ The authors argue that China’s level of offensive measures in a SLOC defense campaign should vary with both relative capabilities and with the operational situation: “When one has a stronger operational force, launch an active offensive to attack the enemy’s SLOC attack force. . . . When one does not have the ability to conduct an active attack and the enemy does not attack us, we start to launch transport activities under concealment. . . . When the enemy has started blockade and attack activities, we start the campaign with various anti-blockade and counterattack combat activities.”¹⁰⁵

Despite emphasizing offensive fleet action throughout the chapter, however, the authors acknowledge that the dispersed nature of combat and fleet

operations today makes obtaining a single decisive battle difficult.¹⁰⁶ The authors' preference for offensive strategy appears difficult to reconcile with a strategy for the protection of friendly shipping—a difficult, asset intensive, defensive mission. The authors acknowledge that protection of shipping is a defensive mission and that a scarcity of assets will likely limit a navy's ability to protect all shipping,¹⁰⁷ but when it comes to presenting a solution for this dilemma, they fall back on the primacy of offense. This is highlighted by the authors' caveat that “generally speaking, the SLOC protection campaign is a defensive campaign. Nevertheless, active . . . local offensive operations are an effective measure to reduce and limit enemy capabilities.”¹⁰⁸ The rest of the paragraph advocates seizing opportunities to attack first whenever they present themselves, even when performing a “defensive” mission.

The authors repeatedly discuss the need for air superiority, and provide recommended guidance for the employment of fighter aircraft in each section. This would be relevant for a Taiwan scenario; but, since the PLAN currently lacks carrier-based aircraft, not for others beyond the range of land-based air. The authors are either discussing Taiwan or implicitly lobbying for PLAN aircraft carrier capability (or both). The section on “Organization and Covering Transport Ships to Load and Unload and Leave Port” seems to discuss a naval expeditionary task force assembling to sail to one common objective as opposed to an ordinary convoy of merchant/cargo ships sailing along the coast.¹⁰⁹ While these statements need to be compared with those in other PLAN doctrinal writings as they become available outside China, it seems reasonable to conclude that Beijing was already carefully evaluating the consequences of a maritime energy blockade seven years ago and was engaged in developing serious countermeasures.

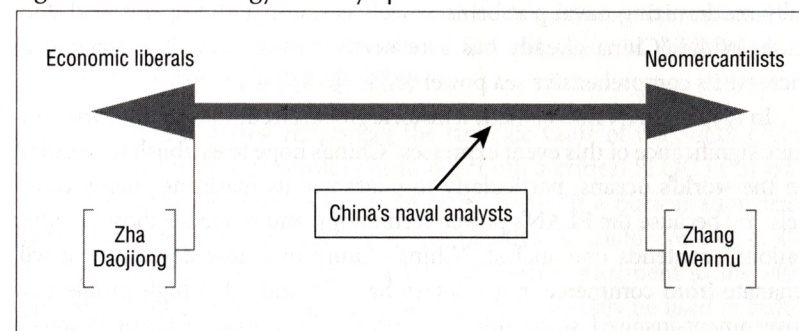
The next section of this chapter addresses the implications of the above threat analyses for the future development of the PLAN—as discussed by Chinese naval strategists.

Naval Implications

Outside observers tend to focus on Chinese development of sea denial capabilities that could be used to repel U.S. intervention in a cross-Strait conflict. Yet China might also be pursuing the ability to project naval power farther than would be necessary in a Taiwan contingency. Moreover, many naval capabilities are highly fungible and could thus be applied both to a Taiwan context and to missions farther afield.

One explanation for China's possible movement toward a blue water navy that might transcend the Taiwan issue could be found in its growing dependency on imported oil and other key economic inputs. In addition to naval discussions of these issues, which have been described in detail earlier, there is a lively debate among Chinese policy intellectuals. Figure 1 shows the key representatives of China's “economic liberal” and “neomercantilist” schools of thought.

Figure 1. China's Energy Security Spectrum



Many PRC energy security analysts from the neomercantilist school perceive the global oil system to be controlled by the United States. They therefore advocate acquiring the naval wherewithal to defend China's growing dependence on secure seaborne oil imports. Beijing University of Aeronautics & Astronautics scholar Zhang Wenmu explains this school of thought: “China is facing fierce competition overseas in obtaining its share of crude oil. . . . [It is therefore necessary to] build up our navy as quickly as possible.”¹¹⁰ Indeed, “China should not only strengthen its naval power and defense to protect imported oil, but also expand its navy to achieve its influence over the offshore resources in the Asia Pacific region.”¹¹¹ A second source states that “protecting China's sea lines of communication has become an important aspect of maritime security. This is an important new mission for the PLAN.”¹¹² Another analyst adds: “In order to . . . effectively capture sea control in a specific area, [the PLAN] must possess the ability to control passage in and out of important strategic passages in times of crisis.”¹¹³ As noted earlier, Chinese security analysts specifically emphasize the importance of the PLAN being able to freely transit the Malacca Strait.¹¹⁴

The PLAN's present inability to secure China's long-distance oil transport SLOC or to militarily deter a U.S. blockade greatly concerns Chinese

naval analysts.¹¹⁵ They are painfully aware of the U.S. Navy's superiority over the PLAN.¹¹⁶ There is a clear sense of urgency: "[China] must . . . strengthen the PLAN and PLAAF so that they possess the capability to defend China's maritime resource and energy supplies, and smash [any] maritime blockades of China's economy or energy supply and defend [China's] own tanker transport passages. . . . Regarding the problems . . . of sea embargo or oil lanes being cut off . . . China must . . . 'repair the house before it rains.'"¹¹⁷

To rectify the current weakness of the PLAN relative to such potential naval competitors as the United States, Japan, and India, Beijing is energetically modernizing naval platforms as well as training and operational doctrine. While "China already has a relatively strong navy," it is striving to increase its comprehensive sea power (结合海洋力量).¹¹⁸

In 1997, a PLAN flotilla made a historic global circumnavigation. The strategic significance of this event expresses "China's hope to establish its position on the world's oceans, particularly to guarantee its maritime energy channels. Yet because the PLAN's power, technology, and scope lag those of other nations," contends one analyst, "China's future maritime development will emanate from commerce, not military bases."¹¹⁹ Indeed, a high profile new government-inspired study titled 大国崛起 ("The Rise of Great Powers") suggests that while national power can be furthered by a strong navy, it actually stems primarily from economic development, fueled by foreign trade.¹²⁰

Despite these efforts to both channel China's maritime development in a peaceful direction and to portray it as such to the rest of the world, history suggests that any major military modernization program is likely to unnerve other powers. A move by Beijing from a "near sea" to a blue water naval strategy, even if conducted under the auspices of "commercial protection," may be no different. A recent article in 中国军事科学 (*China Military Science*) states that: "[China's] navy must . . . unceasingly move toward [the posture of] a 'blue-water navy' [and] expand the scope of maritime strategic defense."¹²¹ Chinese analysts have clearly stated the need to acquire power projection instruments to support such increasing naval ambitions. These include long-range area air defense destroyers, helicopter carriers, diesel submarines with air-independent propulsion and cruise missiles, nuclear submarines capable of attacking enemy harbors and land targets, and advanced naval aircraft such as the SU-30 Flanker.¹²²

Another PRC naval analysis of maritime rights and resource security explains that China's navy is not sufficiently strong to undertake the energy SLOC security mission because of Beijing's longtime policy of "emphasizing land power at the cost of sea power" (重陆轻海).¹²³ Hinting at a possible

redirection of PLAN strategy, as well as rivalry among PLAN warfare communities, this analysis continues:

[in order] to build a Navy with a relatively strong, distant ocean-going fighting capacity . . . the [Chinese] Navy cannot only emphasize submarines, [because] a formidable submarine force is only an aspect of [the] "active defense" [积极防御] [strategy]. A modern navy must be comprehensive in nature, thus putting joint warfare at the center of sea power, and [thereby] make aircraft carriers the centerpiece of a multi-functional and multi-use, distant-ocean type of sea power. In order to protect sea lane security and guarantee [China's] maritime interests, we must maintain a certain naval presence, especially in the South [China] Sea, and such vital military and economic regions in strategic locations.¹²⁴

One Chinese analyst recognizes the strategic value of the South China Sea's bathymetry and its pivotal position as both a critical SLOC in its own right and as the entrance to the Strait of Malacca: "If a nuclear submarine were concealed in deep water near the Spratlys, it could counteract the greater portion of the strength of a U.S. 7th Fleet deployment in the Philippines. . . . [Because] this region's water depths can easily be used to hide a submarine . . . it is impossible to use counterattack operations."¹²⁵

As was demonstrated earlier, the need to control the Strait of Malacca, or at least prevent other powers from denying China access to it, is foremost in the minds of Chinese strategists. It is therefore hardly surprising that the PLA appears already to be deploying assets in a pattern that would further this goal.

According to a recent analysis by *Jane's*, China's South Sea Fleet is receiving increasing numbers of military assets. Already, it boasts slightly more destroyers and frigates than either the East Sea Fleet or the North Sea Fleet. Reportedly, a new PLAN or PLAAF air base may be under construction on Hainan Island.¹²⁶ Submarines, however, are shifting most dramatically toward Hainan. China might base both Type 093 SSNs and Type 094 SSBNs at a new submarine base proximate to Hainan's Yulin Naval Base (near Sanya City).¹²⁷ Already, Internet photos indicate that Song- and Kilo-class diesel submarines, as well as at least one Type 091 Han-class SSN, have been based at least temporarily in Hainan. It may be relevant that China's marine corps is thought to have based all of its units with the South Sea Fleet.¹²⁸

A sustained movement of assets to the South China Sea could imply a PLAN mission beyond Taiwan in pursuit of genuine, if limited, SLOC protec-

tion capability. Indeed, a student at Beijing's powerful Central Party School suggests that Beijing's policy intellectuals are supporting a naval buildup:

Because of the maritime power of the U.S., Japan, etc., we have been overly cautious, and restricted our activities to . . . the inshore and territorial waters . . . [thereby] forfeiting the strategic initiative. . . . We ought instead to be accelerating transformation from an offshore defense navy to an open ocean navy, in the not too distant future possessing absolute sea control within 500 NM, and with deterrence power on the SLOCs through the Malacca Strait to the southern part of the Indian Ocean, not only able to ensure SLOC security, but also able to break the First Island Chain blockade,¹²⁹ and in the vicinity of the Second Island Chain (approaching beyond 1,000 NM) intercepting or attacking enemy targets, thereby safeguarding the security of the south-east littoral region.¹³⁰

In this vision, the PLAN might indeed have an offensive mission, even if justified ideologically in the context of "active defense": "In the event of maritime conflict, an important aspect of the two sides being at war would be carrying out SLOC blockades and counterblockades. The PLAN will be charged with the heavy responsibility of ensuring that SLOC are unimpeded, and at the same time breaking the enemy's transport lines and weakening its war potential."¹³¹ This proactive approach to SLOC security is portrayed not as an option but as an imperative: "The strategic passages in the sea areas of China's East (Sea Fleet) and South (Sea Fleet)—e.g., the Korean Strait, the channels of the Ryukyu archipelago, the Bashi Strait, the Malacca Strait, the Lombok Strait, [and] the Sunda Strait—are either places where the PLAN must penetrate the island chains to carry out strategic defense missions, or strategic points where the U.S. and Japan will carry out offensive operations to make surprise attacks on targets on the Chinese mainland and coast."¹³²

Increased PLAN presence in SLOC and surrounding areas also has a valuable "shaping" function, as it can "strengthen [China's] power of influence in key sea areas and straits" in peacetime and thereby decrease the chance of its interests being threatened in war.¹³³

One of the most ambitious discussions of PLAN development in relation to energy SLOC security is found in a 2006 article from 舰载武器 (*Shipborne Weapons*). This article proposes that in the twenty-first century, as China broadens its naval presence on the world's oceans, Beijing's North Sea, East Sea, and South Sea fleets should transform into a Northern Fleet, a Pacific Fleet, and an Indian Ocean Fleet (印度样舰队). The potential scope and mission of such Northern and Pacific fleets are perhaps beyond the

parameters of the present study, but the idea of a Chinese Indian Ocean Fleet could represent a radical shift in the PLAN's response to the SLOC security issue. According to this Chinese analysis, the core mission of the proposed Indian Ocean Fleet would be "to protect [Beijing's] interests in the South China Sea, while at the same time guarding the Indian Ocean navigation route and escorting Chinese oil tankers transiting the Malacca Strait, thus preserving a matter of life and death for China: security of the 'the energy lifeline' and the 'oil straits.'"¹³⁴

The analysis emphasizes the crucial role that aircraft carriers would play in such a PLAN Indian Ocean fleet, in particular if they could coordinate effectively with China's new air defense destroyers. "In order to escort merchant vessels along the entire Indian Ocean route and resolve related crises," the author explains, "China's future Indian Ocean Fleet must have a powerful, open-ocean, escort, combat capability." Additionally, a major mission of Beijing's Indian Ocean Fleet would be "guarding against the Singapore-based U.S. Navy."¹³⁵

China is already making moves that could bolster its strategic position along Indian Ocean oil transport lanes. Writing in China's most prestigious military journal, *China Military Science*, a PLAN senior captain relates: "During the 1990s, China constructed harbor wharves in the eastern Indian Ocean in Burma [and] cleared the Mekong waterways, in order to gain access to the sea in [China's] southwest. . . . China invested \$U.S. 1 billion to construct a deep water port [at Gwadar], in order to establish a trade and transport hub for Central Asian nations, and simultaneously expand China's geo-strategic influence."¹³⁶

India and other naval powers will likely react unfavorably to an overt Chinese naval presence in the Indian Ocean region. India already has a formidable naval force, including the aircraft carrier *Viraat* and TU-142 long-range maritime patrol aircraft, which have been used to track Russian made warships transiting the Indian Ocean on their way to China.¹³⁷ To sustain a serious naval presence in the Indian Ocean, the PLAN would need to substantially expand its at-sea replenishment capacity and also secure basing rights in Pakistan, Burma, and perhaps Sri Lanka or Bangladesh. India and the United States might put major pressure on these countries not to accept Chinese forces. Indeed, it is noteworthy that the U.S. Marine Corps and Sri Lankan navy held major exercises in October 2006 near the Sri Lankan port of Hambantota, where China is looking to build oil storage and bunkering (ship refueling) facilities.¹³⁸ Finally, even if China did somehow overcome the aforementioned obstacles and obtain basing rights, it would be violating a

key precept of its foreign policy to date, which emphasizes that China will not base military forces abroad.

A Responsible Stakeholder?

It is perhaps not surprising that Chinese naval analysts are looking to so-called blue water missions, beyond the strict confines of Taiwan contingencies. It is certainly in their bureaucratic interest to do so. Indeed, such bureaucratic interests have fueled naval rivalries in the past. A more surprising finding is the considerable group of Chinese naval analysts that recognize the imperative for China to cooperate with the other oil-consuming powers, particularly the United States.

A major study of China's SLOC security problem, for instance, calls for emphasizing cooperation in international organizations and conventions, laws, and regulations concerning oil transport.¹³⁹ A 2004 survey in *舰船知识* (*Naval & Merchant Ships*) reveals many nationalist themes on energy but also concludes that China is "more and more dependent on stability in the Middle East."¹⁴⁰ Of course, this kind of phrasing sounds utterly familiar to Western ears. An analysis from *现代舰船* (*Modern Ships*) concludes, "The energy crisis and maritime SLOC security are not problems that are just confronting China alone . . . but [rather] impact on international sea lane security and stability."¹⁴¹ A more recent and very detailed analysis from the same journal observes that Persian Gulf instability could significantly harm China's interests and emphasizes that China must cooperate closely with India, Korea, and even Japan in the energy sphere—or else they might join with the United States against China in any conflict.¹⁴² But the overarching requirement is actually to maintain good relations with the United States. There is really no choice in the matter, according to this source, because "the United States could blockade energy shipments to China at any time."¹⁴³ This analysis characterizes the 2005 failure of CNOOC to acquire the American UNOCAL Corporation as a serious foreign energy policy setback and elaborates on the causes of this embarrassment for China. It is suggested, moreover, that present U.S.–China relations have, despite the UNOCAL incident and other irritants, stabilized to a large degree. It is also recognized that Washington is unlikely to act against the status quo. Indeed, "If stability can be maintained in U.S.–China relations, then China's maritime oil transport will be basically secure."¹⁴⁴

A rather remarkable article on the energy issue in China's foremost naval journal, *当代海军* (*Modern Navy*), actually links China's naval buildup with

the SLOC mission to the principle of "peaceful development." The analysis asserts that China's "fleets patrolling the vast oceans, protecting commerce from terrorist elements and pirate attacks, will receive praise from the world." All oil trading nations benefit from a stable supply chain, it is said, and "a big and powerful [Chinese] fleet will support a stable supply chain. Thus, in the era of globalization, a formidable navy is not only in our own country's security interest, but is actually a requirement of global security as well."¹⁴⁵ Cooperation with other world navies, and especially those of the developed world, in activities such as counterterrorism, it is said, will effectively dispel the "China threat theory." This analysis concludes that "There is no contradiction between our building of a large fleet and China's peaceful rise."¹⁴⁶ As long as China's navy continuously engages with the outside world, developing opportunities to partner with other countries, then the world will come to accept, and even welcome, a strong Chinese Navy.¹⁴⁷

Conclusion

This study has found that the energy content within the voluminous output of naval literature in contemporary China is not overly large. Certainly, it could not be described as pervasive—in the manner that discussions of undersea warfare (e.g., air independent propulsion technology) are. Nevertheless, it should be said that there does exist a pointed interest in energy issues among PLAN strategists, and indeed there is a rather distinct general viewpoint. The most critical theme that underlies this perspective is China's perceived current vulnerability to an energy embargo. As one might expect, Chinese naval analysts are extremely reluctant to place their country's oil security in the hands of other great powers, especially the United States. If it does not already serve this role (which it very well might), then the energy issue will likely offer a potent rationale for continuing or even further accelerating China's naval modernization, especially as Beijing's military planners begin to grapple seriously with scenarios beyond Taiwan. Somewhat more unexpected in this study are the findings that Chinese naval strategists candidly admit that their capabilities for protecting China's long energy SLOC are minimal at present. Also, it is somewhat surprising that these analysts, while sounding many nationalist themes, seem guardedly open to multilateral cooperation on energy issues, and appear to understand the importance of trying to preserve good relations with Washington.

Among the many Chinese naval analyses surveyed for this study, perhaps the most sophisticated was the lengthy treatment of the energy question in

the October 2006 issue of 现代舰船 (*Modern Ships*). At the conclusion of this analysis, the author articulates a three point strategy, which may incisively summarize the approach taken by the Chinese naval community to the energy question: "[China] must view things from the perspective of keeping the U.S. from cutting its oil supply lines. Concretely speaking, this entails making the U.S. not willing to cut China's oil supply lines, not daring to do so, and not able to do so."¹⁴⁸ Without exaggerating the importance of this particular source, it might be noted that the internal coherence of this statement may actually suggest that it is drawn from official internal policy. It is further suggested that a web of self-interest would keep the United States from wanting to embargo China, and that oil pipelines and agile diplomacy could hinder any attempt by Washington to use this leverage. Most surprising, perhaps, is that this formulation's prescription also calls not just for strengthening naval forces, but nuclear strategic forces as well.¹⁴⁹ This last point may truly illustrate the depth of Beijing's insecurity with respect to the energy issue.

Notes

1. Chinese officials periodically call for oil conservation and reduction of the economy's overall energy intensity, and encourage Chinese state oil and gas producers to diversify away from the unstable Middle East and increase the share of oil imports that come overland by pipeline. However, Chinese oil demand continues to grow strongly (at a rate of 14.5 percent from 2005–6). See Wang Qiyi, "Energy Conservation as Security," *China Security*, no. 3 (Summer 2006): 90, <http://www.worldsecurityinstitute.org/showarticle.cfm?id163>; "China's Crude Oil Imports Up 14.5% in 2006," *People's Daily*, 12 January 2007, www.english.people.com.cn/.
2. Because of the difficulty in conclusively identifying the authors of many Chinese writings on naval issues, this chapter will use a very broad definition of "naval analyst," namely, one who engages in research and publication concerning naval affairs.
3. Office of the Secretary of Defense, *Military Power of the People's Republic of China 2007*, Annual Report to Congress, 9. The Defense Department's 2006 report echoes these concerns, noting that "securing adequate supplies of resources and materials has become a major driver of Chinese foreign policy. . . . Evidence suggests that China is investing in maritime surface and sub-surface weapons systems that could serve as the basis for a force capable of power projection to secure vital sea lines of communication and/or key geostrategic terrain." *Ibid.*, 1.
4. "World Briefing/Asia: China: Hu Calls For Strong Navy," *New York Times*, 29 December 2006, <http://query.nytimes.com/gst/fullpage.html?res=9CoCE3D71F31F93AA15751C1A9609C8B63>.

5. David Lague, "China Aims Ambitions to Beef Up Naval Power," *International Herald Tribune*, 28 December 2006, <http://www.iht.com/articles/2006/12/28/news/china.php>.
6. "Chinese President Calls for Strengthened, Modernized Navy," *People's Daily*, 27 December 2006.
7. "Chinese President Calls for Strong Navy," *VOA News*, 28 December 2006, <http://voanews.com/english/2006-12-28-voa41.cfm>.
8. China's 2006 defense white paper further states that China's

Navy is working to build itself into a modern maritime force of operation consisting of combined arms with both nuclear and conventional means of operations. Taking informationization as the goal and strategic focus in its modernization drive, the Navy gives high priority to the development of maritime information systems, and new-generation weaponry and equipment. Efforts are being made to improve maritime battlefield capabilities, with emphasis on the construction of relevant facilities for new equipment and the development of combat support capabilities. The Navy is endeavoring to build mobile maritime troops capable of conducting operations under conditions of informationization, and strengthen its overall capabilities of operations in coastal waters, joint operations and integrated maritime support. Efforts are being made to improve and reform training programs and methods to intensify training in joint integrated maritime operations. The Navy is enhancing research into the theory of naval operations and exploring the strategy and tactics of maritime people's war under modern conditions.

See "China's National Defense in 2006," Information Office of the State Council, People's Republic of China, 29 December 2006, <http://www.fas.org/nuke/guide/china/doctrine/wp2006.html>.

9. Wu Lei and Shen Qinyu, "Will China Go to War Over Oil?" *Far Eastern Economic Review* 169, no. 3 (April 2006): 38.
10. Kenneth Lieberthal and Mikkal Herberg, "China's Search for Energy Security: Implications for U.S. Policy," *NBR Analysis* 17, no. 1 (April 2006): 23.
11. These would include, at a minimum, 当代海军 [*Modern Navy*], 人民海军 [*People's Navy*], 舰船知识 [*Naval & Merchant Ships*], 舰载武器 [*Shipborne Weapons*], and 现代舰船 [*Modern Ships*]. 当代海军 [*Modern Navy*] is a monthly magazine published by the official PLAN newspaper 人民海军 [*People's Navy*], which is the daily newspaper published by the Political Department of China's Navy. 舰船知识 [*Naval & Merchant Ships*] is a semitechnical monthly publication of the Chinese Society of Naval Architecture and Marine Engineering. 舰载武器 [*Shipborne Weapons*] and 现代舰船 [*Modern Ships*] are both monthly journals published by the state-owned China Shipbuilding Industry Corporation (CSIC), China's largest designer, manufacturer, and trader of military and civilian vessels and related engineering and equipment. In addition to these naval-oriented publications, Beijing's most prestigious military journal, 中国军事科学 [*China Military Science*], is published by the PLA's Academy of Military Sciences.

12. Sea Tide Press [海潮出版社], located in Beijing, publishes such authoritative volumes as 中国海军百科全书 [*China Navy Encyclopedia*], vol. 1 (Beijing: Sea Tide Press, 1998).
13. Kong Bo, "Institutional Insecurity," *China Security* 3 (Summer 2006): 67. Instead, energy policies are developed by a constellation of actors under what Kong Bo of Johns Hopkins University dubs "a high degree of organizational confusion." Bo, "Institutional Insecurity," 65. These include the National Development and Reform Commission (NDRC, a branch of the State Council, whose reports are available at www.eri.org.cn), the state oil and gas producers, and special high-level working groups such as the Energy Leading Group chaired by Premier Wen Jiabao. There is also a nascent State Energy Office, attached to NDRC's Energy Bureau, but it is understaffed, lacks formal authority over energy stakeholders, and is likely so overwhelmed with work that it can only react to events, rather than actually shape policy. See Erica Downs, "Brookings Foreign Policy Studies Energy Security Series: China," Brookings Institution, December 2006, 21, <http://www3.brookings.edu/fp/research/energy/2006china.pdf>.
Moreover, anecdotal evidence suggests that many Energy Office employees come directly from the state energy companies, particularly CNPC/PetroChina. See Downs, 22. These agencies are primarily concerned with supply, demand, pricing, conservation, and other typically market oriented matters. There appear to be few dedicated civilian experts who focus on both energy and maritime security issues, and the few that do tend to narrowly focus on specific subjects (for example, Southeast Asia experts who study the Malacca Strait). The PLA and PLAN almost certainly pay close attention to energy security, but their views are difficult to track because both organizations are basically closed to foreign scholars. Author's interviews with Chinese scholars in Beijing, December 2006.
14. Author's interview with Chinese scholar, Shanghai, May 2007.
15. 陈安刚, 武明 [Chen Angang and Wu Ming], "马六甲: 美国觊觎的战略前哨" ["Malacca Strait: The United States Covets a Strategic Outpost"], 现代舰船 [*Modern Ships*] (December 2004): 13.
16. Evan S. Medeiros and M. Taylor Fravel, "China's New Diplomacy," *Foreign Affairs*, November/December 2003, <http://www.foreignaffairs.org/20031101faessay82604/evan-s-medeiros-m-taylor-fravel/china-s-new-diplomacy.html>.
17. See, for example, "U.S. Confirms Aircraft Carrier Had Close Brush with Chinese Submarine," *Japan Today*, 14 November 2006, <http://www.japantoday.com>.
18. Author's interviews, Beijing, June 2006.
19. See, for example, 查道炯 [Zha Daojiong], "相互依赖与中国的石油供应安全" ["Interdependence and China's Oil Supply Security"], 世界经济与政治 [*World Economics & Politics*], no. 6 (2005): 15–22.
20. See, for example, Zhang Wenmu, "China's Energy Security and Policy Choices," *Shijie Jingji Yu Zhengzhi* [*World Economics & International Politics*], no. 5 (2003): 11–16, FBIS# CPP20030528000169; Liu Xinhua and Zhang Wenmu, "China's Oil Security and Its Strategic Options," *Xiandai Guoji Guanxi* [*Contemporary International Relations*], no. 12 (December 2002): 35–37, 46, FBIS# CPP20030425000288.
21. Bruce Blair, Eric Hagt, Chen Yali, "The Oil Weapon: Myth of China's Vulnerability," *China Security* 3 (Summer 2006): 39.
22. Gabriel Collins, "China's Seeks Oil Security with New Tanker Fleet," *Oil & Gas Journal* 104, no. 38 (2006): 20–26.
23. Enhancing downstream security entails improving domestic energy infrastructure by increasing refining capacity, diversifying refining capacity to accept a broader range of crude oil feed stocks, and establishing a strategic petroleum reserve (SPR). This is, not surprisingly, the easiest of the three areas (upstream, midstream, and downstream) in which to increase energy security. China has made the most progress in this area, perhaps in part because of the overwhelming economic rationale for doing so.
24. "10% of GDP Now Comes From Sea, Says Report," *China Daily*, 10 April 2007, www.chinadaily.com.cn.
25. Chen Fong-Ching and Jin Guantao, *From Youthful Manuscripts to River Elegy: The Chinese Popular Cultural Movement and Political Transformation 1979–1989* (Hong Kong: Chinese University Press, 1997), 221–22.
26. Ibid., 222.
27. 周德华, 陈炎, 陈良武 [Zhou Dehua, Chen Yan, and Chen Liangwu], 蓝色方略: 二十一世纪初的海洋和海军 [*The Blue Strategy: Ocean and Navy at the Beginning of the 21st Century*] (Beijing: Sea Tide Press, 2003), 3.
28. 曲令泉, 郭放 [Qu Lingquan and Guo Fang], 卫海强军: 新军事革命与中国海军 [*A Mighty Force to Protect the Sea: The New Revolution in Military Affairs and China's Navy*] (Beijing: Sea Tide Press, 2003), 46.
29. 张玉坤, 张慧 [Zhang Yukun and Zhang Hui], 戍海固边: 海上安全环境与海洋权益维护 [*Defend the Sea with a Solid Boundary: The Maritime Security Environment and the Defense of Maritime Rights and Interests*] (Beijing: Sea Tide Press, 2003), 39.
30. 郝廷兵 [Hao Tingbing] (PLA Navy) and 杨志荣 [Yang Zhirong] (PLA Navy), 海上力量与中华民族的伟大复兴 [*Sea Power and the Chinese Nation's Mighty Resurgence*] (Beijing: National Defense University, 2005).
31. Ibid., 32.
32. Ibid., 6.
33. Ibid., 6.
34. This entire paragraph is drawn from 顾祖华 [Gu Zuhua], "维护海上石油安全须有强大海上编队" ["In Order to Safeguard Energy Security, a Massive Naval Fleet Is Necessary"], 当代海军 [*Modern Navy*] (August 2004): 40.
35. 徐起 [Xu Qi], "21世纪初海上地缘战略与中国海军的发展" ["Maritime Geostrategy and the Development of the Chinese Navy in the Early Twenty-first Century"], 中国军事科学 [*China Military Science*] 17, no. 4 (2004): 75–81, trans. Andrew Erickson and Lyle Goldstein, *Naval War College Review* 59, no. 4 (2006): 46–67.
36. 张运成 [Zhang Yuncheng], "能源安全与海上通道" ["Energy Security and Sea Lanes"], in 海上通道安全与国际合作 [*Sea Lane Security and International*

- Cooperation*], 杨明杰 [ed. Yang Mingjie] (Beijing: 时事出版社 [Current Affairs Publishing House], 2005), 103.
37. Peng Guangqian and Yao Youzhi, eds., *The Science of Military Strategy* (Beijing: Military Science Publishing House, 2005), 446.
 38. 达巍 [Da Wei], “中国的海洋安全战略” [“China’s Maritime Security Strategy”], in 海上通道安全与国际合作 [*Sea Lane Security and International Cooperation*], 杨明杰 [ed. Yang Mingjie] (Beijing: 时事出版社 [Current Affairs Publishing House], 2005), 361–62.
 39. Zhang, “Energy Security and Sea Lanes,” 101.
 40. Donna J. Ninic, “Sea Lane Security and U.S. Maritime Trade: Chokepoints as Scarce Resources,” in *Globalization and Maritime Power*, ed. Sam J. Tangredi (Washington, D.C.: National Defense University Press, 2003), 143–69.
 41. Zhang Xuegang, “Southeast Asia: Gateway to Stability,” *China Security* 3, no. 2 (2007): 26.
 42. 凌云 [Ling Yun], “龙脉” [“The Dragon’s Arteries”], 现代舰船 [*Modern Ships*] (October 2006): 12.
 43. Ibid.
 44. 李杰 [Li Jie], “石油, 中国需求与海道安全” [“Oil, China’s Requirements and Sea Lane Security”], 舰船知识 [*Naval & Merchant Ships*] (September 2004): 12. See also 江风 [Jiang Feng], “21世纪中国海军三大舰队构想” [“Prospects for the PLAN’s Three Fleets in the 21st Century”], 舰载武器 [*Shipborne Weapons*] (June 2006): 21.
 45. Zhang, “Energy Security and Sea Lanes,” 107, 108, 118.
 46. “Bypassing Hormuz,” 世界经济与政治 [*World Economics & Politics*], no. 1 (2006): 49.
 47. Ibid., 48.
 48. Zhang, “Energy Security and Sea Lanes,” 118.
 49. Ibid., 107.
 50. Ibid., 118.
 51. Chen and Wu, “Malacca Strait,” 13.
 52. 李兵 [Li Bing], “国际战略通道研究” [“International SLOC Research”], PhD dissertation, 中共中央党校 [Chinese Communist Party Central Party School], 1 May 2005, 355.
 53. Zhang, “Energy Security and Sea Lanes,” 118.
 54. Chen and Wu, “Malacca Strait,” 13.
 55. Jiang, “Prospects for the PLAN’s Three Fleets in the 21st Century,” 21.
 56. 章明 [Zhang Ming], “马六甲困局与中国海军的战略抉择” [“The Malacca Strait Problem and the Future Strategic Choice of the Chinese Navy”], 现代舰船 [*Modern Ships*] (October 2006): 21.
 57. Ibid., 21.
 58. Chen and Wu, “Malacca Strait,” 11–14.
 59. Zhang and Zhang, *Defend the Sea with a Solid Boundary*, 50.
 60. Zhang, “Energy Security and Sea Lanes,” 107.
 61. Scott C. Roberts, “China’s LNG Program Turns a Corner,” Cambridge Energy Research Associates, <http://www.cera.com/aspx/cda/client/report/reportpreview.aspx?CID=7328&KID=>.
 62. Chen and Wu, “Malacca Strait,” 12.
 63. Zhang and Zhang, *Defend the Sea with a Solid Boundary*, 47.
 64. Peng Guangqian and Yao Youzhi, eds., *The Science of Military Strategy* (Beijing: Military Science Publishing House, 2005), 441.
 65. Ling, “The Dragon’s Arteries,” 8–19.
 66. “Husky Energy Announces Significant Gas Discovery in South China Sea,” *Husky Energy Inc. News*, 14 June 2006.
 67. Chen and Wu, “Malacca Strait,” 11–13.
 68. Ibid., 12.
 69. Zhang and Zhang, *Defend the Sea with a Solid Boundary*, 45.
 70. Li, “International SLOC Research,” 355.
 71. See, for example, Robert Looney, “Market Effects of Naval Presence in a Globalized World: A Research Summary,” in *Globalization and Maritime Power*, ed. Sam J. Tangredi (Washington, D.C.: National Defense University Press, 2003), 103–32.
 72. “Global Energy Structure,” China Institute of Contemporary International Relations, Economic Security Study Center, Beijing, 2005, 91.
 73. See, for example, the series of very detailed reports in a long series that was initiated in the November 2005 issue of *Modern Navy*.
 74. Zhang, “Energy Security and Sea Lanes,” 116–17.
 75. Chen and Wu, “Malacca Strait,” 14.
 76. Zhang, “Energy Security and Sea Lanes,” 120.
 77. Ibid., 119.
 78. Gu, “In Order to Safeguard Energy Security,” 40.
 79. Zhang, “Energy Security and Sea Lanes,” 120.
 80. Zhang, “The Malacca Strait Problem,” 23.
 81. See, for example, Li, “Oil, China’s Requirements and Sea Lane Security,” 13; Chen and Wu, “Malacca Strait,” 14.
 82. Ling, “The Dragon’s Arteries,” 15.
 83. Ibid.
 84. Ibid.
 85. Ibid.
 86. Zhang, “Energy Security and Sea Lanes,” 119.

87. Ling, "The Dragon's Arteries," 12.
88. Chen and Wu, "Malacca Strait," 13.
89. Ibid., 11.
90. Ling, "The Dragon's Arteries," 15.
91. Zhang, "Energy Security and Sea Lanes," 111.
92. Ibid., 118.
93. Chen and Wu, "Malacca Strait," 14.
94. Zhang and Zhang, *Defend the Sea with a Solid Boundary*, 22–24.
95. Ibid. The Gonggu Strait is located in the Ryukyu Island chain nearly due east of Taipei. See Chen Xue'en, *Analysis of the Circulation on the East-China Shelf and the Adjacent Pacific Ocean*, PhD dissertation, University of Hamburg, 2004, 85.
96. This was the position of one Chinese strategist; interview in China, December 2005.
97. The authors thank Lt. Michael Grubb, USN, for the substantial insights that he contributed to this section.
98. 主编 王厚卿, 张兴业 [Wang Houqing and Zhang Xingye, eds.], 战役学 [The Science of Campaigns] (Beijing: 国防大学出版社 [National Defense University Press], 2000), 320.
99. Ibid., 330.
100. Ibid., 324–25.
101. For detailed paragraphs on defensive sea mine barrier and using sea mines to "Resist Enemy Blockade of [PLAN] Bases," see *ibid.*, 341, 344.
102. Ibid., 327.
103. Ibid., 336.
104. Ibid., 334.
105. Ibid., 336–37.
106. Ibid., 318–19. This significant consideration is not developed further, however.
107. Ibid., 334–35.
108. Ibid., 336.
109. Ibid., 337.
110. Zhang Wenmu, "China's Energy Security and Policy Choices," *Shijie Jingji Yu Zhengzhi* [World Economics & International Politics], no. 5 (May 2003): 11–16, FBIS CPP20030528000169.
111. Liu and Zhang, "China's Oil Security and Its Strategic Options," 35–37, 46.
112. 沈游 [Shen You], "新世纪潜艇创新发展前瞻" ["Looking Ahead at the New Century's Nuclear Submarine Development and Innovation"], 现代舰船 [Modern Ships], no. 5 (2005): 15–16.
113. Li, "International SLOC Research," 355.
114. Chen and Wu, "Malacca Strait," 13.
115. Ling, "The Dragon's Arteries," 16.
116. Ibid., 15.
117. Zhang, "Energy Security and Sea Lanes," 122.
118. Da, "China's Maritime Security Strategy," 365. China's 2006 defense white paper clearly prioritizes naval modernization, stating: "The Navy is working to build itself into a modern maritime force of operation consisting of combined arms with both nuclear and conventional means of operations. . . . [It] gives high priority to the development of maritime information systems, and new generation weaponry and equipment. Efforts are being made to improve maritime battlefield capabilities, with emphasis on the construction of relevant facilities for new equipment and the development of combat support capabilities." "China's National Defense in 2006," Information Office of the State Council, People's Republic of China, 29 December 2006, <http://www.fas.org/nuke/guide/china/doctrine/wp2006.html>.
119. Zhang, "Energy Security and Sea Lanes," 119.
120. As a twelve-part program on China Central Television and an eight-volume book series, "The Rise of Great Powers" has enjoyed considerable popular exposure in China. Reportedly conceived on 24 November 2003 at the CPC Central Committee Political Bureau group session "Study of Historical Development of Major Countries in the World since the 15th Century," and completed in 2006, it attempts to determine the reasons why nine nations (Portugal, Spain, the Netherlands, the United Kingdom, France, Germany, Japan, Russia, and the United States) became great powers.
121. Xu, "Maritime Geostrategy," 75–81.
122. Zhang, "The Malacca Strait Problem," 25.
123. 高月 [Gao Yue], "海权, 能源 与安全" ["Maritime Rights, Resources, and Security"], 现代舰船 [Modern Ships] (December 2004): 7.
124. Ibid., 7.
125. Zhang, "Energy Security and Sea Lanes," 111.
126. Unless otherwise indicated, data in this paragraph are derived from "China's New Sub Base to Make Waves," Foreign Report, *Jane's*, 2 March 2006, www.janes.com/defence/naval_forces/news/fr/fro60224_1_n.shtml.
127. Presumably, the strategic importance of the Type 094 SSBNs would necessitate the deployment of other naval and air assets to protect them, particularly if they will need to venture beyond the South China Sea to achieve nuclear deterrence against the continental United States with their JL-2 SLBMs. These "bas-tion" forces could have an additional benefit of improving the PLAN's SLOC security options.
128. "Marine Corps," *China Defense Today*, <http://www.sinodefence.com/navy/orbat/marinecorps.asp>.

129. Notably articulated by Adm. Liu Huaqing, commander of China's navy (1982–88) and vice chairman of China's Central Military Commission (1989–97), the First Island Chain is formed by Japan and its northern and southern archipelagoes, South Korea, Taiwan, the Philippines, and the Greater Sunda Islands. The Second Island Chain runs from the Japanese archipelago south to the Bonin and Marianas islands (including Guam) and finally to the Palau group. See 刘华清 [Liu Huaqing], 刘华清回忆录 [*The Memoirs of Liu Huaqing*] (Beijing: People's Liberation Army, 2004), 437. Chinese analysts view the "island chains" alternatively as benchmarks of China's progress in maritime force projection and as fortified barriers that China must continue to penetrate to achieve freedom of maneuver in the maritime realm. See, for example, Alexander Huang, "The Chinese Navy's Offshore Active Defense Strategy: Conceptualization and Implications," *Naval War College Review* 47, no. 3 (1994): 18. Because neither the PLAN nor any other organization of the PRC government has publicly made the island chains an integral part of official policy or defined their precise scope, however, Chinese references to "island chains" must be interpreted with caution.
130. Quotations in this paragraph, unless otherwise indicated, are from Li, "International SLOC Research," 354, 355.
131. Li, "International SLOC Research," 354.
132. Zhang, "Energy Security and Sea Lanes," 124.
133. Ibid.
134. This entire paragraph is drawn from 江风 [Jiang Feng], "21世纪中国海军三大舰队构想" ["Prospects for the PLAN's Three Fleets in the 21st Century"], 舰载武器 [*Shipborne Weapons*] (June 2006): 19–22.
135. Ibid.
136. Xu, "Maritime Geostrategy," 75–81.
137. "China: Facing a Multinational Maritime Morass," *Stratfor*, 15 February 2006, <http://www.stratfor.com>.
138. "Sri Lanka: Exercises with U.S. Send a Message to China," *Stratfor*, 19 October 2006, http://www.stratfor.com/products/premium/read_article.php?id=278539.
139. Zhang, "Energy Security and Sea Lanes," 124.
140. Li, "Oil, China's Requirements and Sea Lane Security," 11.
141. Gao, "Maritime Rights, Resources, and Security," 7.
142. Unless otherwise specified all data in this paragraph are derived from Ling, "The Dragon's Arteries," 10, 11, 14, 17.
143. Ibid, 14.
144. Ibid, 17.
145. 顾祖华 [Gu Zuhua], "维护海上石油安全须有强大海上编队," ["In Order to Safeguard Energy Security, A Massive Naval Fleet is Necessary"], 当代海军 [*Modern Navy*] (August 2004): 40.
146. Ibid.
147. Ibid.
148. This entire paragraph is drawn from Ling, "The Dragon's Arteries," 19.
149. Ibid. This last sentence clearly suggests the need to examine possible links between China's energy strategy and its nuclear weapons strategy.