Clear Interests and Clouded Future: Force Structure and Strategy Options for the People’s Liberation Army Navy (PLAN)

by

Kevin Pickard, Jr.
B.S., English (1996)

United States Naval Academy

Submitted to the Department of Political Science in Partial Fulfillment of the Requirements for the Degree of Masters of Science in Political Science

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Signature of the Author.................................................................

Department of Political Science
August 11, 2007

Certified by.................................................................

M. Taylor Fravel
Assistant Professor of Political Science
Thesis Supervisor

Accepted by.................................................................

Roger D. Petersen
Chair, Graduate Program Committee
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ABSTRACT

As China's participation in the global economy continues to expand, its increasing reliance on imported resources and overseas trade has exerted pressure on China to safeguard its growing maritime economic and political interests. Although Chinese national interests are well understood, there is no clear consensus regarding the long-term orientation or intended goals of China's modernizing military. By examining how sea power theory, maritime interests, economic and political constraints, and military/naval doctrine may influence China's naval force structure and maritime strategy, the author seeks to answer whether it is possible to deduce the most probable future roles of the People's Liberation Army Navy (PLAN). This paper suggest the answer is yes and identifies three force structure and maritime strategy models that the PLAN may utilize to support China's expanding global and maritime interests.

The author posits that the PLAN will continue to make quantitative and qualitative improvements, but due primarily to fiscal and technological constraints, China will not directly challenge the United States by matching its extensive multiple mission naval force structure. The PLAN is still in a nascent stage of development and already has many of the pieces in place to proceed toward each model presented, but China must make choices that require it to develop the PLAN in conjunction with specific and elaborated maritime strategies or risk being a "jack-of-all-trades and a master of none." The PLAN will therefore develop either as 1) a "Unification" Navy, maximizing coercive pressure on Taiwan by focusing on regional anti-access strategies; 2) an "Influence Projection" Navy, capable of a wide range of operations, but not with a capability nearing a U.S. carrier strike group; or 3) a "Global/Hemispheric Sea Denial" Navy, designed around a fleet of ultra-quiet nuclear attack submarines, designed to deter a major naval power from dominating China's vital sea lines of communication. Although there is considerable variation in opinion and analysis as to the exact direction of China's grand strategy, the author identifies these models as the most logical force structure and maritime strategies that China might pursue in support of its maritime interests.

Thesis Supervisor: M. Taylor Fravel
Title: Assistant Professor of Political Science
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I. INTRODUCTION

A. SCOPE

As China’s participation in the global economy continues to expand, an increasing reliance on external resources and overseas trade has exerted a natural pressure on China to broaden its worldwide influence in an effort to safeguard its growing economic and political interests. Traditionally the smallest and least funded branch of the People’s Liberation Army (PLA), the People’s Liberation Army Navy (PLAN) has seen significant increases in overall budget authority within the Chinese defense establishment over the past 15 years. An influx of money and influence has translated into a widely reported naval procurement and development program, resulting in substantial improvements in quality and numbers within the PLAN’s overall force structure.

Nevertheless, China’s ultimate goals for and potential use of an expanded and more capable PLAN remain unclear. A very broad program, seemingly intended to improve every element of the Chinese navy, characterizes PLAN modernization. There seems to be no clear rationale for the PLAN’s development, other than increasing coercive pressure on Taiwan. Chinese naval observers openly discuss acquisition of a myriad of advanced weapon systems such as aircraft carriers, nuclear missile submarines (SSBNs), nuclear attack submarines (SSNs), conventional submarines, amphibious forces, naval aviation, and missile forces with a very limited acknowledgement of a realistic and coherent maritime strategy. Is it possible to provide that context and deduce the most probable future roles and force structure of the PLAN from China’s political-military-economic interests, its fiscal and technological constraints, and its elaborated military and naval doctrine? This paper suggest the answer is yes and identifies the three
most probable force structures and maritime strategies that the PLAN may attempt to
defend its expanding global and maritime interests.

Many nations, including the U.S., carefully conceive and elaborate national
security strategies to inform resource allocation and military force structure decisions. 
These decisions, in turn, generally point to possible uses of military force and the
intentions of governments with respect to those forces (Williams 2001, 2). China is
different. Although the PRC has released several defense white papers over the last
decade, these somewhat obtuse documents provide less transparency than many
observers would like to assist in interpreting actual Chinese military intentions (People’s
Republic of China State Council Information Office 2006; hereafter CND 2006).1 As a
result, there is no clear consensus regarding the long-term orientation or intended targets
of China’s modernizing military, but China’s national interests are well understood.
Although the PLAN is still in a nascent stage of development, it already has many of the
pieces in place and this paper suggest that the PLAN will most probably develop
according to one of the following three force structure models:

**Model I, The “Unification” Navy:** The baseline model. At a minimum, the PLAN will
continue to work towards the capabilities noted in this model. This model refers to a
PLAN with a regional focus and structured primarily to support increased coercive
effectiveness against Taiwan. This navy would provide a measure sea control within the
operational sphere of any coercive effort against Taiwan, but would most importantly

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1 For an official U.S. evaluation on the most recent PRC white paper see, U.S. Department of Defense,
2007.
provide a regional anti-access/sea denial capability to increase the probable costs of intervention by any outside powers to an unacceptable level.  

Model II, The “Influence Projection” Navy: A PLAN capable of “showing the flag” and assuming an increasingly visible presence outside of China’s marginal seas. This navy can be described as a “prestige” navy, with effective but limited power projection capabilities to protect and promote Chinese interests away from home waters.

Model III, The “Global Sea Denial” Navy: A PLAN that seeks to directly counter any threat to China’s maritime interests by developing capabilities which could deter global powers (i.e. the U.S.) from controlling or dominating China’s critical SLOCs, whether they lie from the Suez Canal to the Pacific. This navy would not necessarily provide sea control to China, but deny sea control to a potential adversary.

The ultimate role and force structure of the PLAN holds significant implications for not only the United States, but for nations and alliances throughout the Asia-Pacific regions and Indian Ocean. A PLAN capable of effective coercive action against Taiwan might not attempt to project itself much beyond China’s marginal seas, but a regional sea denial force may prove a formidable challenge for a United States Navy (USN) assigned to prevent a successful military coercive effort against Taiwan. On the other hand, a PLAN intent on establishing an “Influence Projection” navy with a modest force projection capability, even if it includes aircraft carriers, may increase its radius of action to a near global scale, provide a force capable of directly influencing events ashore, and provide a credible foil to other moderate naval powers, but would probably not challenge the world’s only major naval power for control of the seas. A Chinese global sea denial

2 Regardless of the model eventually adopted by the PLAN, development of a strong coercive force against Taiwan will continue to be a priority for the PLAN. In accordance with this assumption, Model I is considered the baseline model from which the other two models may develop.
force consisting of a large, advanced nuclear submarine force capable of patrolling all of China's critical sea lines of communication (SLOCs) provides perhaps the most significant long-term challenge to the United States. This PLAN would directly challenge the United States' traditional free access to the world's oceans, altering many American assumptions of global access, but this force would have difficulty directly affecting events ashore. Most importantly, the models each represent a differing focus for future Chinese maritime strategy and may serve as indicators of Chinese intentions for the region, for the direction or potential targets of its military, and for its foreign policy in general.

B. METHODOLOGY

In developing the potential force structure models, I examine how sea power theory, maritime interests, economic and political limitations, and military/naval doctrine tend to influence China's naval force structure. Although there is considerable variation in opinion and analysis as to the exact direction of China's grand strategy, one can certainly identify China's maritime interests, the limitations facing development of the PLAN, and the PLAN's elaborated doctrine/principles, and then discern the most logical force structures and maritime strategies that China might pursue. This is the process I have utilized in developing the three future models of the PLAN.

1. Assumptions

The models suggested in this paper are developed within the framework of three primary assumptions:
i) In the absence of a national emergency, the PRC is constrained in the amount of money it can spend on the PLA. Domestic spending priorities constrain defense spending, and the risk of an expensive international arms race with the either the United States or Japan restrains any massive defense build-up;

ii) The PRC does not yet have a military industrial complex technologically competent or competitive enough to develop the types of weapon systems (i.e. stealth aircraft, super-carriers, and integrated battle group command and control systems) that can enable direct force on force competition with the United States;

iii) Unification with Taiwan is the pre-eminent political and military concern for Chinese security planners.

These assumptions are important because they eliminate a fourth potential force structure model: a global sea control PLAN. If the PLAN does not have the resources to attempt to “recreate” the U.S. Navy, it will not directly challenge its global maritime dominance by matching U.S. force structure. Also, increasing Beijing’s coercive options with respect to Taiwan is a baseline capability for any emergent PLAN force structure (CND 2006). The political dynamics requiring the maintenance of a navy capable of coercing Taiwan and China’s economic and technological constraints and restraints to large naval expenditures will be explained in later sections of this paper

2. Framework

Ideally, a nation’s military force structure develops from a well thought out and elaborated national security strategy, but the strategy-force structure question can often resemble the proverbial chicken or the egg where force structure drives the

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3 “The struggle to oppose and contain the separatist forces for ‘Taiwan independence’ and their activities” remains the key element of China’s foreign and domestic policies.
capabilities that drive strategy. Recognizing that force structure (and the capabilities that force structure enables) can determine the limits of strategy, one can posit how the different naval force structures presented in this paper can provide insight into Chinese foreign policy objectives. Although this particular case study might eventually lend itself to further hypothesis testing on how nations develop various military force structures, this paper seeks to capture the particular relationship that may exist between theory, interests, and constraints and how they might combine to develop specific future force structure models for the PLAN.

C. ORGANIZATION OF THESIS

The first section of this paper discusses the development of sea power theory, its importance to developing maritime powers, and the influence of western sea power theorists on Chinese naval thought. The second section identifies China’s expanding vital maritime interests, the risk to those interests, and some examples of how China is seeking to mitigate those risks. The third section provides insight into the political, economic, and technological limitations to modernizing and expanding the PLAN. The fourth section provides a brief history of Chinese doctrinal development and current PLAN maritime principles. The fifth section describes the three potential naval force structure models, how they might contribute to Chinese interests, and discusses whether or not China is on the right path to developing its capabilities in accordance with those potential force structure decisions. In closing for each model, I draw some initial conclusions from this analysis in order to assess implications of those models for China with respect to its potential competitors.
D. BACKGROUND

1. China as an Emerging Maritime Power

Historically, as nations’ interests have expanded beyond their borders, their interests have placed additional pressure on them to expand the capabilities and reach of their militaries. For nations reliant upon the sea for territorial defense and for access to resources and markets, navies have often assumed great importance. Despite considerable, albeit episodic, maritime accomplishments, China has historically looked inward, cultivating a decisively continental, not maritime, self-image (Cole 2001). After a centuries long lapse in sea power development, China has developed considerable economic and political interests in the sea and now seems poised to re-emerge as a maritime nation. Concern over burgeoning overseas trade, reliance on imported resources, interests in international law which affects territorial disputes in the South China Sea, a growing domestic ship production capability and increasing maritime infrastructure all point toward China re-creating itself as a maritime nation. Since the end

4 From 500 B.C. until the sixteenth century, various Chinese dynasties and regimes maintained expansive and technologically advanced maritime fleets. The most exceptional and intrepid of the Chinese sailing admirals was Zheng He. Considered by many as the “most towering maritime figure in the 4,000 year annals of China,” for a brief period of time during the Ming Dynasty, he commanded vast fleets of naval and merchant vessels which undertook four major voyages as far west as Africa and the Middle East. His voyages throughout the Indian Ocean in 400-ton vessels during the early fifteenth century set a worldwide standard for navigation and clearly surpassed contemporary European efforts.

Nevertheless, threatened by the increasing influence of eunuchs like Zheng He, the Ming ended the Chinese experiment abruptly. Feeling pressure from internal intrigues, external aggression, and the immense drain on the treasury created by large fleets, the Ming consciously ended their maritime commitments by ultimately ordering the destruction of their ships. To Chinese reasoning, this action served to eliminate the expense of maintaining a large fleet, sealed off the mainland from corrupting external influences, and centered Chinese efforts on national interests and opportunities and threats that lay to the north and west (inland), not to the East and South (seaward). By this action, the Ming removed China from the forefront of seafaring nations and re-focused the Chinese away from the maritime world. Between the self-imposed destruction of the Chinese fleet under the Ming dynasty until the twentieth century, China’s military and economic efforts have generally looked inward and toward threats from the Asian landmass. China is still recovering from this action.
of the Cold War, no acquisition of naval power has produced as much interest, concern, and alarm among U.S. security professionals as that of the People’s Liberation Army Navy (PLAN). The U.S. Department of Defense believes that “of the major and emerging powers, China has the greatest potential to compete militarily with the United States and field disruptive military technologies that could over time offset traditional U.S. military advantages absent U.S. counter strategies” (U.S. Department of Defense 2006, 29; hereafter QDR 2006). China’s acquisition of a modern, capable, and (presumably) expansive navy, therefore, remains its most prominent manifestation of desire to establish itself as a maritime nation.

2. Coercing Taiwan: The PLAN’s Growing Importance

Congruous with the concerns of the U.S. Defense Department, most observers of the People’s Republic of China (PRC) acknowledge that the relatively rapid modernization and expansion of the People’s Liberation Army’s (PLA) is at least a clear indicator of China’s desire to maintain a credible coercive lever with respect to Taiwan (QDR 2006, 29; People’s Republic of China, State Council Information Office 2004; hereafter CND 2004). The cross-strait military balance dominates Asia-Pacific security literature, but increases in the PLA’s overall budget, an ever-increasing share of that budget for the PLAN, and the growing prominence of the PLAN within the PLA and CMC, may point toward a fundamental shift towards a more expansive and ambitious maritime strategy for the Chinese defense establishment.

The PRC has made significant capital investments in the PLAN and has prioritized its development by making the navy a pillar of the PLA’s “three

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5 Both U.S. and Chinese sources cite the PRC’s rapid military build-up as a response to increasing military options with respect to Taiwan.
modernizations.” Outside of the Central Military Committee (CMC) however, China’s ultimate vision for the PLAN is only partially understood (CND 2004). The intent and extent of the Chinese naval build-up has various important implications for the U.S. and other nations as they struggle to assess on going military force structure and alignment requirements in Asia, which leads one to ask: what will the PLAN ultimately look like? In seeking the answer to the previous question one may next ask: what is the ultimate role of a more capable and larger Chinese navy? The answer to the first question depends greatly on the answer to the second. This paper seeks to provide answers to both by providing three potential force structure models for the PLAN and the implications of each for Chinese, U.S. and regional security affairs.

3. Beyond Taiwan: Increasing Chinese Maritime Interests

The PLAN finds itself at the forefront of Chinese efforts to defend and expand a new set of vital Chinese interests. The increasing capabilities of naval weapon platforms, renewed naval doctrine and maritime strategy development, and the broadening role for the PLAN within the Chinese security apparatus suggest that China might be looking past the PLAN’s primary maritime role of containing and coercing Taiwan to establish a naval presence further a-field. Expanding capabilities and operating areas are natural by-products of the modernization effort currently underway in the PLAN. Increased capabilities with respect to Taiwan, invariably increases the PLAN’s radius of action. As its radius of action expands, the PLAN’s ability to promote and protect other vital Chinese maritime interests similarly increases, solidifying control and legitimacy in

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6 Even the U.S. DoD admits that “the outside world has little knowledge of Chinese motivations and decision-making or of key capabilities supporting its military modernization” (QDR 2006, 29).
existing regions of Chinese influence and providing opportunities to expand Chinese influence beyond traditional areas.

a) **Defense of Sea Lines of Communication (SLOC) and Territorial Claims**

Since the demise of the Soviet Union, only the United States has had the naval power to both credibly defend the Asian SLOCs and (more threatening to the nations reliant upon those SLOCs) to deny access to them. A large, forward U.S. naval presence in Asia has historically provided a stabilizing element to maritime interests by deterring nations that might consider disrupting Asian SLOCs. This may be changing. Buoyed by increased wealth due to globalization, and determined to ensure vital international trade and resources, maritime power and the ability to project that power with credible naval forces has gained renewed significance to the nations of Asia. With a multitude of competing territorial and resource claims, potential flashpoints in the Asia-Pacific region abound. Territorial disputes continue throughout the marginal seas, straddling the maritime highways of global trade. Control of vital SLOCs, or the ability to deny access to them, exerts a powerful economic and political pull on nations and their policies.

Racing to exploit the potential economic value of undersea resources, China currently challenges the sovereignty of numerous reefs, rocks, and islands in the South and East China Sea with the Philippines, Malaysia, South Korea, Japan, Taiwan, Indonesia and Vietnam. Direct confrontational encounters between the PRC and other regional nations could provide the impetus for potential conflict initiation. An attempt to

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7 Since the 1974 invasion and partial occupation of the Parcel Islands from Vietnam, China has used military force to exert its claim on territory in the South China Sea on at least three occasions (Ng 2005, Appen. 3).
restrict the free flow of resources or trade through the region would provide the most likely point of friction, but a territorial dispute could also escalate quickly.

**b) Challenging the Military Status Quo?**

With regard to the PLAN, many policy analyses tend to focus on a perceived asymmetry in the regional military balance due to Chinese naval procurement, characterizing increased PLAN capability as a direct challenge to continued U.S., and even Japanese, maritime dominance. Is the Chinese naval build-up a direct challenge the region’s major powers? Whether China intends to challenge the US or Japan, and whether its current force structure actually constitutes such a challenge are two separate questions. Both, however, lead China’s potential competitors to question the efficacy of their own force structure with respect to emerging Chinese maritime power.

China’s maritime development obviously does not occur in a vacuum and other regional powers continue to modernize and respond to challenges to their interests. Japan, for example, has carefully constructed a maritime strategy committing itself to the independent defense of its SLOCs inside of a 1000nm radius from Tokyo (defense farther abroad being limited by the pacifist constitution). Formulated during the Cold War, execution of this maritime strategy forced the Japanese Maritime Self Defense Force (JMSDF) to grow and learn as an institution, a daunting task in the shadow of the Soviet Union’s Pacific fleet. Managing to juggle the constitutional limitations to “overseas” military presence, significant domestic reticence toward increased defense spending, and U.S. pressure for a greater Japanese contribution to the U.S.-Japan Strategic Partnership, Japan has built perhaps the largest and most capable navy in Asia, second only to the

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8 For pessimistic assessments on PLAN challenges to U.S. and Japanese maritime power, see (Tkacik 2006; Fisher 2006; Fisher 2005). For a more optimistic view, see (Ji 2006).
United States Navy. With the disintegration of the Soviet Pacific fleet, the Japanese maritime strategy now seems eminently plausible and realistic, but Japan’s established maritime strategy may conflict with China’s. China will have to consider the interests and capabilities of regional peers such as Japan as it seeks to modernize and develop the PLAN.

More than any other branch of the PLA, the strategy and force structure decisions of the PLAN may provide the most valuable insight into the nature of China’s grand strategy and long-term perception of itself in the region. Analyses such as this can contribute to a discussion on Asia-Pacific security affairs by understanding real capabilities as a measure of political intent. A PLAN developed solely as a coercive component against Taiwan and not capable of long range deployments or power projection suggests that China would probably not act directly against the interests of other naval powers in the region, especially if backed up by an American security guarantee. However, the potential of a PLAN capable of denying access to Asian SLOCs or territorial seas to peer competitors might suggest the value of further study of China’s perceptions of American involvement not only in a Taiwan scenario, but also in a China-Japan conflict and the nature of the Japanese-American security relationship. Hopefully, the analysis and conclusions drawn from this paper will contribute to the discussion on Chinese naval power and its implications for Asia-Pacific security studies.
II: SEA POWER THEORY

In order to bring structure to the naval modernization and expansion program, China will need to adopt a theory of sea power that matches Chinese naval doctrine and realistically corresponds to established or near-term capabilities. The decisive and overwhelming U.S. response to several recent crises (e.g. Persian Gulf War, the Balkans, especially the Kosovo bombing campaign, the 1996 Taiwan Strait crisis, the Afghanistan War, and the Iraq War) has pushed the PLA and Chinese commentators to look closely at the lessons learned from these demonstrations of U.S. military power. The lessons expressed by Chinese examination of recent U.S. military actions reflect both an introspective look at deficiencies in current Chinese military power and a view of grand strategy that assumes American attempts to maintain unilateral military supremacy. To many Chinese observers, the lessons seem clear: in order to counter American hegemonic intentions throughout the world, but especially in areas vital to Chinese interests, the PLA, and the PLAN in particular, will need to expand operational capabilities and reach.

A. WHAT IS SEA POWER?

1) Definition

A relatively vast literature focuses on the sources of sea power, the means to its acquisition, its effects, and its application. However, these discussions often fall short in

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9 The study of sea power, its effects, and its application has taken on a renaissance of sorts with the demise of the cold war and the probable use of nuclear weapons as a war-fighting option. Due to their immensely destructive capabilities, nuclear weapons precluded the type of sea power interactions that had been seen prior to their introduction. The demise of both the preeminence of nuclear weapons in future potential conflicts and the bi-polar relationship between the U.S. and the U.S.S.R. creates an opportunity for a re-emergence of the traditional dynamic relationships between sea power nations (Friedman 2001, 1).
describing the components of sea power and in prescribing a method to measure it. “The term *sea power* is not exclusively synonymous with naval warfare. It is a much broader concept that entails at least four elements: the control of international trade and commerce; the usage and control of ocean resources; the operations of navies in war; and the use of navies and maritime economic power as instruments of diplomacy, deterrence, and political influence in time of peace” (Tangredi 2002, ch 1). Naval scholars often cite American Alfred Thayer Mahan’s *Influence of Sea Power on History* and Englishman Julian Corbett’s *Some Principles of Maritime Strategy* as the nexus of the historical quest to define sea power and identify its characteristics, and while Mahan might readily agree with the above definition of sea power. However, Corbett might prefer the following: “modern sea power can be defined as the combination of a nation-state’s capacity for international maritime commerce and utilization of oceanic resources, with its ability to project military power *into* the sea, for the purposes of sea and area control over commerce and conflict, and *from* the sea, in order to influence events on land by means of naval forces” (Tangredi 2002, ch. 1). Despite subtle differences, each definition captures the nearly universally recognized importance of sea power to nations reliant upon the maritime domain.

2. **Measure**

Mahan listed six characteristics that contribute to the measure of a nation’s sea power:

1) Geographic Position
2) Physical conformation (natural resources and environment)
3) Extent of territory
4) Number of population

5) Character of the people

6) Character of the government

"Modern naval historians have updated and reformulated the list, and a recent depiction includes economic strength, technological prowess, sociopolitical culture (as “first order” conditions), and geographic position, dependence on maritime trade and sea resources, and government policy and perception (as “second order” conditions)” (Tangredi 2002, ch. 1).

One useful measure of sea power sees it as the merging of several input and output values necessary to create sea power (Till 2004, 4). Inputs to sea power include the hardware (ships, aircraft, etc.), industry, and infrastructure necessary to apply influence from the sea. A nation with no ships or the ability to build and maintain them would be a very weak sea power indeed. Measuring sea power as an output attempts to capture the ability to “influence the behavior of other people or things by what one does at or from the sea” (Till 2004, 4). Although a nation may have a strong navy or the capability to produce one, if it cannot gain positive (from its perspective) effects on or from the sea, the input value of a strong navy is worthless. Both inputs and outputs, therefore, become necessary measures of sea power.

Others view sea power through a similar lens, but make further distinctions to measure the output as either an expression of purely political or military influence. Since Mahan and Corbett concentrated their efforts primarily on the utility of naval power in conflict, they left the greater part of the discussion of sea power’s political and deterrent utility to others. For these theorists, sea power has distinctly different characterizations
whether applied in wartime or peacetime. In wartime, sea power’s influence becomes primarily an instrument of military power, attempting to apply direct military dominance over an adversary.\textsuperscript{10} In peacetime however, the effects of sea power are often not direct at all, but are “‘political’ in the sense that their workings rely on the reactions of others, and these are reactions that naval deployments may evoke, but cannot directly induce” (Luttwak 1974, 2).

B. WHY SEA POWER MATTERS

When discussing sea power, many authors point out that the world is covered by water on over 70 percent of its surface. The world’s most productive nations and nearly 80 percent of the world’s population lie within 500 nautical miles of the sea. These facts are never lost on those who aspire to sea power. Alfred Thayer Mahan famously stated that the importance of sea power derived from the fact that “the first and most obvious light in which the sea presents itself from a social and political point of view is that of a great highway; or...a great common over which men may pass in all directions” (Mahan 1918, 16). Transportation via inland waterways, marginal seas, and oceans remains the most efficient method to transport goods and natural resources to market. With few exceptions, modern society has increased its reliance upon the sea as a medium for transportation and resource exploitation.

Historically, successful application of sea power has contributed greatly to a nation’s success in war and wealth in peace.\textsuperscript{11} The world’s oceans provide more than just a global transportation market for the world’s goods and resources. Nations that trade

\textsuperscript{10} “Sea power is the ability to use the seas and oceans for military purposes and to preclude an enemy from doing the same” (Gray 1992, 4).

\textsuperscript{11} For a historical perspective of the success of sea power nations over land power nations, see (Gray 1992).
along the maritime highway may grow rich, but those that can control it, will control their own destiny. As Norman Friedman (2001, 4) writes, “sea power offers choices that land power cannot make… the sea can be either a barrier to attack or a highway leading both to our enemies and to us. Naval power creates the barrier and naval power exploits the highway, but naval weakness makes the sea an invitation to attack.” Effective use and control of the “great common” would therefore seem critical to a nation’s prosperity and security (Posen 2003).  

C. COMPETING VISIONS OF SEA POWER

Although his influence has often been overemphasized, Mahan’s theories on the effectiveness of sea power helped to fuel a powerful navalist sentiment and several enormous naval construction programs among nations in the late 19th and early 20th centuries. Command of the sea became the goal. Mahan’s enthusiasm for the effectiveness of sea power as a determining factor in the competition among nations lead many of his readers to deduce that sea power was the determining factor in assuring national success.

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12 In his essay “Command of the Commons,” Barry Posen discusses how the ability to dominate the global commons (whether air, space, or water) is the key enabler in worldwide power projection and one of the primary reasons why the U.S. remains the world’s unparalleled military power.

13 Mahan’s works truly had a remarkable influence. Kaiser Wilhelm II of German famously remarked, “I am just now not reading but devouring Captain Mahan’s book and am trying to learn it by heart. It is a first class work and classical in all its points. It is on board all my ships and constantly quoted by my captains and officers” (Till 1986, 80).

14 Command of the sea in this sense means complete control (freedom of action) over the oceans regardless of space and time. Later naval scholars morphed command of the sea into the concept of sea control. Sea control does not necessarily mean complete freedom of action throughout the world’s oceans, but does mean freedom of action within a defined space and for a specific period of time.

15 Some observers note that Mahan made efforts to point out the limits of sea power as “but one factor in that general advance and decay of nations” and to point out the relationship between “the effects of naval warfare on the strategic situation ashore” (Till 2004, 42-43).
Corbett delved beyond mere control of the sea and into the roles and advantages of sea power. He specifically focused on exploring the advantages conferred by sea power to nations beyond the role of a navy’s ability to destroy the enemy’s fleet in battle. To Corbett, sea power confers a degree of flexibility in conflict, enabling those who command the sea to limit the extent of the conflict. In fact, this idea was not new. Remarking on the potential of sea power to limit conflict, Francis Bacon wrote, “He that commandeth the sea is at great liberty and may take as much or as little of the war as he will” (Friedman 2001, 4). Especially in conflicts where protagonists do not share contiguous borders or are separated by distance, (restricting the retaliatory capability of the enemy and the geographical extent of the fighting) sea power enables the side with command of the sea to limit its liability with respect to the conflict by choosing the degree to which it engages the opposition (Till 2004, 49).

Another primary debate between sea power theorists has revolved around the proper roles and efficacy of sea power. The question concerning the role of sea power, and by derivation, the role of navies, focuses on the whether navies are best used as a tool to directly challenge and confront other nations’ navies or, since man is a terrestrial creature that lives and conducts his business on land, are they best used as an enabler for objectives ashore? In other words, can sea power be successful as a stand-alone strategy or is it best conceived as providing a supporting element to a strategy based on objectives ashore?

Mahan primarily focused on the effects of sea power in the context of the competition between nations, specifically during times of conflict or direct economic
competition that could lead to war. In conflict, the question sea power nations must answer is should sea power focus on the destruction of the enemy’s fleet and naval capability or should sea power provide the enabling element to a nation’s land power component? Mahan clearly felt that sea power (and command of the sea) is best established by decisively defeating the enemy’s fleet and naval infrastructure. By destroying the enemy’s capability to conduct naval operations, a nation can establish permanent and total command of the sea, eliminating any further challenge to dominance of the “great common,” thus ensuring continued national strength. To Mahan, a strong, dominant navy, capable of directly confronting the naval strength of an enemy, is ultimately the best method of protecting the sea lines of communication, hence the security and prosperity of a maritime nation.

Unfortunately, few nations have the resources to build, maintain, and operate a navy with the capability to dominate the global commons. In contrast to Mahan, Corbett argued that destruction of the enemy’s fleet is not a requisite for sea control and that sea control need not even be permanent (in time or place) to contribute to the security of a maritime nation. Sea power is only useful for “the strategic effect (it) can secure ashore, where people live” (Gray 1992, 1). Whether one sees sea power as a strategic or operational tool, most agree that it must contribute to an overall strategy or grand strategy. Writing after Mahan, Corbett “took an overtly political approach to sea power” (Till 2004, 47). He “emphasized that strategy needs to be consciously related to foreign policy... (and that) naval strategy has to be related to land strategy” (Till 2004, 47). Although, like Mahan, Corbett focused his efforts less on the usefulness of naval power

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16 Others, such as Edward Luttwak (1974, 1) have sought to identify the influence of sea power as “peculiarly useful as an instrument of policy even in the absence of hostilities.”
during peacetime, in order to emphasize its utility in providing a balanced strategy in times of conflict, his belief that sea power could serve as an enabler to events ashore more easily lends itself to the application of sea power outside of the realm of conflict and towards the economic competition that exists between nations contesting for limited resources and markets.

Today, it would seem that only the United States has the capability and resources to even contemplate an offensive minded approach to naval operations that harkens back to the Mahanian vision of annihilation of the enemy as a means to command of the sea. However, some Chinese commentators seem to call for just such an approach, and they often cite recent examples of U.S. sea control as an impetus for China to expand its naval influence and power.\textsuperscript{17}

D. A RECENT U.S. APPLICATION OF SEA POWER\textsuperscript{18}

Sea power, or command of the sea, provides the ability to respond to crises far removed from normal areas of operation or interests. Although some have argued that sea power is not a strategic enabler at all, but merely an operational tool, there is no doubting the operational flexibility that sea power gives to a commander.\textsuperscript{19} Maneuver and mobility are important factors in any campaign, and sea power grants this to the operational commander. The United States’ response to the invasion of Kuwait by Iraq

\textsuperscript{17} See, Ni Lexiong. “Sea Power and China’s Development.” The Liberation Daily. 17 April 2005. Ni uses a Hobbesian historical context to juxtapose China’s current position to the first Sino-Japanese War in arguing for dramatically increased spending on China’s navy and argues that Mahan’s vision of sea power dominance still applies to China.

\textsuperscript{18} Although this example represents an operationally offensive use of sea power, it provides an example of a strategically defensive response enabled by sea power.

\textsuperscript{19} Because the fate of nations ultimately rests with events and decisions occurring on land, some sea power theorists believe that sea power is merely a military component that can contribute to an overall strategic plan, but not prove decisive on its own. “…there is no naval strategic warfare…A maritime campaign by a maritime nation aims at sea control as the means to an end, because strategy prescribes wartime goals and missions governed by purposes on land.” Wayne Hughes, CAPT, U.S. Navy (Till 2004, 49).
in 1990 gives one modern example of the increased response options conferred by command of the sea. The effect of sea power was threefold on the ultimate campaign, granting the U.S. the operational flexibility and nimbleness to effectively alter the strategic balance in the region.

First, the United States provided a timely armed response via carrier battle groups. Within a few days of the Kuwaiti invasion, the U.S. could provide credible and coordinated air operations in defense of Saudi Arabia utilizing aircraft based on carriers at sea. While land based aircraft also deployed to Saudi air bases, their utility was initially limited by the lag time required to accumulate critical maintenance and support units. Furthermore, land based tactical aircraft also had to coordinate with Saudi authorities on permissible operations prior to flying missions. Sea based aircraft had the advantage of self-contained fuel, ammunition, maintenance support, and command and control facilities and the freedom to operate without first consulting with host governments. Second, nearly 90 percent of war materiel for the Gulf War was brought by sea. Sea power enabled the uninterrupted flow of heavy equipment, ammunition, and support materiel. Even today, in most cases, the most efficient and quickest way to transport heavy equipment around the globe is by sea. Third, the sea power component of the coalition forces provided a valuable operational decoy that fixed significant numbers of the Iraqi army in place in preparation of a potential allied amphibious operation. The command of the sea enabled the coalition commanders to use the naval forces when and if they needed to, but the effect of their mere presence altered the strategic calculations of the enemy and forced him to weaken his positions elsewhere.

This example effectively illustrates Corbett’s view of the effects of sea power to limit
liability in conflict for those who posses it and also its ability to affect the strategic balance when coordinated with and supportive of an effective land strategy.

E. CHINA'S MARITIME CHALLENGE: DEVELOPING A THEORY OF SEA POWER

Many Chinese commentators clearly associate the importance of sea power to China’s continued economic welfare and security. These commentators flatly reject the opposing position that China would ultimately benefit from a cooperative security arrangement with regional partners. While there is an acknowledgement by these same commentators that “opinions in China are greatly divided on whether or not, and if so, how China should strive for sea power,” those that argue strongly for an increase in Chinese sea power trumpet the necessity for self-reliance in ensuring open trade routes, energy resources, and Chinese sovereignty.20 “If the security guarantee of China’s lifeline at sea were to rely upon ‘international cooperation,’ to a large degree, it would mean our reliance upon the Unites States. We are already checked by the U.S. on the Taiwan matter, if our lifeline at sea once again falls into the hand of the U.S., we will give the U.S. another bargaining chip over the issue of Taiwan, which will be extremely disadvantageous to us” (Ni 2005). This position stems from a strong belief that the U.S. is fully committed to containing China, and, therefore, China’s best position is one of strength vis-à-vis the United States.

While almost all Chinese security commentators advocate increasing Chinese military strength overall, there may still be debate as to whether or not sea power is the

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20 For commentaries that advocate the strengthening of Chinese sea power in response to increasing Chinese maritime security interests, see (Zhang 2006; Ni 2005).
proper avenue to achieve Chinese policy objectives and protect specific interests. Some Chinese security commentators take a much less bellicose view of U.S.-China relations and steer the discussion away from direct bi-lateral confrontation toward finding effective means to manage non-traditional security concerns. These moderate voices tend to push for increased cooperation in security matters between nations, but especially among Asian nations (Wang 2005). The PLA itself, in the 2004 Defense White Paper, "gives priority to the building of the Navy, Air Force and Second Artillery Force to seek balanced development of the combat force structure" (CND 2004). The PLA's three modernization priorities affect the Air Force and Rocket Forces as well as the PLAN. Although some have pointed out that relative order of the listing in Chinese defense documents may be significant, the PLAN will have to compete with the PLAAF and the Second Artillery Force for resources.

In arguing for increased Chinese sea power, some Chinese reasoning has roots in the theory of Mahan, Corbett and in western political philosophy. To one Chinese sea power advocate, "it then becomes obvious that the emergence of 'the Hobbesian Era' and the rise of Mahan's Sea Power Theory in fact share historical inevitability. The Hobbesian Law and the Mahan Theory are a symbiosis, with logical inner connections" (Ni 2005). In the "Hobbesian Era," China cannot rely on other nations to provide a common defense since it expects that all nations will act in their own self-interest. Since China's interests (energy resources, trade, raw materials) are increasingly tied to the maritime environment, "only when the Hobbesian Law recedes out of sight will we see the disappearance of the traditional Sea Power theory. Since today and in a long time in the future our world is governed by the Hobbesian Law, China should never ignore
historical experience and the traditional Sea Power concepts. It is not only required by reality and the future for China to build a strong Navy, it is also required by logical reasoning” (Ni 2005). Another commentator seconds that logic by bluntly stating, “…it is imperative that China, as a nation, pay attention to its maritime security and the means to defend its interests through sea power (a critical capability in which China currently lags behind)” (Zhang 2006, 20). Statements like these seem to argue for a dominant Chinese navy that can protect Chinese maritime interests against any potential competitor. In concurrence with both Mahan and Corbett’s visions, sea power is seen as both an instrument of status (Mahan) and an enabler of freedom of action (Corbett). Views such as these may be on the extreme of Chinese thought, but do present an oft repeated (in western circles) idea of Chinese sea power theory that not only serves as a mandate for increased Chinese naval capability, but as a an avenue for recognition of China as a great power.
III: CHINA’S MARITIME INTERESTS

Although China is technically a developing nation, its economic successes have left it with the financial resources to undertake a modernization and expansion program for the PLAN. There is little doubt that China has the fiscal capacity to build a modern fleet capable of full spectrum naval warfare, but at what cost and to what purpose? Whatever Sea power theory model China decides upon it must answer more specific questions in order to provide direction to an expanding navy: what are the maritime interests of China? What is the goal of this new navy? Does it serve China’s vital interests or might it actually serve as a catalyst for further conflict? Can actual capabilities support the vision? It is not satisfactory to a strategist or policy maker to merely state that China has maritime interests and wants to expand. One looking to deduce the future intentions and direction of the PLAN must address these questions as well. This section seeks to define how emerging Chinese national interests are driving a resurgence of maritime and naval modernization and expansion. It will then present some of the constraints and risks facing Chinese maritime security and identify some of the initiatives the Chinese have undertaken to mitigate those risks.

A. THE RELATIONSHIP BETWEEN STABILITY AND ECONOMIC GROWTH

The CCP perceives stability and economic growth as necessary to ensure the political legitimacy of the communist party and therefore, its ultimate survival of as China’s governing institution. According to official Chinese dogma, economic growth
cannot continue without social, political, and civil stability, and stability is intrinsically related to continued economic growth. Although that characterization may be an oversimplification, it means that the CCP believes that if the government can provide for the material expectations of the people, the people will not interfere with the business of government. China’s leadership recognizes that a disruption of energy supplies to China could have disastrous effects to their economy and subsequently to the regime. The economic and geopolitical realities of its increased dependence on sea-borne commerce has forced China to re-evaluate its position as a traditional continental power and to emphasize securing its maritime interests, especially as they relate to energy imports.

The PRC’s efforts to increase its naval power and maritime influence stem from several various complimentary economic and civil-military interests and also perceptions that it is increasingly constrained by nations intent on containing Chinese economic growth and political influence. In the civil-military realm, Chinese vital maritime interests are more specific to the PRC, and reflect a Chinese commitment to unify the “two Chinas” by bringing Taiwan under Beijing’s control and the desire to assert Chinese territorial claims throughout the South China Sea. Economically, Chinese vital maritime interests reflect the nearly universal desire to secure resources and markets for trade. Although characterized here as political and economic interests, they are not completely contained by those labels, as the political affects the economic and vice versa.

Because the regime feels that these interests directly contribute to the goals of stability

21 Increasingly, “the U.S. is identified by Chinese analysts as the most important external force impacting China’s maritime security interests, which not only include Taiwan, the East China Sea and South China Sea, but also China’s sea-lane security” (Blair, Chen and Hagt 2006).

22 Among Chinese scholars there is considerable debate about how China should pursue its interests and to what extent those interests are threatened by outside entities. Although the U.S. is often viewed as a great concern for the PRC, sometimes characterized as a “dangerous and predatory hegemon” intent on containing China’s inevitable rise, internal Chinese debates often argue the efficacy of an aggressive Chinese responses to the American hegemonic threat.
and economic growth and, hence regime survival, they assume a vital character. The increasing amount of financial resources being spent to modernize of the PLA, in general, and of the PLAN, more specifically, is a clear acknowledgement of the importance that China places on sea power as a key enabler in securing its economic and political security and presenting a credible defense of its maritime interests to external challenges.

B. CIVIL-MILITARY INTERESTS: TAIWAN

Taiwan is of central importance to Chinese political interests. The Taiwan issue spans both the international and domestic arenas, and therefore presents the outside observer with an incredibly complicated array of competing and overlapping issues which affect ultimate policy. China’s continuing attempts to assert territorial claims throughout the South and East China Seas also closely connect with the PRC’s attempts to assert sovereignty over Taiwan. The PRC views its efforts to expand and modernize the PLAN as an important and necessary step to increasing the efficacy of any future coercive efforts with respect to Taiwan and for providing the presence and power necessary to promote further sovereignty claims in the China Sea.

Any discussion of potential PLA or PLAN force structure must take into account the importance of the cross strait relationship with Taiwan within the PRC’s domestic and international political considerations. There is no other single issue that has the potential to incite Chinese passion and nationalism to the extent that the question of unification does. From the U.S. perspective, Chinese aggressive stance toward Taiwan

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23 While there are certainly political aspects to China’s territorial claims over disputed islands in the South China Sea, there is also a large economic significance to those territorial claims especially in the race to exploit offshore resources. The economic impact of China’s South China Sea territorial claims is addressed later in this section.
stems from China’s aim to “coerce Taiwan into abandoning its efforts to redefine the ‘one-China’ principle and Taiwan’s status in international politics” (Suettinger 2003, 246). Beyond the international dimension of the cross-strait tensions, there are also critical domestic civil-military considerations that western observers often overlook. Within the governing power structure, China’s policies with Taiwan have as much to do with “justifying requests for continuing increases in PLA budgets, arousing patriotism to buttress regime legitimacy, and enhancing central authority above regional interests” (Suettinger 2003, 246).

The overwhelming importance of Taiwan as a factor even in Chinese domestic political affairs is difficult to overestimate and may prove a central driver in China’s push to acquire maritime power. As discussed by Jing Huang (2005), in order to bolster its legitimacy among the Chinese population following the student uprising at Tiananmen Square in 1989, the CCP leadership instituted a “patriotism education campaign.” The retrocession of ceded lands such as Hong Kong and Macao became a focal point to stir the nationalist fervor of the Chinese youth. Taiwan, as the last ceded parcel to return, “became the ultimate symbol of incompleteness in China’s sovereignty” (Jing 2005, 5). Therefore, the Chinese right has created Taiwan into a “sine quo non” for China.

The Taiwan issue not only involves China’s sovereignty; over the long run, it is also very relevant to the problem of gaining sea power which will determine the fate of China’s development. If China loses Taiwan, it will subsequently also lose the Nansha Islands (Spratleys) and perhaps the Diaoyutai (Senkaku) Islands. Losing these regions implies that China will lack the basic space for ensuring national political and economic security that will be essential to China’s rise as a great power...if Taiwan and the other islands are not within China’s control,
China will not be able to guarantee the border security of commercial centers such as Shanghai, Guangzhou and Shenzhen. (Zhang 2006, 25)

These comments suggest the power of the rhetoric used in internal Chinese domestic politics, but also points to Taiwan’s geo-strategic importance to the PRC. Although China has a large coastline that allows it access to the China Sea, its access to the open ocean is completely blocked by the islands surrounding the South China Sea in the South and the Japanese islands in the North and East. Should the PRC acquire Taiwan, it would instantly have access to the deep waters of the Pacific, eliminating the strategic choke points that hinder Chinese naval capabilities.

Taiwan would clearly serve as an important element to a layered Chinese defense strategy. The hyperbolic passage noted above does address a key inadequacy of older Chinese strategic thought in light of modern geo-economic realities. Mao espoused a fundamentally defensive “People’s War” doctrine that “stresses(s) numerical strength, which is thought to compensate for inferior weaponry...[and] mobilizing the civilian population for a protracted war” in order to mitigate the disadvantages that China faced in a force on force encounter with the technologically advanced military powers (e.g. the U.S. and the U.S.S.R.) (Ji 1999, 2-3).24 In a Peoples’ War, the Chinese would trade space for time and try to envelop their enemy is a war of attrition. Unfortunately, China can no longer afford to offer the sea as an “avenue for invasion” because the wealthiest and most

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24 Mao actually conceived of and utilized his Peoples’ War doctrine during the Nationalist-Communist Civil War, and again against the Japanese in World War II. However, the limitations faced by the Communists in their previous wars carried over to the Cold War and Mao’s doctrine remained the guiding principle in Chinese military thought until only very recently. Yet, even as Chinese military doctrine begins to progress past Peoples’ War, there is still great homage given to Mao’s principles. For example, new doctrines are almost always couched in Maoist terms such as “Peoples’ War under modern conditions” or and its influence has not been fully erased from
productive regions of China are within 500 nm of the sea, and the capture or destruction of those regions would be disastrous to China. By emphasizing the importance of the space provided by Taiwan, Zhang lends support to the “forward defense doctrine” originally proposed under Deng Xiaoping. In forward defense, “instead of allowing the enemy to move freely into the country, the PLA (would) firmly stick to positional defense” (Ji 1999, 2-3). Similarly, the acquisition of territory in the South China Sea gives breathing room to the Chinese strategic position, places it favorably forward enough to control the near SLOCs in its own backyard, and facilitates China’s claims to resource exploitation in its declared Exclusive Economic Zones (EEZs) in the South China Sea. China’s past use of force to exert its claims should provide an indicator of the importance that China places on these political interests.

C. ECONOMIC INTERESTS

China recognizes that rapid globalization of the world’s economy provides a renewed drive for nations reliant on foreign trade and resources to ensure access to the world’s oceans and waterways in order to provide the resources and products which fuel economic growth. If, as one Chinese commentator has observed, the “history of capitalism and its spread globally [has] shown that it is often accompanied by cruel competition between nation states,” then continued Chinese “…access to global trade and

25 Also see (Godwin 2003, 23-56).
26 Although China has resorted to force in the past, some analysts believe that China is vulnerable to political pressure short of conflict in pursuing their claims (other than Taiwan) in the South China Sea. See (Cole 2001; Ji 2000).
resources requires sufficient power to defend one’s interests in the trade and resource transportation routes” (Zhang 2006, 20).

Some significant consequences of China’s spectacular economic growth include an increased demand for the energy products that fuel its economic engine coupled with a simultaneous increased reliance on foreign trade to provide the raw materials for its economic expansion and the markets for its manufactured goods. Within the past fifteen years, China has joined the ranks of the world’s net energy importers and fully 90 percent of China’s trade is dependent on sea-lane transportation (Zhang 2006, 22; EIA 2006). The growing use of the sea for shipping energy products and trade has subsequently caused an increased Chinese reliance on the international maritime transportation network to provide its access to the world’s energy supplies.

For obvious economic reasons, China has a critical stake in ensuring its access to the global energy supply. Since becoming a net oil importer in 1993, China’s thirst for oil has kept pace with its economic growth. In 2006, the Chinese economy grew at 9.9% with an accompanying 500,000 bbl/d increase in oil consumption. The EIA estimates that China consumed 7.4 million bbl/d of crude oil in 2006, but domestically produced only 3.8 million bbl/d. Although the Chinese are actively seeking further development of domestic oil fields, the EIA does not anticipate that further domestic production will be able to compete with increasing domestic demand. With additional increases in average daily consumption rates assured, China economic growth is increasingly tied to its ability to access offshore and foreign oil supplies.

A brief examination of the origins of China’s imported oil demonstrates China’s dependence on maritime transportation networks. China imports the majority of its oil
from Angola, Saudi Arabia, Iran, Russia, and Oman. Crude from each of these countries must travel via the Indian Ocean and the Strait of Malacca in order to reach Chinese ports. The Atasu, Kazakhstan to Alashankou, Xinjiang pipeline, currently the only operational transnational oil pipeline to China, provides China with only 200,000 bbl/d. Although that volume is expected to double by 2010, the amount of crude that China imports via maritime commerce will maintain an upward trend.

D. CHINA’S GEOGRAPHIC REALITIES

The limited number of shipping routes to China from its major oil suppliers and China’s lack of shared borders along those routes also contribute to Chinese insecurities concerning its oil supply and access to markets for its trade goods. These geographic limitations play a critical role in the Chinese calculus emphasizing maritime security, adding considerable economic and political constraints to China’s energy access problems. The lack of alternative shipping routes to transport crude oil to Chinese markets is central to understanding China’s geographic dilemma with respect to its maritime security concerns. Furthermore, because China shares no geographic boundaries along their critical SLOCs, China has a restricted ability to directly influence security measures in and around the SLOCs.28

Geographically, the vast majority of oil imported to China passes through the Strait of Malacca, bordered by Malaysia, Indonesia, Thailand, and Singapore, and the Sunda and Lombok Straits in Indonesia. The Strait of Malacca, however, is the central

28 A nation can influence SLOCs in a number of ways. Positive influence would include policing waterways to ensure that piracy and criminal activity is kept to a minimum, legitimate safety and environmental inspections of transiting vessels, and maintenance of navigation aides, channels, and piloting charts. Negative influence could include intrusive inspections for disruptive purposes or preventing traffic from passage through the SLOCs.
choke point between China and its primary oil suppliers and one of the most important strategic passages in the world. Fully 30 percent of worldwide shipping passes through the strait every year. The Strait of Malacca is world’s longest navigable strait (800km) and many of the world’s largest tankers can transit through its 23m deep channel. Other straits such as the Sunda and Lombok straits provide alternative maritime routes to China, but require significant increases in time and distance traveled, navigation risk, and shipping capacity requirements. The loss of efficiency increases shipping costs, which shipping companies pass on to the consumer, resulting in a higher downstream price for oil.

Transporting cargo through the Strait of Malacca, as opposed to the Sunda Strait, saves 1,600km and three days in order to reach the South China Sea, saving precious time.
and money for shipping companies.\textsuperscript{29} Also, due to heavy traffic volume, the
governments surrounding the Strait of Malacca (Malaysia and Singapore) have invested
heavily in navigational aides. This reduces shipping insurance rates for vessels using the
strait by removing some of the shipping risk that accompanies sailing through the Sunda
and Lombok straits. Finally and perhaps most importantly, shipping companies maintain
tanker fleet sizes to keep up with a certain demand signal over time. As the time to
transport cargo from the supplier to the consumer increases, shipping companies must
invest in additional capacity to make up for the extra time that ships are in transit and not
in port off-loading their cargo.

Ultimately, the geographic reality of all straits, regardless of distance between
supplier and consumer, leaves them vulnerable to closure. By their very nature, straits
are narrow, relatively shallow choke points that funnel shipping into a small and
vulnerable area. Chinese oil imports must travel through at least one of these choke
points. Unfortunately, China does not directly border any of these choke points and must
therefore rely on other countries to ensure free and open travel through these straits.

E. DISRUPTIONS TO MARITIME TRANSPORTATION

Because Chinese SLOCs follow a tenuous route across thousands of miles of
ocean and through narrow geographic choke points, maritime commerce is vulnerable to
disruptions. One Chinese maritime scholar identifies four main areas that could lead to
disruptions affecting Chinese SLOC security:

\textsuperscript{29} Since a container ships charter rate is $15,000 to $35,000 per day, shaving three days off of a transit
translates into significant savings for the ship operators. Source: Interglobo International Freight
“1) The unstable relationship between regional countries, especially the U.S., China, and Japan;

2) Sovereignty disputes and overlapping maritime claims;

3) The ongoing naval build-up by regional countries;

4) Non-conventional actions such as piracy, hijacking, drug trafficking, pollution, and natural disasters” (Ji 2000).^30

The first three potentialities are closely related and can be discussed more or less together. The U.S. and China maintain a stable economic relationship, but there remains a significant mistrust, especially in the military to military relationship, concerning each nation’s objectives for the region. Although direct military confrontation between China and the U.S. remains a remote and extraordinarily damaging possibility in the post-Cold War era, China cannot and does not rely upon the U.S. to defend her interests. Principally among the factors causing mistrust, the “activist foreign policy of the United States...after the September 11 terror attacks caused widespread suspicion in China that the United States is bent on containing China” (Pollpeter 2004, 29). American policy makers, and those influential to the U.S. policy makers, routinely paint China as a direct competitor to the U.S (Council on Foreign Relations 2006, 3).^31 Although the U.S. supports a free-market approach to resource allocation, the American characterization of China as an inevitable competitor with the Unites States forces China to confront the

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^30 Although, environmental factors (natural disasters) can cause temporary disruptions in the SLOCs, their political effects on maritime security are limited and therefore outside of the scope of this paper.

^31 The Council on Foreign Relations’ report on National Security Consequences of U.S. Oil Dependency states in its opening paragraph that with respect to “today’s rapidly growing emerging economies of India and China...at best (the) trends will challenge U.S. foreign policy; at worst, they will seriously strain relations between the United States and these countries.”
possibility that the United States may eventually challenge China for control of natural resources.

Furthermore, from the Chinese perspective, recent security cooperation agreements between the U.S. and Indonesia, and Australia and Japan feed Chinese concerns of being hemmed in by a resurgent American hegemony. The "increasingly robust bilateral relationship between Indonesia and the United States" creates the possibility of the U.S. Navy operating more and more frequently in Indonesian waters, raising concerns for Chinese access to the Sunda and Lombok straits (U.S. Department of State 2007). Similarly, the recent security agreement signed between Australia and Japan seems to encourage Japan to make a more activist foreign policy within the region and evokes still raw Chinese memories of Japanese aggression before and during World War II. China remains tremendously suspicious of a resurgent Japan.\(^{32}\) Japan currently has the second most powerful Navy in the region, after the United States, and Japan's commitment to defense of its SLOCs out to 1000 nautical miles could be a potential flashpoint to China (Wooley 2000, 71).\(^{33}\)

Another factor pressurizing Chinese maritime security concerns relates to the "creeping jurisdiction" of various nations surrounding the South China Sea and along China's SLOCs.\(^{34}\) Currently, China has territorial disputes with the Philippines, South Korea, Taiwan, Indonesia, Vietnam, and Japan. Each of these nations have signed on to


\(^{33}\) In 1981, with U.S. encouragement, Prime Minister Suzuki declared that defending Japan's SLOCs out to 1000nm was Japan's new policy. A brief look at a map of the East China Sea shows that should Japan begin strictly interpreting that 1000nm radius of action, it would quickly bump up against Chinese dominated areas in the East China Sea.

\(^{34}\) "Creeping jurisdiction" also refers to "states in the region taking actions that restrict traditional freedom of the seas. Proposed constraints often have good motives (safety, anti-pollution, etc.), but cumulatively would restrict SLOC access in ways potentially quite harmful to regional states themselves, given their great dependence on SLOC shipping for economic growth" (Weeks 1998).
the United Nations Convention on the Law of the Sea (UNCLOS) which reiterates principles such as innocent passage and freedom of navigation through international waterways, but UNCLOS leaves broad leeway for nations to define EEZs. This leeway provides opportunity for various countries to exert sovereignty over water previously considered outside of territorial seas and therefore, outside of traditional sovereignty claims. Ever larger EEZs lead to “overlapping claims of sovereignty” and increases potential for conflict, which could erode China’s maritime security. With potential reserves of over 7 billion bbls, the China Sea basin has great potential to further China’s (and other competing nations’) oil reserves, but remains a potentially volatile area for China. In fact, China has exercised shows of military force no less than three times since 1974 to enforce its claims to territory in the South China Sea (Ng 2005). The resulting threat of conflict and the desire to defend maritime economic interests has led to a mini-naval arms race over the last decade (Umbach 1998, 23).

Threats from non-state actors also have an important impact on China’s maritime security. The effects of non-state actors tend to have more limited and temporary effects than great power politics, however the “low-noise” rate created by piracy and terrorism creates a continual strain on maritime security and an upward pressure on shipping costs. Piracy has been a continual problem not only for China, but also for the region as a whole. Over 60% of the world’s reported piracy incidents occur in the waters of East Asia, and terrorism remains a large concern (International Chamber of Commerce 2007). A large tanker hijacked and sunk in the channel of the Strait of Malacca could interfere with shipping for weeks (if not months), with greatly increased costs associated with alternate shipping routes.
F. POTENTIAL EFFECTS OF ECONOMIC DISRUPTION

Domestic political considerations play an equally, if not more important role in China’s interest in ensuring its access to energy. Reflecting the regime’s core belief in the relationship between economic growth and stability, the Chinese Communist government feels strongly that the availability of cheaply priced crude oil is necessary for regime survival and legitimacy. China’s fast paced, economic growth has greatly added to the wealth of the nation as a whole, but has left vast portions of the population marginalized and disenfranchised. Cheap and abundant oil helps to sustain the increased living standards of China’s middle class and its many industrial enterprises by facilitating domestic transportation costs and literally fueling the expansion of the domestic auto and petrochemical industries. Perhaps most importantly from the regime’s perspective, a cheap crude oil supply is critical to the many rural sectors of the Chinese economy, particularly agriculture, that are extraordinarily vulnerable to price fluctuations and market elasticity. The Chinese government provides heavily subsidized petroleum products to its farmers in the form of fuel and fertilizers. Should the regime no longer have the ability to provide cheap fuel and fertilizer, the resulting under-performance of the agriculture sector could create hundreds of millions of unemployed farmers, at best, and famine-like conditions similar to North Korea, at worst. Recent years have seen ever greater numbers of “disturbances” in the rural regions of China for various reasons such as pollution and food prices, but those disturbances would likely be miniscule in comparison to a large rural uprising.35 The resulting threat to the social and civil order

35 For a sample of the reporting on riots in China, see, Yardley, Jim. “Rural Chinese Riot as Police Try to Halt Pollution Protest,” New York Times, 14 April 2005 (50-60,000 protestors to fight pollution); BBC
places an extra burden on Chinese interests, requiring aggressive Chinese efforts to ensure access to the global energy supply.

G. CHINESE INITIATIVES TO MITIGATE TRANSPORTATION RISK

In response to the potential for disruptions to its SLOC security, China has implemented several strategies to mitigate the risk associated with those disruptions and their effects on China's energy security. Chinese initiatives have centered on diversifying and increasing supply, diversifying transportation alternatives, increasing transportation capacity, and building military credibility that addresses perceived imbalances in regional naval power relationships. These initiatives are designed to increase both China's energy and maritime transportation security and its overall strategic position with respect to potential competitors.

China's efforts to expand their energy supply and their efforts to diversify their transportation alternatives are closely related. In an effort to increase supply, China has recently teamed with several international oil companies (IOCs) by signing production-sharing agreements to develop domestic offshore fields. China also continues to open some onshore fields in northwest China for exploration by IOCs (EIA 2006). However, even expanded offshore domestic production cannot hope to keep up with increasing demand. In response to China's increasing reliance on foreign oil, the Chinese national oil companies (NOCs) (Sinopec, CNPC, and CNOOC) are aggressively pursuing exploration and production contracts abroad. All three of China's NOCs have signed agreements for production and exploration in foreign countries. Chinese attempts to

“lock-up” future production are not without controversy. CNPC, which has agreements in 21 countries, recently announced that it would invest a further $18 billion in Sudan’s oil industry, including a pipeline to the Red Sea (EIA 2006). Deals like the Sudan infrastructure investment contracts impose considerable cost on PRC foreign policy efforts elsewhere, but China’s general unwillingness to support UN efforts to mediate the Darfur crisis reflects the Chinese concern for securing reliable energy supplies.

Finding alternative means to transport energy supplies once they are acquired has also taken on renewed importance in China. Overland, transnational pipelines seem to offer the greatest promise of eliminating many of the risks associated with maritime transportation security. Russia’s announced plans to build a pipeline from Angarsk in Siberia to Nakhoda on the Sea of Japan, suggests that Japan is set to be the primary beneficiary of a Siberian pipeline. Although the Russians have not announced a plan to build a pipeline to Daqing, the announcement that the Nakhodka route will go through Skovorodino leaves open the opportunity for a future spur to Daqing (EIA 2007, 6-7).

The Chinese have also taken some more innovative approaches to reducing risk in the SLOCs. Since the Strait of Malacca provides the most critical choke point in the Chinese SLOCs, the Chinese had explored the potential for a canal across the Kra peninsula in Thailand, eliminating the transit through the Strait of Malacca, but “balked at the estimated $20-25 billion dollar price tag” (Storey 2007). Other innovative proposals have included an underground pipeline across Thailand, and a China-Pakistan energy corridor. In both of those proposals, energy resources would still have to travel

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36 China has been reluctant to participate in US-led initiatives to limit Sudanese investment, but has recently become more responsive to supporting UN action in Darfur. This may possibly be due to China’s increased self-awareness of their human rights record and increased potential for scrutiny of that record as the Olympics in Beijing grow nearer.
across difficult terrain and politically unstable regions. The most promising proposal seems to be a proposed $2 billion Burma-China transnational pipeline. Oil would proceed along a 750-mile pipeline from Sittwe to Kunming, thereby eliminating the Strait of Malacca from the transportation equation.

China is also consolidating control and expanding the capacity of its merchant tanker fleet as yet another step to mitigate its maritime transportation risk. China is reportedly undertaking a major commercial shipbuilding plan, which will add 65 super tankers to its merchant fleet by 2012.\textsuperscript{37} The principal naval architect at one Chinese shipyard has been quoted as saying, “it is all about national energy security. We have to be able to use our own ships to transport oil.”\textsuperscript{38} A dramatic increase in tanker capacity gives the Chinese much greater control and flexibility in managing demand surges at home and managing the longer routes required of tankers in the event of a crisis in the SLOCs.

Finally, China has recently embarked on a well publicized and reported modernization and building program for the PLAN. An increase in both numbers and quality of surface ships and modern submarines reflects China’s concern that in a military crisis its ships carrying energy resources could be interdicted. The PLAN’s naval doctrine not only emphasizes SLOC security, but also “blockading major SLOCs effectively and within a required span of time in the waters encompassing China’s maritime territories” (Ji 1999, 165-166). China’s naval build-up concerns traditional maritime powers such as the United States and Japan, but as China’s maritime interests rise, so will its desire to provide a credible maritime component to its military.

\textsuperscript{38} Ibid.
IV: CONSTRAINTS TO NAVAL EXPANSION AND DEVELOPMENT

China’s substantial maritime interests present a compelling case for increased defense outlays to produce a naval force capable of ensuring their defense. However, China, like other nations who have made the commitment to invest in sea power, faces significant challenges in developing a PLAN robust enough to credibly respond to its varied and growing and increasingly global maritime interests. Fiscal constraints resulting from competition for resources within the national budget process, technological limitations due to a nascent and unresponsive military industrial complex, a reliance on the continued strength of the global economy, and external political pressures exerted by potential competitors all create limits to China’s ability to create a robust naval modernization and expansion program.

A. BUDGETARY CONSTRAINT: KEEPING THE PLA HAPPY

Even for China, a precipitous increase in defense spending would first have to overcome major domestic hurdles. Before any decision on future force structure is made, China must make take into account many critical fiscal considerations that compete for annual resource allocation. The CCP’s Central Committee controls the purse strings, but the PLA is the communist party’s coercive element and remains critical to maintaining party legitimacy and strength. The demands of the PLA leadership for

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39 China has real budgetary pressures despite unprecedented economic progress. As China’s overall economy has grown, so have overall government expenditures. A recent RAND report examines the pressure on the government to increase expenditures on social programs, education, medical care, and infrastructure and how those expenditures prevent an “unrestricted” military spending program. In fact, although China’s tax revenues have expanded by 433 percent in real terms since 1978, government outlays have surpassed tax revenue and have risen 505 percent. (Crane et. al. 2005, 51).
funding do not fall on deaf ears among the party elite. In an effort to improve both military and economic efficiency and business transparency, recent reforms have removed nearly all of the PLA’s industrial and business enterprises. On the positive side of the ledger, the PLA enterprises contributed extra budgetary funds to the general coffers of the PLA, provided constructive peacetime employment opportunities for the vast manpower reserves of the PLA, and supplemented generally poor central government personnel spending. Negatively, these enterprises contributed to the overall perception of corruption within the government by providing illicit sources of income for PLA leaders. Furthermore, many of the PLA businesses had involved extra-legal enterprises such as music and software pirating. The CCP understands that the PLA remains a critical constituency, but also must ensure that the PLA remains the servant of the party and not the other way around. While some PLA leaders call for an increasing share of the overall central budget to realize its strategic vision, the CCP seems to recognize that it must walk a fine line between exerting authority over the PLA by controlling budgetary outlays and potentially isolating PLA leaders by not providing them with increased shares of an expanding budget.

Defense expenditures, while rising, have not topped greater than 2% of GDP since 1986 (Crane 2005, 110). Although the total outlay (in real dollars) for the military has

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40 The effects of these business practices have been characterized as “corrosive” both to the PLA as an effective organization of national defense and legitimacy. As early as the 1920’s Mao encouraged the PLA to maintain self-sufficiency in producing its own food and armaments. By the 1990’s, the PLA was involved in business activities as varied as TV production, management of discos and hotels, airline and trucking companies, and real-estate. Remarkably, while the PLA seemed to be involved in nearly every type of business enterprise in China, it was not heavily involved in armament production or many military specific businesses. An emphasis on business enterprises at the expense of military performance significantly contributed to a level of corruption and inefficiency in PLA development that ran counter to the CCP’s objectives. Partially as a result of continuing economic reform and partially as a way to reform the PLA, the CCP ordered the PLA to divest its business enterprises in 1998. For further views on effects and consequences of the PLA’s business enterprises, see (Mulvenon 2001; Scobell 2000; and Suettinger 2004, 245).
increased at an average rate of 10 percent per year every year since 1996, the percentage of the military budget as a percentage of total government expenditures has decreased from 15 percent of the annual budget in the mid 1970’s to less than eight percent in 2002. As a percentage of GDP, the military budget stood at 5.5% in 1979, 1.06% in 1996, and 1.72% in 2003. However, due to the lack of transparency in the Chinese budget process, there is much debate with respect to the validity of budgetary numbers released by the government. For example, a sample of various analysts estimates of the actual 1994 military expenditure of the PRC range from a low of $6.3 billion (official PRC data) to a high of $152 billion. (Crane et al. 2005, 109-111, 152). It is important to remember that no matter what the actual amount of reported Chinese military spending used, it would be difficult for China to hide a large military build-up. A large military expansion program would require outlays some order of magnitude greater than currently in place and would send a financial signal that would be visible to economic and military observers.

B. BUDGETARY CONSTRAINT: KEEPING THE PEOPLE HAPPY

Ultimately, the PRC must manage these fiscal constraints in order avoid social disruptions that may result from a failure to provide the social programs that it has promised the people of China. The PRC, therefore, finds itself balancing its desire to

41 Recognizing its relative impotence when confronted with American sea power, China’s increase in military spending as a percentage of GDP began to rise after the 1996 Taiwan crisis where the U.S. sent two aircraft carrier strike groups to within 500nm of Taiwan in response to increased PLA coercive pressure on Taiwan.  
42 Even the U.S. Defense Intelligence Agency (DIA) seems frustrated at the difficulty in discerning actual PRC defense outlays and contributes a lack of transparency in the budget as “an outgrowth of a political system in which military spending, along with other aspects of military posture, is treated as a state secret” (CMP 2007, 20). This clearly creates a problem as projections of Chinese defense spending end up providing a high and low level of projected outlays compared to the officially announced levels.
protect its economic and political interests abroad by expanding its military power and
reach with the necessity to provide for an increasingly expectant, demanding, and
expanding population.\footnote{This balancing act is not unique among nations, but the fiscal constraints on China are exacerbated by vast social entitlements promised by the government and an incredibly large, increasingly affluent and expectant population. Furthermore, China’s population is not only increasing, but aging. Governmental expenditures on health care and other social programs, threaten to overwhelm the government without continued economic growth.} Ironically for China, if not managed carefully, the amount of
resources required to build, operate, and maintain a recapitalized and expanded fleet
could also threaten security and economic growth by draining funds from other budgetary
priorities like health care, education, pensions, and infrastructure investment that
contribute to the economic growth.

The large amounts of upfront outlays required to procure and build military
equipment is one of the drawbacks of military spending programs. Naval construction
programs, especially, take substantial initial capital investments, years in advance of
projected operational capability, to procure the extremely large and complex weapon
systems required by modern navies.\footnote{For example, the U.S. Navy’s Seawolf SSN program required an initial outlay of $2.9 billion (1998) dollars for research and development. The estimated cost of the initial submarines was $3.2 billion with cost eventually coming down to $1.9 billion. These types of front-end cost for naval weapon systems are typical and reflect not only R&D costs, but the high costs of initial construction. Savings in naval weapons systems generally is only recognized with revolutionary new construction technologies or with an economy of scale that the PLAN has yet to show in its construction programs of new ships (Congressional Budget Office, 1997).} Again, the Chinese leadership is cognizant of its
reliance on continued economic growth, both at home and abroad, and the potential
effects of an economic downturn to its standing. A commitment to a naval construction
program may seem affordable under some economic conditions, but a global economic
downturn can result in an inability to re-capture the initial capital investment of military
spending programs in the event of changing budget priorities, leaving holes in a budget
that are difficult to plug. In fact, during the 1990’s many Asian nations, with expanding
treasuries, began naval construction programs, sparking a mini naval arms race in Asia (Meconis and Wallace 2000). The Asian financial crisis of the late 1990’s caused an abrupt change in priorities that caused many nations to cancel orders, resulting in “wasted” initial outlays.

With China both running a deficit budget and committed to supporting the Chinese defense industries by procuring as much indigenously constructed systems as possible, an economic downturn could have the result of placing the central government between a rock and a hard place. Following an economic downturn after a large budgetary commitment to a defense spending program, the CCP would have to decide whether to fund military spending at the expense of reduced domestic programs or cut defense spending. In either case, the CCP would risk alienating the population as a whole or the PLA. Furthermore, the cancellation of defense programs produced in China would not only result in lost capital outlays, but also potentially in significant numbers of unemployed, skilled workers. The possibility of this “double whammy” seems to be present in the minds of Chinese decision makers as they seek a balance in budget priorities in order to provide stability without sacrificing economic growth.45

45 China’s economic recovery and the primacy of economic progress have their foundations in the “Four Modernizations” officially recognized by Deng Xiaoping’s in 1978. The core elements of the Four Modernizations prioritized reform and progress (in descending order of priority) in Agriculture, Industry, Science and Technology, and National Defense. Although national defense was clearly announced as one of Deng’s priorities, spending on defense related projects took and continues to take a back seat to economic progress. At the time of Deng’s initiation of the Four Modernizations, official military spending consisted of 5.5% of GDP and nearly 18% of the total budget; actual spending may have been higher. The Chinese economy was also performing at a level less than 10% of the current economy. The goals set by Deng precluded a great increase in military spending (Crane et al. 2005).
C. TECHNOLOGICAL RESTRAINT: A NASCENT MILITARY-INDUSTRIAL COMPLEX

The embryonic nature of China’s technology sector and military-industrial base provides further critical restraints on its ability to rapidly establish a technologically superior naval capability. Modern navies require vast amounts of high-tech components and systems integration to produce an operationally functional fleet. China still relies on foreign supply for various major components for its ships, aircraft, and submarines.\textsuperscript{46} A lack of domestic manufacturing and technological ability leaves the PRC vulnerable to the political whims of the nations that supply its military hardware and dependent on their continued cooperation for support and technological expertise (Cole 2001, 65). As an example of the transient nature of foreign support, western nations have, since Tiananmen Square in 1989, banned the sale of most military components and weapon systems to the PRC. Normalization of relations with the Soviet Union provided a new source of weaponry and technology, and since 1989, the PRC has looked primarily to Russia as its major arms supplier, securing large contracts for destroyers, fighter aircraft, aerial refueling aircraft, electronic early warning aircraft, advanced integrated air defense systems, and submarines (CMP 2007, 26-29).

China has tried to invigorate its nascent domestic military technology sector, but still lags far behind western and even Russian standards due to systemic inefficiencies, outdated manufacturing and managerial processes. A recent RAND report identifies two main factors that limit Chinese industrial output and innovation: the state-owned nature of Chinese defense industries and the lack of direct competition resulting between those

\textsuperscript{46} For further analysis of the limits and growth of China’s military industrial capacity, see (Crane et al. 2005; Cole 2001; and CMP 2007).
companies (Cliff 2006). Both of these factors significantly limit the ability to the Chinese military industrial base to innovate or improve efficiency. The actual industrial capacity of the Chinese defense sector is generally considered good. Since it is easier to manufacture or reverse engineer existing technologies than create new ones, the “catch-up” nature of China’s military modernization facilitates the process of defense modernization for China’s defense industries. However, the Chinese defense industry still lags behind western standards in systems integration and technological innovation. China has shown little or no capability to field non-existing or revolutionary technologies, but it has shown increasing ability to produce modern and capable systems based on existing technology. The report concludes that, without further western technological investment, China’s defense industry does have the capability to close the technology gap with western forces, but the nature of the Chinese defense industry structure presents little likelihood that China can surpass the U.S. in technological superiority. For this reason, the report supports continued western defense research and development and fielding of advanced military systems to prevent Chinese parity in military technology.

47 For example, the Chinese National Shipbuilding Company has a the ability to produce a large amount of well constructed ships, but the systems installed in those ships (including propulsion systems, fire control systems, radars, and some weapon systems) must come from foreign sources and often require long-term contracts with those same nations to install and repair those systems (O’Rourke 2007, 22).
48 However, the Chinese have had significant difficulty fielding and producing some advanced, existing technologies. Perhaps the most publicized examples of a struggling Chinese defense industry are the J-10 fighter and the Song class submarine. The J-10 fighter is designed as a replacement for much of the Chinese fighter fleet, but took nearly 20 years to design and produce and is still only considered an equivalent of the F-16, a thirty year-old design. The Song class diesel-electric submarine was initially designed as a replacement for the aging fleet of Ming and Foxtrot submarines. In both cases, development and production problems have resulted in significant delays and a resort to buying Russian Su-27 fighters and Kilo diesel-electric submarines as replacements to provide a stopgap capability until production and design difficulties could be resolved.
D. AN UNAFFORDABLE ARMS RACE?

China also recognizes that other countries have a vote in any military or naval modernization and expansion program that it chooses to pursue. For example, the United States and Japan both have significant economic and security interests in the region and will not likely abandon those interests in response to increased Chinese defense spending or expanded Chinese presence in the China Sea or its vital SLOCs. In fact, China’s recent declaratory emphasis on developing and protecting its maritime interests clearly exacerbates U.S. and Japanese fears of China’s own regional hegemonic intentions (Japanese Ministry of Defense 2007, hereafter JMOD; CMP 2007). The U.S. and Japan would most likely “circle the wagons” in an effort to maintain the existing military balance in Asia” (U.S.-China Economic and Security Review Commission 2007, 3; hereafter USCC). Potential U.S./Japanese responses could include expanded defense spending to increase numbers and capabilities of systems specifically designed to counter Chinese strengths, a further enlargement of U.S.-Japanese defense cooperation, and potentially an expansion of regional security arrangements between the U.S. and other regional nations (USCC 2007).49

Japan, despite the limits of its constitution, has effectively responded to its various security challenges. As Japan increased its naval capability during the Cold War, its defense policy migrated toward a “forward defense of the islands” (Wooley 2000).50 In the 1970s, Japan’s maritime strategists envisioned “a guerre de course as the most likely kind of conflict in the western Pacific” (Wooley 2000, 68). This type of war meant the

49 Specific ideas to maintain the regional military balance proposed by the Commission include: “creating a flexible base structure, maintaining long-range forces, and supporting stealthy submarine and aircraft systems.”

50 This policy is very similar to the Chinese desire to provide an “active defense” out to the “second island chain” and is remarkably based on very similar maritime interests.
likelihood of mine (MIW) and anti-submarine warfare (ASW) against the Soviets. They responded by investing in high quality ASW and MIW technologies and hardware. Throughout the decade under American tutelage, Japan built up its naval forces until it had the numbers and necessary skills to operate independently away from coastal waters. In 1981, Japanese Prime Minister Suzuki publicly committed Japan to the defense of its SLOCs out to 1000nm. “Forward defense” of the homeland became a hallmark of Japanese defense policy.

Recently, however, several high-profile PLAN incursions into disputed waters highlighted the need for Japan to modify its policy in response to a perceived Chinese aggressiveness in Japanese claimed areas of influence. First, in November 2004, a Chinese Han class submarine completed a submerged transit from its base in Qingdao, through the Osumi Strait and around Guam, before surfacing for the return transit (Fisher 2005). Second, in January and again in September 2005, a PLAN surface task group steamed in the vicinity of the claimed Japanese EEZ near the disputed Chunxiao gas fields. Although the PLAN surface group remained on the Chinese side of the Japanese declared EEZ, the presence of a seemingly coordinated naval group near the Chunxiao fields was unprecedented and stirred fears of expanded Chinese interests in the area. The September incursion included a relatively robust PLAN force of one Sovremenny Class destroyer, two older frigates, a replenishment ship, and an electronic intelligence ship.\footnote{These actions clearly show the PLAN’s desire to operate combined, coordinated surface action groups: a necessary skill for any modern power projection force (Fisher 2005).}
In all cases, including the Han incident, either JMSDF P-3C maritime patrol aircraft (MPA) or Japanese surface ships continually tracked the Chinese forces.\(^{52}\)

In 2006, the Japanese Defense Agency responded by announcing “new defense policies,” that stress the need for “countermeasures against invasion to the neighboring waters” and “marine/aerial surveillance and countermeasures against airspace incursion or unidentified armed ships” (JMOD 2006, 10). The thinly veiled reference in the “new defense policies” to recent Chinese incursions reflects the Japanese government’s rising concern toward the increasing capabilities and uncertain intentions of the PLAN and the likelihood that any increases in Chinese naval capabilities or radius of action would be met by a similar Japanese response.

In light of China’s domestic spending concerns and the constraints that are present in its resource allocation decisions, the PRC can little afford to engage in a spending battle with the U.S. Similarly, while most observers believe that the PRC currently outspends Japan in annual defense expenditures, Japan’s economy is still larger than China’s for at least the next few years, and with an annual defense budget that barely tops one percent of GDP annually, Japan has the fiscal elasticity to expand defense spending. Furthermore, strengthened U.S. bi-lateral defense and political ties with other Asian-Pacific nations, serves as natural barrier to Chinese territorial and political interests in the region.

Therefore, as China seeks to expand and defend its growing maritime interests, it does face significant political, economic, and technological constraints and restraints. On the one hand, the regime cannot ignore the defense constituency that provides it with

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\(^{52}\) In one case, a PLAN surface ship trained a 100mm gun on a JMSDF P-3, eliciting no response from the airplane. These types of incidents are reminiscent of US/USSR interactions in the Cold War and show the potential for escalation between Japan and China (Fisher 2005).
coercive legitimacy by under-funding defense. On the other hand, China cannot spend too lavishly on a navy without potentially over-leveraging itself on defense and leaving itself exposed on other budgetary priorities. China has reaped the benefits of a buoyant world-wide economy that leaves it with the fiscal wherewithal to purchase both foreign defense systems and increase indigenous defense capacity. But as China closes the technology gap, the cost of its systems and capabilities will increase. If China does not harness greater efficiency and technological innovation in its defense industry, it may find the greater costs of the weapons and technologies required to provide its increased military capabilities conflict with other budgetary priorities. Finally, China cannot ignore the possibility of a spiraling arms race created by an increased Chinese presence and capability in the maritime domain. Increased defense spending is likely to encourage other nations with interests in Asia-Pacific to follow suit and pursue increased defense capabilities and numbers as a response to China.
The primary influence on Chinese military thought since the end of the Second Chinese Civil War has been the continental outlook formed by the necessity to defend against an invasion by superior forces on China’s north and northwest borders. For pragmatic reasons, Chinese military doctrine initially developed along fundamentally defensive lines, with a central theme requiring the PLA to defeat a superior adversary (Godwin 2003, 45). Subsequent development of the PRC’s military doctrine has consistently reflected this continental position and the qualitative (if not quantitative) material disadvantages of the PLA. Although initially restrained by Mao’s resistance to modernization and still deferring (at least symbolically) to Mao’s People’s War dictum, Chinese military thought has shown a capacity for development in response to changing national capability and external threats.

Initially, the PRC gave little thought, and indeed had limited ability, to develop any kind of comprehensive naval doctrine or a maritime strategy. With little variation, the pattern of threats stemming from internal dissention and invasion from the north continued unbroken after the Communist Party assumed power in 1949. Prior to the

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53 For the past 500 years, China has had an inward and continental focus to its interests. Throughout this time period, China has maintained a view of the sea more “as a potential invasion route for foreign aggressors rather than as a medium for achieving national goals.” However, in the twenty-first century, as China seeks to re-establish a maritime presence, the PLAN does have, at least, an ancient maritime tradition upon which to draw (Cole 2001).

54 After Chiang Kai-Shek abandoned Mainland China, the Nationalists did prosecute a limited campaign of coastal raids on the mainland and communist controlled islands, but Mao’s focused on consolidating
mid 1980's, neither maritime doctrine nor maritime strategy truly existed within the Chinese military lexicon. Within the last twenty years though, Chinese military doctrine has gradually evolved from the continental perspective to a more maritime and global worldview. As a result, the PLAN has been able to construct and elaborate maritime strategies, which reflect an appreciation for Chinese interests and limitations.\textsuperscript{55} China’s current political and military leadership seems to recognize the importance of protecting its growing maritime interests.\textsuperscript{56} Yet challenges remain, and the PLAN must still overcome a vast institutional inertia in restructuring and reorganizing itself into a maritime force capable of defending the range of economic and political interests that it now interprets as vital to regime survival.

A. PEOPLE’S WAR

From the outset, Mao recognized that China suffered significant qualitative technological disadvantages when compared with many of China’s potential adversaries. Domestically, the Chinese Civil War ended with two separate Chinas, resulting in an incomplete victory and further struggle for unification. In the broader international realm, the socialist fraternity enjoyed between China and the Soviet Union gave way to increased tensions. By 1960, the PRC and the U.S.S.R.’s political tug-of-war for control of the countryside and eliminating nationalist influence on the mainland, not eliminating peripheral maritime disruptions.\textsuperscript{55} While maintaining fundamentally Chinese characteristics of national security doctrine, the PLAN’s strategy, doctrine, and even tactical utilization of forces still reflects a distinctly Russian influence. The reliance on Soviet, and later Russian, equipment, doctrinal, and tactical expertise remains a continuing theme for the PLAN. In the years following the evacuation of the mainland by Nationalist forces, the PRC could barely afford a coastal defense force, much less any kind of substantial navy. The PLAN depended upon an injection of Soviet money and expertise to jumpstart its nascent maritime capability (Cole 2001; Ji 1999).\textsuperscript{56} From 1950-1980, the China spent only 18.4\% of the military budget on the PLAN (Crane, et al. 2005, 110). For a point of comparison, the U.S. spends roughly 30\% of its defense expenditures on the Department of the Navy (U.S. Department of Defense 2007b).
of the worldwide communist movement, which began as a philosophical battle for the direction of communism, escalated into a nationalistic stand off, as both countries squared off militarily on the Sino-Soviet border. The Sino-Soviet split and the growing imbalance of forces on the border favoring the Soviets further reinforced the Chinese continental viewpoint and their inferiority with respect to the modern military opponent.\textsuperscript{57}

As a means to deter China's more technologically superior foes, Mao developed and relied upon his "People's War" doctrine. This "total war" doctrine sought to leverage China's large landmass and quantitative advantage in manpower to compensate for the qualitative inferiority of the PLA. Utilizing superior manpower to offset inferior weapons and technology, Mao considered People's War the only feasible deterrent for an economically and technologically underdeveloped nation to defend against powerful adversaries like the U.S.S.R. or the United States. People's War would mobilize the population and draw the enemy into the heartland of China, in order to wage a protracted war that would sap the resources of an enemy. The PLA, in turn, developed a force structure to reflect Mao's ideology.\textsuperscript{58} In the case of the Sino-Soviet rift, Mao's strategy proved a successful deterrent. "That the Soviet Union failed to do in China what it did to Hungary, Czechoslovakia, and Afghanistan showed its appreciation of the prospective

\begin{itemize}
  \item[\textsuperscript{57}] Although military conflict did break out between the two countries, it was contained within several casualty-intensive, but strategically minor border skirmishes. With almost a million and a half troops on both sides facing each other, and the threat of nuclear response a possibility, a very real potential for major conflict with the Soviet Union threatened China. Other than defending against a possible, but highly unlikely, Soviet invasion by sea, Mao saw little reason to look seaward. The PRC and Russia did fully conclude the border dispute until 2005.
  \item[\textsuperscript{58}] To ensure communist control of the Chinese countryside, the PLA provided Mao's government with the essential coercive element necessary to compel internal social order and the communist power base. One explanation of the PLA's significant "backwardness in technological capability and advanced military operational doctrine is that communist party control over the Army is of such great importance to the communist party cadre that it has purposely prioritized "ideological reliability" and communist educational credentials over military hardware and operational acumen (Cole 2001, 22).
\end{itemize}
prohibitive cost in invading a country of China’s size and huge hostile population. People’s War was an effective deterrent precisely because it makes virtues of the factors and exploits China’s few advantages” (Ji 1999, 2)

As its name suggests, the PLAN has traditionally assumed an adjunct role to the PLA. Under Mao, the PLAN was conceived as a defensive force designed to harass and delay an invading military from utilizing China’s coastal areas. Force structure decisions of the early PLAN were internally constrained not only by the limited importance placed on them under the people’s war doctrine, but by the limited financial resources and indigenous technological capacity (shipbuilding, etc.) available. In this respect, Russian material largess and educational assistance played an influential part in PLAN doctrinal development. In 1950, Mao obtained a $300 million loan to purchase Soviet naval vessels, establishing a naval relationship with the Soviet Union, which included sending Chinese naval officers to Soviet naval schools.

In the pre-war era, some Soviet naval officers had espoused a large blue water navy on par with the great navies of the world. World War II had halted those plans, and any hope to revitalize them was dashed by the financial realities of maintaining large occupation forces in Eastern Europe and the terrible condition of the Soviet economy after the war. In the immediate post-war era, the Soviet Union could not hope to compete with the global U.S. naval power demonstrated during the war. Therefore, in an effort to find an asymmetrical approach to defending against American sea power, the “young

59 Focused on consolidating his continental position, Mao saw little need for a commanding navy, preferring to rely upon the PLAN as a coastal defense force designed to delay an invasion from the sea. In 1950, Admiral Xiao Jingguang, Commander-in-Chief of the PLAN described the ideal PLAN as one that “...should be a light type navy, capable of coastal defense. Its key mission is to accompany the ground forces in war actions. The basic characteristic of this navy is fast deployment, based on its lightness” (Ji 1999, 164). As late as 1980, Deng Xiaoping “reemphasized the Navy’s role as a coastal defense force... ‘Our navy...should conduct coastal operations. It is a defensive force. Everything in the construction of the navy must accord with this guiding principle’” (Cole 2001, 24).
school” of Soviet naval doctrine re-emerged (Ji 1999, 164; Cole 2001; 161-163). Instead of advocating a large battle fleet, the “young school” proposed an affordable fleet composed of numerous smaller ships that could protect the immediate maritime “territory” of the Soviet Union, placing an initial emphasis on diesel-electric submarines that could keep U.S. striking forces away from the Soviet mainland. This Soviet doctrinal philosophy had profound influence on Chinese naval doctrine. In this “small battle” theory, light warships, land based planes, and submarines would provide the defensive power to repel an attack from the sea.

This approach appealed greatly to nations (such as post war China and the Soviet Union) with little need to project power ashore and with little reliance on the sea for trade and resources. With many of the Chinese naval officers training in the Soviet Union and with the Soviet Union providing not only the initial funding, but also the actual construction of naval vessels and aircraft, the Chinese naturally adopted the Soviets’ “small battle” doctrine. “Designed for ‘guerilla skirmishes against invaders from the sea,’” this doctrine fit well within Mao’s people’s war theory (Ji 1999, 165). Therefore, on the maritime front, the operational and fiscal realities of People’s War doctrine coupled with Soviet influence obscured any real attempt at creating a formidable and doctrinally individual navy.

B. PEOPLE’S WAR TO FORWARD (OFFSHORE) DEFENSE

When Deng Xiaoping assumed control of the CMC in late 1970’s, the stage was set to alter the decades old People’s War doctrine. Several of the factors that had suggested a People’s War doctrine as appropriate for China had fundamentally changed
since Mao initially created People’s War doctrine. First, China had developed a small, but respectable nuclear second-strike capability for deterrence. Second, China’s military had begun to gain confidence in its abilities. It had acquired significant military hardware (including tanks and airplanes) to feel confident that it could adequately assume a positional defense structure to defend China. Finally, the Communist party itself went through significant changes as it sought to protect its legitimacy. Liberalizing and modernization of China’s economy took on renewed importance. Yet as China’s economy expanded, it created challenges to Mao’s doctrine.

The economic development on or near China’s eastern coast realistically did not allow the PLA to trading space for time as envisioned in Mao’s People’s War. A loss or destruction of China’s economic heartland would have disastrous consequences for the country and the regime. Deng realized that in order to protect its borders, he would need to modify Mao’s doctrine and provide for an “active” defense that would prevent an invader from penetrating deeply into China. Upon assuming chairmanship of the CMC, Deng began a program of military reform. Deng’s modified Mao’s “active defense” to “forward defense” and then to “People’s War Under Modern Conditions.” The PLAN’s leadership had also exhibited an increasing desire to develop a maritime strategy (although one grounded in actual capabilities) that supports its expanded missions. By 1985, the PLAN had officially discarded the Mao’s “coastal defense” policies and adopted the Deng’s new “Forward Defense” (U.S. Department of the Navy 2007, 25; hereafter ONI)
Development of the PLAN's answer to Deng's active defense policy fell to Admiral Liu Huqing. Liu called the new doctrine "offshore active defense." Consisting primarily of three phases, Liu's maritime strategy called for China's control of the sea out to the "first island" by 2000 and the "second island chain" by 2020 (Figure 2). In a third phase, Liu proposed that China achieve a global maritime presence by 2050 (Cole 2001, 166-167). Phase one of Liu's maritime strategy consisted of "stubborn defense near the shore, mobile warfare at sea, and surprise guerilla-like attacks at sea" (Cole 2001, 166). Although couched in Maoist diction, Liu's strategy differs significantly because it proposes that China confront its maritime challenges not on its own doorstep, but offshore, away from China's shores.

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60 The Chinese have also called the area covered by first phase of Liu's offshore defense strategy, the East and South China Seas as "green water."
Not surprisingly, the evolution of Liu’s “offshore defense” strategy closely parallels the development of contemporary Soviet maritime strategy. Bernard Cole traces this development and argues that Liu’s strategy directly derives from Soviet influence:

By the mid-1980’s, Soviet maritime strategy had settled on a division of its coastal waters into defense zones out to about 2,000 nautical miles. Liu Huaqing’s maritime “phases” almost certainly owe their origin to the earlier Soviet “zones,” the innermost of which was called the “area of sea control.” The second zone was the “area of sea denial”; the third was a broad region for long-range reconnaissance and submarine interdiction. The first and second Soviet zones, extending seaward 1,500 nautical miles, closely match Liu’s two island chains, the second of which lies about 1,350 to 1,500 nautical miles from China’s coast (Cole 2001, 167).

The clear influence of Russian doctrinal thought on the Chinese seems similar to its reliance on Russia for the PLAN’s technological development. Although, China put great efforts into indigenous design, production, and deployment of modern naval weapon systems like the Han class nuclear attack submarine and the Xia class nuclear missile submarine, the Chinese were forced by necessity to rely upon Russian designs and production assistance. Similarly, Chinese naval strategy and doctrine relied upon Russian assistance. The similarity between Liu’s Offshore Defense and the Russian maritime strategy might signify that China may have felt (or at least had been aware of) similar material limitations and political constraints that the Soviet Navy did when confronting its maritime defenses, but it also may have reflected a certain lack of
confidence within the PLAN to developing its own maritime strategy aligned with Chinese interests and capabilities. 61

C. CONTINUING DEVELOPMENT: “LOCAL WAR UNDER CONDITIONS OF INFORMATIZATION”

Shortly after the development of Liu’s offshore defense for the PLAN, the PLA began to re-evaluate the active defense policy in response to the accelerating pace of military technological development. Taking lessons from the United States’ conduct of the Persian Gulf War, the PLA began a rapid push to emphasize modernization and quality at the expense of quantity. The PLA initially identified this new type of conflict as “local war in high-tech conditions,” but has recently elaborated it as “local wars under conditions of informatization” (*CMP* 2007, 11; *CND* 2006).

Informatization “emphasizes the role of modern information technology as a force-multiplier enabling the PLA to conduct military operations with precision and at greater distances from China’s borders” (*CMP* 2007, 11). The qualitative revolution within the PLA has provided a definite push to upgrade and improve the PLAN’s equipment, training, and development of joint methods of warfare. However the PLAN is playing “catch-up” not only within the realm of technological capability and doctrine, but also in numbers. The PLAN realizes that even if it eventually equals the United States in technological capability, the high costs of modern weapon systems coupled with

61 Although “Offshore Defense” has normally been linked to the “first” and “second island chains” geographic description, many PLAN researchers now believe that “the term ‘Offshore Defense’ [no longer] implies any geographic limits or boundaries.” See, (ONI 2007, 26). The *Han* class SSN is almost universally derided as one of the loudest and, therefore most easily detectable submarines in the world. Only one *Xia* submarine was ever produced, and although it successfully fired a JL-1 intermediate range ballistic missile, it is reported that it has been to sea only once since commissioning (Cole 2001, 98).
the fiscal constraints created by the smaller Chinese central budget may prevent quantitative parity. This places stress on the PLAN to find doctrine, or “principles,” and alternative weapon systems that match their constraints, support their interests, and exploit potential asymmetries in future competitors. ⁶²

D. MARITIME STRATEGY: FORWARD OFFSHORE DEFENSE

As successive commanders have promoted the growth of Chinese maritime power, so have the PLAN’s missions and doctrine matured. The PLAN leadership now foresees four principle missions for the Chinese navy:

1) Securing sea control in the major battle directions in China’s offshore waters;

2) Blockading major SLOCs effectively and within a required span of time in the waters encompassing China’s maritime territories;

3) Initiating major sea battles in waters adjacent to China’s maritime territories;

and

4) Waging reliable nuclear retaliatory strikes” (Ji 1999, 169).

These mission sets require a much larger and capable navy than the brown water coastal adjunct to the PLA envisioned by the Mao and Admiral Xiao. The PLAN’s resulting robust growth over the last few years has rapidly expanded its surface, submarine, and land-based naval aviation platforms. ⁶³

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⁶² “Identifying and exploiting asymmetries is a fundamental aspect of Chinese strategic and military thinking, particularly as a means for a weaker force to defeat one that is stronger...A 1999 Liberation Army Daily editorial suggested that explicitly: ‘a strong enemy with absolute superiority is certainly not without weakness that can be exploited by a weaker side...[O]ur military preparations need to be more directly aimed at finding tactics to exploit the weakness of a strong enemy’” (CMP 2007, 13).

⁶³ China’s naval forces currently include 72 principal combatants, 58 attack submarines, around 50 medium and heavy amphibious lift vessels, and approximately 41 coastal missile patrol craft. (CMP 2007, 3).
As part of the Offshore Defense strategy, the PLAN has developed doctrine focusing on the disruption of SLOCs. The PLAN, in its *Textbook for Naval Campaign Theory*, "has formulated a number of principles:

1. Because of the Navy's limited offensive capabilities, it should launch selective attacks on the enemy's priority SLOCs, which can either be in deep oceans or its inshore seas.

2. In order to avoid the enemy's intensified anti-attack, the choice of targets and employment of PLAN units should be dispersed. At the same time concentration of major combatants should be supplemented by small-scale disruptive activities in the whole process of the campaign.

3. Because the PLAN is still a light type navy and its normal radius of action is limited, anti-SLOCs campaigns should be mainly conducted within the scope of 'green water.' This may make it possible for the campaign to be supported by the land-based air power of the air force.

4. Due to lack of sufficient numbers of major combatants, there should be a carefully planned limit for targets. There should be restrictions on the times of using main attack units.

5. Anti-SLOCs campaign should include an attack on the enemy's ports (Ji 1999, 182)\(^4\)

The defensive nature of the language used to elaborate these principles shows that they are probably not intended as guidance against a near peer or lesser naval power, but most likely at a naval power with substantially superior forces and capabilities. In Asia, only the United States and Japan currently fit that description. These principles explicitly call attention to some of the technological and material deficiencies present within the PLAN and implicitly express a desire to increase China's maritime capabilities and reach. At face value, the principles seem to provide guidance for an anti-SLOC campaign against a greater naval power, but they could easily be applied in a cross strait scenario with

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\(^4\) As a doctrine driven culture and organization, the PLAN's operational plans could be expected to adhere to these principles to the maximum extent possible.
Taiwan, especially in containing or limiting the response options of an interfering naval force.
VI. PLAN FORCE STRUCTURE MODELS

This section presents three potential future force structure options for the PLAN. As stated previously, China is at a crossroads and it will therefore have to make choices that will likely shape the PLAN toward one of three force structure models over the next 5-15 years. Since the PRC, and the PLA more specifically, remain relatively obtuse in elaborating priorities and intentions, the following models and the type of maritime strategy that they represent might serve as an indication of how China's perceives its challenges, threats, and opportunities in the upcoming century.

China’s increasing maritime interests translate into a dynamic set of seaborne tasks within a varied set of scenarios that the PLAN might eventually be asked to accomplish. The models draw upon the relationships that should exist between China’s maritime interests, economic and political-military limitations, theoretical application of sea power, and expressed doctrine and maritime strategy. These models do not exist in a vacuum, and many of the capabilities required in each model have utility across a broad range of maritime activities. Therefore, it I do not suggest that a maritime force structure tailored toward one type of maritime strategy precludes pursuit of another type of maritime strategy, but only that force structure decisions optimized for a particular strategy would likely develop along the models presented.

I develop each model by describing the envisioned scenario that it might be designed to operate within, the primary maritime interests that each model seeks to influence, the general capabilities required to formulate the force structure, the specific technological or economic limitations to creating that force structure, and whether or not
it supports elaborated doctrine and strategy. These three different force structures reflect a set of positive decisions that PLAN policy makers might undertake in order to protect a specific and limited set of vital maritime interests.

It is important to remember that force structure decisions (even in the United States) are a series of capability tradeoffs. Although overall budget increases might be applied broadly across the full range of potential PLAN activities, resources allocations more often pinpoint specific areas to improve specific capabilities, leaving others either unchanged or only marginally more effective. Some capabilities may better enable a certain type of strategy that is best suited to protect a specific set of interests. Policy makers must take force structure into account when making choices as to which interests are vital and which are not. This logic applies to the PRC as well. Any realistic model of future PLAN force structure, without unforeseen and considerably unrealistic increases in military spending, must take into account the real constraints and restraints facing the Chinese. Considering the limitations presented earlier in this paper, China has neither the technological capability nor the financial freedom to develop a carbon copy of the United States Navy. By no means do I assume that these force structure models are the only avenue for the future PLAN force structure decisions, only that they represent the most pragmatic and logical approach to protecting China’s maritime interests.

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65 This trade off does not mean that because certain capabilities are more apropos to one scenario or envisioned use of the that they are not useful or advantageous to another.

66 The force structure options presented reflect increased capabilities that will improve the PLAN in certain naval warfare areas, while acknowledging its limits in others. Therefore, every force structure option is something less than a full-spectrum blue water navy. For the next 20-30 years, the PLAN will have to pragmatically focus upon core mission areas that correlate with a select few of their perceived vital interests or risk being a jack-of-all-trades and the master of none.
A. MODEL I: THE “UNIFICATION” MODEL

<table>
<thead>
<tr>
<th>Maritime Strategy</th>
<th>Supported Interests</th>
<th>Capabilities Needed</th>
<th>Limits to Development</th>
<th>Elements of Force Structure Already in Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) “Regional Sea Denial” against peer or great naval powers.</td>
<td>1) Defense of sovereignty; increased coercion against Taiwan.</td>
<td>1) Regional wide-area surveillance (covering marginal seas) for OTH targeting and cueing.</td>
<td>1) Few limits to development &amp; purchase of many anti-access weapons (ASCMs, mines, etc.)</td>
<td>1) Large and growing conventional submarine fleet.</td>
</tr>
<tr>
<td>2) Limited sea control against lesser naval powers in marginal seas.</td>
<td>2) Increased sea control in marginal seas against minor naval powers.</td>
<td>2) Advanced OTH weapons (ex. MaRVs, long-range ASCMs)</td>
<td>2) Extremely difficult (technologically and fiscally) to implement MaRVs.</td>
<td>2) Multiple platforms (air, surface, subs) capable of firing advanced ASCMs.</td>
</tr>
<tr>
<td></td>
<td>3) Improved Command and Control (C3)</td>
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</table>

Table 1: Characteristics of the "Unification" Model

1) What is a “Unification” Navy?

A “Unification” Navy is a PLAN specifically tailored to provide a dominant maritime component to any Chinese coercive military effort against Taiwan while simultaneously deterring any potential interference from outside powers in the event of PRC military action against Taiwan. In other words, the “unification” PLAN is a navy capable of regional sea denial. A “unification” PLAN must credibly threaten to inflict enough damage on U.S. warships (especially aircraft carriers) to force the U.S. to re-evaluate the cost-benefit relationship of defending Taiwan against forcible reunification. A true sea denial capability would prevent use of the contested area by any of the opponent’s ships. However, the most likely type of anti-access or sea denial

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The actual methods China may use in a military attack are numerous. The Taiwanese Ministry of Defense lists three likely types of warfare the PRC might use against Taiwan: Intimidation Warfare, Paralysis Warfare, and Invasion Warfare. Within each warfare type are specific operations that the PRC might utilize to force Taiwanese capitulation. (Republic of China Ministry of Defense 2006; hereafter NDR).
envisioned by the PLAN would be to create a scenario that would force the USN to spend
great amounts of time (many days, if not weeks) to sanitize its operating area prior to
sending in its capital ships. In the meantime, the Chinese would try to rapidly force
Taiwan's capitulation or a negotiated settlement, relegating any potential U.S. response
an ineffectual afterthought. A unification navy would seek to control the immediate
operational area in the Taiwan Strait, dominate any force on force encounters with the
Taiwanese navy, and provide the maritime component to any joint PLA operation to
force Taiwan's capitulation. However, since the PLAN's most important mission in this
scenario would be to stem or delay any potential U.S. interference by increasing the costs
of intervention to an unacceptable level, I will focus the discussion here.

2) Chinese National Interests Supported by a "Unification" Navy?

a) Increased Coercive Leverage Against Taiwan

Taiwan remains a central issue in the domestic political considerations of
the Communist regime. A credible military component to any coercive effort to unite
Taiwan with the mainland is the scenario envisioned by a "unification" navy. Although
increasing coercive pressure against Taiwan is a factor in all of the models presented in
this paper, the "unification" model focuses specifically on preventing interference of an
outside power by developing a force structure that supports a regional anti-access
strategy. Officially, any possibility of Taiwan's "de jure independence"...poses a grave
threat to China's sovereignty and territorial integrity, as well as to peace and stability
across the Taiwan Straits and in the Asia-Pacific region as a whole" (CND 2006). China's interests with respect to Taiwan are political and very specific.68 The CCP has

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68 The PRC maintains that Taiwan remains part an integral (although de facto independent) part of the
Chinese nation, and treats it as a rogue province. China maintains the right to solve the "Taiwan question"
staked much of its legitimacy in projecting itself as the defender of Chinese sovereignty (especially defending against the threat created by the potential de jure independence of Taiwan). Accordingly, weakness in the face of Taiwanese independence might weaken the entire regime. China certainly has considerable economic and diplomatic interests with respect to Taiwan, but the vast importance placed on recovering Taiwan by the PRC (and the fact that it reserves the right to use force to ensure that Taiwan does not achieve de jure independence) marginalizes most economic or diplomatic interests by intimating that the PRC is willing to damage significant portions of the Taiwanese economy in a unification effort.

b) Enhanced Territorial Control within the Marginal Seas

An effective anti-access force capable of limiting U.S. involvement in the marginal seas would also find utility against any other regional naval force. The ability to selectively deny access to other nations limits them from establishing presence on disputed territory and, if presence is already established, provides the PLAN with a capability to prevent resupply or reinforcement. This capability enhances China’s coercive lever not only with Taiwan, but also vis-à-vis regional competitors.

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by force. In March 2005, the National People’s Congress passed the Anti-Secession Law authorizing the military to adopt non-peaceful and other necessary measures to resolve the Taiwan issue under specific conditions. (*NDR* 2006). The anti-secession law attempts to justify military and non-military measures to resolving the Taiwan issue by creating a domestic legal justification from which China could theoretically act if provoked. This law illustrates the range of coercive measures (often non-military) that China employs against Taiwan and is important to this discussion due to its contribution to the PRC’s cumulative coercive information operation campaign. The most critical aspect of China’s coercive effort remains the threat of military force.
3) Primary Force Structure Requirements

In 1996, the United States could see and shoot further than the Chinese. Chinese military impotence with respect to American naval power resulted from its inability to accurately locate and track U.S. naval forces, most importantly, the inability of Chinese weapons platforms to challenge U.S. naval forces operating in the Philippine Sea. Supported by a network of advanced, integrated of sensors, the U.S. Navy could accurately detect, locate, track, and engage Chinese targets both inside and outside of the strait at a range well beyond anything the Chinese were capable. Furthermore, U.S. weapon systems, which include aircraft, Tomahawk land attack missiles, and long range SM-2 SAMs, could all either reach out to the mainland or completely cover Taiwan with little chance of interference by the Chinese. Had U.S. forces operated within the Strait, it would have significantly simplified the targeting and attack solutions for the Chinese, but not significantly added to the U.S. capability to strike at Chinese targets operating in or near the Strait. This incongruity between the American and Chinese operational capabilities denied the PLAN the ability to deploy a truly capable and credible regional sea denial capability.

Especially in naval warfare, advantage often goes to the side that can find the enemy sooner and attack him at the greater range. Inside of the Taiwan Strait, the

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69 Force structure in this paper is defined not as the specific numbers and types of individual weapon systems. It is intended to define a broad overview of the types of competency that the PLAN will need to master in order to successfully implement the envisioned maritime strategy.

70 While some systems that contribute to the U.S. surveillance capabilities remain classified, broadly described they include constellations of satellites and aircraft capable of electronic signals (ELINT), signals intelligence (SIGINT), and other sensors capable of radar, infrared, and acoustic data collection. When these sensors are brought together in an integrated system, they can provide targeting and cueing information to the actual “shooters.” For example, an advantage of this type of integration is that it may allow one Aegis ship to fire a weapon at a target with information received from another ship in a different location. A simpler operational example might have a PLAN submarine operating independently in the Philippine Sea that would float a communications buoy and receive cueing information consisting of location and tracks of U.S. ships in the area.
Chinese employs an impressive surveillance and weapons capability. Outside of the Strait, China lacked wide area surveillance capability to find U.S. targets and an effective OTH weapon system capable of conducting concentrated attacks on them once located.\footnote{For example, the Russian designed SU-300PMU2 advanced surface to air missile (SAM) system armed with SA-20 SAMs can cover the entire strait and parts of northwest Taiwan. The CSS-6 SRBM is capable of a coverage area 300km beyond Taiwan, but this system is virtually useless as an anti-ship weapon, because it has no terminal guidance and its circular error probable (CEP) is measured in hundreds of yards not feet. Furthermore, any aircraft launched from the mainland against U.S. ships would have to pass Taiwanese air defenses (both ROCAF combat air patrols and SAM batteries), USN combat air patrols, and USN Aegis anti-air area defense ships. For the official U.S. Department of Defense cross-strait balance of forces, see \textit{CMP} 2007.} A wide-area surveillance system would provide two things to the Chinese: an effective early warning of approaching naval and air forces and the means with which to direct Chinese forces to the enemy.\footnote{The importance of early warning is obvious to even the most untrained of military strategists, so its effect on Chinese development of a regional sea-denial navy will not be addressed. However, the importance of an over the horizon targeting system may not be obvious to the casual observer. The PLAN has acquired an impressive array of advanced, long-range anti-ship cruise missiles for its ships, submarines and aircraft. Unfortunately, in order to fire these weapons from long ranges, a weapons platform (be it ship, aircraft, or submarine) must have some idea of where the enemy is before launching its weapons. Currently, these platforms are constrained by their own internal (or organic) systems that often limit the platform to the sensor’s line of sight in the case of electro-magnetic or visual systems. Acoustic systems (such as sonar found on submarines) can detect and identify targets at some extremely long ranges, but if only one sensor is used they generally give only a bearing to a target, which makes it difficult to provide accurate targeting information to an anti-ship weapon.}

The tactical significance of development of a regional OTH wide-area surveillance capability is profound, and this capability would need to be integrated with weapons capable of attacking from over the horizon. Because the PLAN currently utilizes the very platforms that it would engage the enemy with to find enemy ships and aircraft in the region, PLAN assets need to approach enemy ships or aircraft to within their sensors’ detection range in order to locate them. Of course, this leaves them vulnerable to attack. A famous military axiom states, “If you can see the enemy, he can see you.” This holds particularly true in the surface maritime domain. If the PLAN’s ships, aircraft, and submarines could receive off-platform cueing information, it would
greatly increase their effectiveness and reduce their vulnerability. With effective targeting and cueing, they could venture from protected coastal bastions only after hostile forces have been detected, located and classified. In this way, the PLAN’s weapons platforms could be vectored directly to an over the horizon weapon’s release point to engage their targets. This reduces the likelihood of counter detection, makes it difficult to counter-attack if detected, and does not stress the relatively short endurance of the PLAN’s diesel-electric submarines and ASCM armed SU-30MKK aircraft. Additionally, once PLAN forces have engaged the enemy, they can withdrawal to their better-protected coastal bastions to fight another day.

In order to build a true anti-access capability for the East and South China Seas, the PLAN must first improve both its long-range, persistent wide-area surveillance capability and its ability to strike moving, defended targets beyond Taiwan. These inter-related capabilities are a pre-requisite for any anti-access strategy the PLAN may develop with respect to Taiwan and may provide indications that China is developing a credible regional sea-denial navy that poses a credible threat beyond the coastal confines of the Taiwan Strait. 73

a) Over the Horizon Backscatter (OTH-B) Radar

Effective wide-area surveillance for the approaches to Taiwan requires that any Chinese surveillance system have a range great enough to cover the required area, a sensitivity great enough to detect stealthy ships and aircraft, and a dwell time long

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73 The “Unification” Navy is unique among the three models, because of its reliance upon a multi-service approach. In this model, the PLAN might play a critical role in accomplishing wide-area surveillance and OTH attacks, but the PLAAF and the Second Artillery would play equally important and complimentary roles.
enough to provide persistent coverage. Several different types of systems might provide an answer to this capability gap, including various ELINT, radar, or imaging satellites and various advanced UAV-type systems. Unfortunately, the costs associated with research, development, and deployment of such systems might quickly balloon China’s defense budget. Fielding of advanced high frequency over-the-horizon backscatter (OTH-B) radars seems the most plausible, affordable, and technologically accessible solution to the China’s wide area surveillance problem might.

Due to their ability to detect targets in excess of 3000km, OTH-B radars have been in operation in many countries, including the PRC, since the 1970s to detect and provide warning of missile launches. Further refinement and may make increase their ability to allow near real time and persistent surveillance over vast areas of the China and Philippine Sea. Still another indication of Chinese attempts to create a persistent wide area surveillance capability might be the deployment of a constellation of low earth orbit (LEO) ELINT satellites that can provide cueing for additional LEO imaging satellites throughout the South and East China Seas and the Philippine Sea. Unfortunately, LOE

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74 Wide-area surveillance systems would probably not be specifically allocated or controlled by the PLAN, but would necessarily provide targeting and cueing information to PLAN weapon systems.

75 Although the numbers and types of U.S. space based systems and their costs are often classified, the total amount of money the U.S. spends on military research and development is not. The U.S. has allocated $32 billion to R&D in the 2008 defense budget (U.S. DoD 2007b). When compared to the even the highest U.S. DOD’s estimates of the PLA’s budget, that amount would represent fully one fifth of the total PLA budget. The U.S. does acknowledge that China is attempting to increase its space-based surveillance systems, and that the PRC places a large importance on them (CMP 2007, 27, 42).

76 OTH-B radars gain greatly increased ranges over traditional line-of-sight radars by bouncing HF radio waves off of the ionosphere. Also, the long wavelengths associated with high frequency reportedly provide increased detection against stealthy ships and aircraft. OTH-B radars generally consist of huge fixed receiving and transmitting antennas arrays that can be separated by 100 miles or more (FAS 1999).

77 Although the details of U.S. ELINT satellites as targeting and wide area surveillance systems remains highly classified, Russian military journals have reported on the existence and probable use of these systems. “The US Navy's space borne electronic intelligence (ELINT) system, White Cloud, is based on SSU (Sub-satellite Unit) satellites and is intended for determining the location of warships of foreign states and following them by the method of taking bearings on the ships' onboard radio electronic equipment from several positions. Official Pentagon representatives try not to attract attention to this system, since it is the principal means of over-the-horizon reconnaissance and target designation for the US Navy's weapons
prevents persistent coverage, leaving significant gaps in coverage, and the development and actual construction costs of developing satellite networks capable of accurate targeting and cueing information may prove prohibitive for the Chinese. Advanced OTH-B radars may provide the most likely avenue for a Chinese attempt to develop a wide area surveillance capability due to its more economical costs, technologically feasibility, persistent coverage and operational effectiveness than a satellite-based system, and may serve as an indicator of China’s commitment to the “Unification” model. 

b) **Theater Ballistic Missiles with Maneuverable Re-Entry Vehicles (MaRVs)**

The Chinese already have a substantial and growing number of short and medium range ballistic missiles (SRBM/MRBM) deployed in Fujian Province across the Strait from Taiwan. Current ballistic missiles technologically reliable and relatively inexpensive to produce. Difficult to intercept once launched, these PLA’s SRBMs create a difficult challenge for any forces trying to defend Taiwan. In order to close the loop on a truly anti-access regional capability, the Chinese might try to develop and deploy ballistic missiles that can be terminally guided to their targets once those targets have systems...The task of determining the bearings of naval targets is made easier by the fact that practically all ships have continually operating emitters fulfilling various purposes: communications, navigation, surface and air search, and weapons control" (Andronov 1993, 57-60).

78 The U.S. built and fielded its AN/FPS-118 OTH-B radar for a cost of $1.5 billion. A paper by the National Oceanographic and Atmospheric Administration estimates the costs of modern military OTH radars at approximately $100 million. This relatively limited cost and the fact that Russia, France, and Australia all have deployed OTH radars makes this option both accessible and more affordable to the Chinese than much more expensive and technologically difficult spaced based satellite wide-area surveillance systems (Georges and Harlan 1999).

79 Interestingly enough, when well-concealed on mobile launchers, they are also very difficult to destroy before launch. Coalition forces in the Persian Gulf War expended considerable effort to find and destroy Iraqi Scud missiles, with only little success. Even with Coalition forces enjoying air supremacy, the Iraqis were still able to launch Scud throughout the conflict against Saudi Arabia and Israel. For a more complete discussion on the difficulty of finding Iraqi Scuds (Rosneau 2001, ch. 3).
been detected, located, and classified by the wide-area surveillance system. These weapons would probably be only feasible at ranges envisioned in a regional scenario however.\(^{80}\)

In response to a global proliferation of ballistic missiles, the United States has invested extraordinary amounts of time and money toward researching and developing a deployable theater ballistic missile defense (TBMD) capability for both ships (through upgrades to the Aegis combat system) and shore-based infrastructure (with upgrades to the Patriot, PAC-3 air defense missile system.) Though Chinese SRBMs are a formidable threat to bombard Taiwanese infrastructure, they are virtually useless as precision weapons against moving targets, especially ships at sea. The weapons will land only where initially aimed. Furthermore, the accuracy of these missiles is often measured in hundreds of yards, which is relatively ineffectual to target a warship. Therefore, without further advancement in current SRBM guidance systems, theses missiles do not directly contribute to a PLAN mission of regional sea-denial. Developing a terminally guided ballistic missile capability would indeed provide China with a balance altering capability, but the technology required to deploy this type of system does not currently exist; therefore, the eventual deployment of such a system is greatly problematical and may not be technologically feasible or affordable within Chinese budgetary constraints.

\(^{80}\) As range increases, so does the time between missile launch and terminal flight. In a regional scenario short flight times between launch and target acquisition, would mean a moving target would not have moved as far from the initial acquisition point. The longer the missile flight time, the farther away a moving target would be from the initial targeting point. This might limit usefulness of this technology on a global or hemispheric scale. For example, if the time to reach the target from acquisition to impact is as little as 15 minutes, a ship moving at just 20 kts would be 5 NM away from the aim point.
4) On the Right Track? Pieces in Place to Build a "Unification" Navy

Several factors might influence Chinese leadership to pursue the force structure required to implement this maritime strategy. First, the cost associated with producing this type of Navy is the least of any of the models presented in this paper, an important factor with those who hold the PLA’s purse strings. Second, there are many pieces already in place that would contribute to the strategy. While systems such as MaRVs would solidify China’s dominance in the region, they are not necessary to achieve a credible anti-access capability; they are the “gold-plated” solution. Formidable, “traditional,” and relatively inexpensive weapon and command and control systems are easily obtainable. They can and do require nations such as the U.S. to think twice about interfering in a cross-strait military confrontation and develop counter-responses. Third, this strategy is the most feasible for the experience level, skill sets, weapon systems, and doctrine currently in place throughout the PLAN. Considering these factors, it seems likely that, at a minimum, the PLAN will continue to pursue a regional sea-denial capability.

The U.S. Department of Defense refers to “disruptive capabilities” when defining anti-access capabilities. These disruptive capabilities are further defined as “forces or operational concepts aimed at preventing an adversary from deploying military forces to forward operating areas, and/or rapidly destabilizing critical military balances” (CMP 2007, 15-16). While the China may be a long way from deploying MaRVs in conjunction with a wide-area surveillance system, the PLAN currently has some of the critical capabilities it would need to cause significant disruption as an anti-access force.
a) **Conventional Submarines with OTH ASCMs**

The PLAN seems likely to continue its acquisition of modern and quiet diesel electric submarines capable of firing advanced anti-ship cruise missiles from standoff ranges. Conventional submarines (SSKs) possess less range and significantly less submerged endurance than nuclear attack submarines (SSNs,) but when operating submerged on batteries they produce a significantly quieter acoustic signature. In a regional anti-access scenario, their limited range would not be a factor and their low overall submerged acoustic signature, coupled with the difficult acoustic environment of the water space around Taiwan, means that even the most advanced U.S. acoustic sensors find it very difficult to detect and locate these submarines.

The PLAN’s continued construction and purchase of submarines, especially diesel-electric submarines has been the source of much discussion in American defense circles. The conventional submarine threat provides the greatest short-term threat to surface forces operating inside of the first and second island chains. When armed with long-range ASCMs, these submarines pose a very credible threat. If provided with accurate cueing and targeting information, several of these already difficult to detect submarines could remain at a standoff range (intensifying the detection problem), fire their weapons on a multi-axis attack, and then evade response while inflicting the desired “disruptive” effects.

The PLAN’s diesel electric submarines have the range and endurance to reach the U.S. battle groups’ operating areas in the Philippine Sea, but the training and experience levels of the crews will need serious improvements. During the 1996 Taiwan crisis, a national security council staffer reported that no PLAN forces operated to the east of
Taiwan and no PLAN submarine even came close to any U.S. ships.\textsuperscript{81} One DoD report obtained by the Federation of American Scientists shows that the PLAN had only conducted an average of 2.4 submarine patrols per year between 2002-2006.\textsuperscript{82} FAS goes on to say that “the implications of the low patrol rate are significant. The total operational experience for the entire Chinese submarine force is only 49 patrols in 25 years, corresponding to each submarine conducting an average of one patrol every third year...As a result, Chinese submarine crews appear to have relatively little operational experience and consequently limited skills in operating their boats safely and competently. It suggests that the tactical skills that would be needed for the Chinese submarine force to operate effectively in a war may be limited” (FAS 2007).

\textit{b) Mine Warfare (MIW)}\textsuperscript{83}

China’s mine inventory and the numerous platforms capable of delivering mines provide important tools for PLAN regional anti-access strategy. Although they would be significantly less effective in the deeper water east of Taiwan where U.S. naval forces would most likely operate, mines might be utilized to great effectiveness to seal off the Taiwan Strait and the main harbors of Taiwan itself. Mines in a Taiwan scenario would not necessarily limit the participation of U.S. surface forces, (should these forces operate in the deeper waters east of Taiwan) but might hinder or limit U.S. submarines

\textsuperscript{81} For an account of no PLAN ships or submarines approaching U.S. vessels during the 1996 Taiwan Strait crisis, see (Suettinger 2003, 260). For a report on the actual numbers of patrols undertaken by PLAN submarines between 1981 and 2006, see (O’Rourke 2007, 25). The average number of patrols reported for PLAN submarines conducted each year between 2001-2005 averages only 2.5. This extraordinarily small number of patrols strongly implies that the Chinese have a very inexperienced and untested submarine force. In 1996, there was only one reported submarine patrol, which means it is likely that the PLAN did not sortie even one submarine in response to the U.S. presence during the Taiwan Strait crisis.

\textsuperscript{82} “China continues - at least for now - to use its submarine force as a coastal defense force. This type of sortie suggests an extremely inexperienced submarine force” (FAS 2007).

\textsuperscript{83} This discussion on mine warfare in a Taiwan scenario draws heavily from (Glosny 2004).
from operating areas in or near the Taiwan Strait. Furthermore mine fields sewn near Taiwanese ports would most likely hinder any seaborne re-supply effort of Taiwan.

5) **Trade-Offs**

The “unification” model allows the PLAN to maximize its coercive lever upon Taiwan by limiting the potential effects from outside interference, but reduces the PLAN’s overall ability to affect events much beyond the first or second island chain. Politically, this force structure/strategy model would continue to focus Chinese efforts on unifying Taiwan with the mainland, but would also have increasing utility in China’s South Sea territorial claims by ensuring that no other regional power could realistically challenge China in its marginal seas.

Operationally and materially, this model is the easiest for the PLAN to implement. This model fits best into the limited experience level and current operational capabilities of the PLAN, and its reliance on relatively inexpensive and easy to obtain conventional submarines equipped with modern ASCMs would not overly tax an already constrained PLA budget. China has acquired many of the OTH weapons, especially ASCMs that it would need to implement this strategy and the distances involved in a regional scenario would fit well into the PLAN’s traditional “coastal defense” approach to its naval forces. 84 Unfortunately, this type of navy would not provide China with an ability to credibly defend its distant SLOCs, and would be ill equipped to respond in the Strait of Malacca or the Indian Ocean.

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84 Obviously, the research and development cost of creating the MaRV technology mentioned earlier would entail large capital expenditures, and the technology may not even be feasible in the end. However, should China actually develop or threaten to develop a deployable MaRV, the output measure of sea power created by that technology would most likely propel China to unquestionably become the region’s dominant naval power.
B. MODEL II: THE "INFLUENCE PROJECTION" NAVY

<table>
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<tr>
<th>Maritime Strategy</th>
<th>Supported Interests</th>
<th>Capabilities Needed</th>
<th>Limits to Development</th>
<th>Elements of Force Structure Already in Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Limited duration sea control against lesser naval powers in littorals and blue water.</td>
<td>1) Defense of national interests abroad.</td>
<td>1) Naval aviation.</td>
<td>1) Systems development and integration for carrier aviation</td>
<td>1) Growing surface navy (large combatants).</td>
</tr>
<tr>
<td>2) Sea Control in marginal seas against lesser powers</td>
<td>2) Increased international prestige.</td>
<td>2) ASW, AEW, and AAW fleet defense systems (including specialized ships and aircraft) and doctrine.</td>
<td>2) Integrated battle group tactics and doctrine development. (No opportunity to practice.)</td>
<td>2) Acquisition of modern logistics ships.</td>
</tr>
<tr>
<td></td>
<td>3) Enhanced territorial control within marginal seas.</td>
<td>4) Global or semi-global C2 infrastructure</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Characteristics of the "Influence Projection" Model

I) What is an "Influence Projection" Navy

An influence projection navy would serve to protect China’s growing economic interests overseas, its territorial ambitions closer to home and provide China’s with a powerful symbolic tool to portray national strength. This type of navy is not often discussed in the literature concerning Chinese naval development. Designed to project influence as much as power, it would provide a prestige force that could serve as a “hard power road show,” complementing and re-enforcing China’s growing soft power and economic development campaigns around the world. This model creates the opportunity for the PLAN to develop a wide range of capabilities to support most of the missions on the warfare continuum. An “influence projection” navy might be modeled to perform disaster relief and non-combatant evacuation against little opposition to conflict with peer

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85 Although the possibility of Chinese development of aircraft carriers has received much interest, observers have often characterized carrier development as a direct challenge to the U.S. Navy. For a discussion on the challenges and implications of Chinese carrier development, see (Storey and Ji, 2004).
naval powers. Although the “influence projection” navy might add moderate worldwide response capability to hostile actions against Chinese economic and political interests (a capability currently lacking in the Chinese foreign policy playbook), it could also add significantly increased potential for China to contribute positively to regional collective maritime security measures. Built to display the most visible and visceral elements of naval power, an influence projection navy might consist of two or three task groups that could cruise not only China’s marginal seas, but also anywhere China desired to show its flag.

When discussing the possibility of China’s acquisition of naval aviation or a “blue-water” capability, many observers consider that eventuality a direct threat to U.S. naval dominance. This type of navy is not a blue-water counterforce to the United States Navy, but would perhaps more closely resemble either a French or Royal Navy strike group model with task forces organized around a light aircraft carrier or amphibious assault ship (helicopter carrier). Compared to most other nations’ naval capabilities, this force would present a credible deterrent, but would not have the range, endurance, or power projection capabilities of a U.S. carrier strike group. An Influence Navy would not challenge the United States, but serve to bolster specific Chinese overseas interests. An influence projection PLAN would provide a visible force that contributes to Chinese foreign policy by being a considerable diplomatic tool that gives China a limited measure of sea control over minor or near peer naval powers away from China’s marginal seas for a limited period of time.
2) Chinese Interests Supported by a “Influence Projection” Navy

   a) Defense of Chinese Interests Abroad

   China’s growing reliance upon overseas and offshore resources and markets places considerable pressure on the PRC to ensure not only continued access to the oceans’ highways, but to defend its considerable investments abroad. The predictably unstable nature of the developing countries has allowed China to re-define how resources importing nations receive concessions from resource exporting nations. Western nations, the United States in particular have generally given aid with caveats that require the receiving nation to show results in promoting good governance and fiscal accountability. China’s largess is often free of such encumbrances, with the Chinese often providing large capital expenditures with little political or fiscal accountability required of the receiver nation. This has allowed China to rapidly acquire oil and mineral concessions, but exacerbates the instability that often already exists in resource rich and poorly governed nations.

   Recent kidnappings of Chinese nationals and attacks on China’s energy development infrastructure in Nigeria, Niger, and Ethiopia may push China toward developing a military response option to deter further assaults on its overseas interests.86 These incidents are often undertaken amidst the internal instability of developing nations, resulting in extortion and further disruption that ultimately could be very damaging to continued Chinese presence and economic efficiency. Without the military response option that an influence projection navy could create, China remains virtually incapable of directly protecting its interests and of protecting its citizens abroad.

b) Increased International Prestige

Closely connected with China’s ability to defend its national interests abroad is its desire to be accepted into the company of great nations. An influence projection navy would also serve as a prestige tool to reflect China’s rise as a great power and its arrival upon the world scene. It might also provide China with a tool to positively provide disaster relief services, SLOC security, and consequence management functions. Jiang Zhijun, director of the Chinese Naval Research Institute of the PLAN has stated, “A strong navy will raise a country’s prestige in the world and increase a country’s influence and the credibility in the international arena. It would give the other countries a stronger sense of assurance when they deal with China, and therefore, it would benefit China’s sea routes, foreign trade and investment prospects.” 87 This comment is suggestive of how China sees naval influence as a value added accoutrement for a great power that could ease acceptance into the great power club.

c) Enhanced Territorial Control within the Marginal Seas

Within China’s marginal seas, an influence navy based on visible and relatively powerful task forces with organic air capability might prove extremely important in solidifying Chinese claims to territories and EEZs throughout the South and East China Sea. As discussed previously, China’s claims to the entire South China Sea basin stem from both territorial desire to make the South China Sea a “Chinese Lake” and also from China’s hope that it may provide critical offshore energy resources that may offset its reliance on foreign sources of energy. An influence projection force that is capable of steaming to Africa would also be capable of relatively persistent patrols in the South and East China Seas. With the added benefit of air superiority, the PLAN could

exert a formidable measure of sea control over the areas surrounding the disputed islands, potentially providing a de facto sovereignty over them.

3) Primary Force Structure Requirements

a) Naval Aviation

Although nuclear missile submarines may have more total power and quiet nuclear attack submarines may prove more survivable and deadly to carriers, aircraft carriers possess a unique symbolism that signifies national power. Admiral Yao, the first president of the Guangzhou naval academy has stated, “Since the Second World War, aircraft carriers as the symbols of a country’s important deterrent power have been accorded more attention” (Storey and Ji 2004). The most visible (and controversial) component of an influence projection navy requires acquisition of some form of carrier-based aviation.

Unfortunately, in developing carrier aviation, the PLAN will have to start from scratch. The Chinese industrial base has shown difficulty in providing the types of innovation required to tackle the systems integration and complex development problems associated with creating large naval systems. Although there is little likelihood of the PLAN developing U.S. fleet type carriers, this type of navy provides the PLAN with an opportunity to walk before it runs. A helicopter carrier, for example, would provide the PLAN with a capability of projecting limited forces ashore away from China’s traditional

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88 Currently, the PLAN Air Force (PLANAF) does not seem to be emulating the Soviet naval aviation model. The Soviets focused on long-range strategic bombers carrying ASCMs to counter US carrier battle groups and NATO’s SLOCs, in order to affect a strategic element to their naval aviation strategy. The PLANAF has acquired a number of Russian ASCM capable Su-30’s. If capability is seen as a measure of political intent, these relatively short range aircraft seem to validate a regional focus to China’s maritime strategy.

89 China’s usually relies on foreign acquisition as its recourse to lack of capability within its own military industrial complex. Unfortunately, China’s main technological supplier, Russia, has only limited experience in building aircraft carriers and is likely to provide technological assistance only if China builds a carrier in a Russian shipyard.
areas and also provide them the opportunity to “practice” aggregated fleet operations. This is important because, even a light type of carrier envisioned in this model, the PLAN would be able to reach beyond the coastal confines that currently restrict its naval aviation forces and exert both a symbolic measure of prestige to China as a whole and add a measure of real hard power to China’s political and diplomatic efforts around the world.

b) **Improved ASW, Anti-Air Warfare (AAW), and Airborne Early Warning (AEW) Assets, Doctrine, and Proficiency**

In order to successfully defend any naval task force away from the coastal bastions that generally protect the current PLAN, the PLAN would need to develop and establish greatly improved fleet ASW, AAW, and AEW assets, proficiency, and doctrine. The Chinese tend to look at U.S. aircraft carriers as both the greatest strength and the “Achilles heel” of the U.S. Navy. Although incredibly powerful and symbolically important, the PLAN views American aircraft carriers as vulnerable to submarines and air attack from cruise missiles. Additionally, they require a large (and expensive) accompaniment of specialized aircraft and ships to protect them. For example, a U.S. carrier strike group normally deploys with between three to six fleet air defense ships and at least one dedicated logistics ship (to provide fuel, food, and ammunition for the strike group.) This would require the PLAN to develop and deploy a fleet of up to 18 advanced AAW defense ships, a considerable investment.

The Chinese have often stated that they would utilize asymmetric attacks (primarily interpreted to mean submarine-launched ASCM attacks) to disrupt or destroy U.S. carrier operations. With few aircraft or surface ships equipped with advanced
acoustic sensors, Chinese ships, themselves, are vulnerable to submarines. ASW capability has been characterized as “the most serious deficiency” plaguing the PLAN. Should the PLAN submarine force’s lack of proficiency serve any indication, the PLAN surface force is almost certainly out of practice and perhaps completely incapable of integrated ASW. The major irony of following this model for the PLAN would mean that the PLAN would also become vulnerable to a lesser power with an asymmetric submarine threat. India, Pakistan, Australia, Indonesia, Iran, and Russia all have submarine forces that could threaten a PLAN carrier task force.

At the same time that a carrier task force’s ships might defend the carrier from the submarine threat, they must also warn of incoming air threat or guide the carrier’s aircraft to defend against those threats (AEW) or actually shoot down and defend against those airborne threats (AAW). China is clearly trying to develop an area defense AAW defense capability with the construction of five new destroyer classes with an emphasis on fleet-defense AAW capability, but their effectiveness is still questioned. Even if the PLAN desired to pursue an influence type navy without actual aircraft carriers, the PLAN would need to address and correct the deficiencies in these critical skills.

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90 Since navies often practice ASW on their own submarines, the fact that the PLAN’s submarines have so rarely put to sea in the past fifteen years is probably a good indicator of the proficiency level of the rest of the PLAN’s ASW forces.

91 Area defense means that one ship can protect multiple ships. Point defense, means that a ship is merely capable of defending itself, not others. Creating ships with area defense capabilities will be a pre-requisite for any nominal PLAN strike group to deploy away from the cover currently provided by mainland China’s integrated air defense networks. The Luzhou class destroyer is armed with the Russian SS-N-20 SAM system and the TOMBSTONE phased array radar system. This represents a considerable improvement over the older Luda class destroyers that had virtually no AAW capabilities. “The PLAN surface fleet, however, still lacks ‘modern air surveillance systems and data links required for area defense missions. The combination of short-range weapons and lack of modern surveillance systems limits the PLAN to self-defense and point defense [AAW] only. As a result, except in unusual circumstances, no PLAN ship is capable of conducting air defense of another ship’” (O’Rourke 2007, 27).
c) Global Command and Control (C³) Infrastructure

Secure communications and data transmit capability represent another critical capability requirement for deploying naval forces on a global scale. Satellites, data links, and other communication services will need to be acquired or developed that allow for effective relay of information from the forces at sea (or engaged with an opponent) to the national command authority or vice versa. On the most tactical level, PLAN forces will need to identify friendly and hostile targets, pass position information, and communicate with each other. However, at every level of warfare, strategic, operational, and tactical, command and control infrastructure is a large investment and will remain a technologically difficult challenge to implementing the influence projection navy.

4) On the Right Track? Pieces in Place to Develop the “Influence Projection” Navy

Development of an “Influence Projection” model provides a different, and in some ways more difficult, set of challenges for the PLAN than the “Unification” model. China has some of the basic skills and assets in place to produce a “show-up” force that could theoretically begin peacetime patrols beyond China’s marginal seas. However, a constrained budgetary environment and the technological incapacity of the Chinese industrial base remain the greatest hurdles to development of the capabilities required to expand the PLAN’s capabilities beyond peacetime patrolling. Although Chinese naval “hawks” and even PLAN officials publicly desire the type of navy that can deploy around the globe to show the flag or defend China’s interests, it might take as long as 30-50 years before the PLAN develops the core competencies required to fight a task force at
sea. Development of a light type aircraft carrier or amphibious assault ship would most likely require significant

\textit{a) Growing Numbers of “Multi-Mission” Surface Combatants}

Despite the PLAN’s major weaknesses in ASW and AAW, the PLAN continues to work toward improving each of these warfare areas. Each successive new destroyer class that the PLAN has produced over the last fifteen years has had improved AAW capabilities. China’s ship design philosophy seems to encourage small numbers of ships in each class in order to rapidly introduce new technology as it becomes available to a succeeding class. Therefore, as new classes of ships are designed, and more technologically advanced systems are developed or procured, each subsequent class becomes more capable than the last. In this way, as the PLAN’s newest ships are introduced they will have the newest technologies and (presumably) the most capability.

In order to progress beyond the coastal confines of Mainland China, the PLAN would need to continue to build and acquire larger, multi-mission ships for its surface force. The purchase of four \textit{Sovremenny} class destroyers from Russia provides a potent anti-surface ship, but these ships do not provide the answer to the AAW and ASW capability gap. The \textit{Sovremenny} remain have little more than a self-defense AAW capability and probably do not have an advanced ASW sensor suite \textit{(Jane’s 2007)}. They remain vulnerable to attacks from the air and submarines, but the experience gained in operating these larger ships during peacetime may prove useful to the PLAN. Larger ships mean more room for systems, which means more probability that they will employ advanced weapons and sensors to close the ASW and AAW capability gap. Also, the trend of building larger surface ships also means that they can hold more fuel, which
makes long range cruising to areas outside of China’s marginal seas or longer duration patrols in them more feasible.

**b) Development of an Underway Logistics Capability**

Modern logistics forces are a pre-requisite to support deployments away from existing base structures. Even within the marginal seas, the PLAN seems to recognize the critical importance of logistics forces. The PLAN has completed construction on one new fleet oiler (Type 866) and is reportedly building another. These ships have demonstrated the ability to conduct refuel, rearming, and re-supplying PLAN warships underway (UNREP), and significantly, have a hangar for a helicopter. Vertical Replenishment (VERTREP) with helicopters is an important procedure to quickly and efficiently re-supplying ships at sea and is a particular feature of carrier and amphibious assault ship replenishment. Finally, when the PLAN sent a small surface action group to the area around the Chunxiao Gas Fields in January 2005 consisting of five ships, it was noticeable to that one of the ships was a Type 866 replenishment ship (Fisher 2005). This inclusion might indicate that the PLAN surface action group was operating at a range beyond what individual ships can comfortably operate or it could indicate that the PLAN was testing operational concepts by deploying with a replenishment ship and practicing replenishment operations. In either case, the PLAN’s has at least exhibited the awareness if the importance of an underway logistics capability

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C. MODEL III: THE GLOBAL SEA DENIAL PLAN

1) What is the Global Sea Denial Navy?

The Global Sea Denial navy would function to provide an asymmetric response to a dominant naval power. This navy would not battle for sea control with a dominant naval power, but would seek to weaken its opponent by forcing him to withdraw his strengths from a contested battle space. In effect, this is a conventional regional deterrence model designed to prevent a dominant naval power from operating against China. Although this is a relatively extreme view of the potential development of the PLAN, it is conceivable and worth paying attention to.

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<thead>
<tr>
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<th>Capabilities Needed</th>
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<th>Elements of Force Structure Already in Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Global Sea Denial against great naval power. (Anti-access on a global or semi-global scale.)</td>
<td>1) Defense against a SLOC disruption (distant blockade by a great naval power.)</td>
<td>1) Very quiet, nuclear attack submarines (SSNs.)</td>
<td>1) Difficult to acquire or develop submarine quieting technology. (China still unproven in ability to produce quiet SSNs.)</td>
<td>1) Nascent SSN production capability.</td>
</tr>
<tr>
<td></td>
<td>2) Defense of sovereignty; increased coercion against Taiwan.</td>
<td>2) Global, wide-area surveillance for targeting, cueing.</td>
<td>2) Lack of C2 doctrine for forward deployed SSNs.</td>
<td>2) Large, established (though inexperienced) submarine force.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3) Global or semi-global C2 infrastructure (comsats, imaging sats)</td>
<td>3) Might not be politically attractive to some PLA leaders, because it will limit visible impact (prestige) of PLAN.</td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Characteristics of the "Global Sea Denial" Model
A large fleet (30-40) of advanced, ultra-quiet SSNs with advanced OTH weapons would provide the primary force structure inputs for this model. In theory, this model would try to force a similar cost-benefit recalculation for the dominant naval power similar to the regional anti-access model, but would seek to accomplish this on a global or hemispheric scale. In practice, this model is an indirect counter-force that enables China to pre-empt any U.S. naval endeavors that challenge Chinese interests. In particular, this model would address China’s fear of a hypothetical “distant blockade” of China’s critical, distant SLOCs conducted by the United States. The very nature of this asymmetrical approach requires stealth to avoid and counter U.S. naval strengths, particularly America’s most visible naval force projection capabilities (i.e. aircraft carriers strike groups, expeditionary strike groups and integrated multi-mission surface action groups.) Ironically, the attributes of this force that make it the most effective counter-force against a dominant naval power (silence and invisibility) reduce its utility in projecting Chinese power and influence away from its shores.

2) Chinese Interests Supported by the Global Sea Denial Navy?

a) Defense of China’s Distant SLOCs Against Naval Powers

Because of China’s increasing reliance upon the maritime highways for trade and resources, disruptions could threaten the regime. China currently has the military assets and experience to patrol and ensure a modicum of sea control throughout its near SLOCs (those SLOCs in the South and East China Sea that fall under the air umbrella of the PLAAF and the PLANAF). Any threat to the near SLOCs could be met with significant Chinese force for an extended period of time. The PLAN would literally be operating in its own backyard and could count on the support of the other branches of
the PLA. As the distance increases from China, the challenge increases for the PLAN. Critical SLOCs, such as the Strait of Malacca and the Sunda or Lombok Straits, are barely within the range of the PLAN conventional submarines, and the Indian Ocean seems hardly reachable. As the maritime component of the PLA, a global sea denial navy would protect China’s SLOCs by credibly denying their use to any other naval power.

b) Increased Coercive Leverage Against Taiwan

The same justifications for increasing the military coercive lever against Taiwan provided for the regional anti-access model applies to the Global Sea Denial model. A navy capable of denying access on a global scale has considerable influence over the decision-making calculus of the dominant power.

3) Primary Force Structure Requirements

a) Quiet Nuclear Attack Submarines

Should the PLAN acquire or develop significant numbers of quiet SSNs with the acoustic signature equivalent of a Russian Akula class SSN or a contemporary U.S. designed submarine, the United States will be forced respond with a significant ASW response. By the end of the Cold War Soviet submarine designs had improved significantly enough to seriously challenge the U.S. acoustical advantage. The increasing stealth and dominance of the submarine in naval warfare so threatened the U.S. that some predicted that the sea would be empty of ships and that fleets of ultra-quiet submarines would patrol empty seas.93 Should the PLAN pursue this strategy, the U.S. would have little answer.

93 For an outstanding unclassified account of the acoustic development of the Cold War submarine confrontation between the Soviet and U.S. Navy, see (Cote 2003).
Against surface ships, submarines generally have the advantage. By their nature, submarines are a force multiplier. The mere threat that an enemy possesses submarines forces an adversary to commit limited and often disproportionate, resources to search for and locate them. Submarine warfare and anti-submarine warfare requires not only vast resources, but also a high state of readiness and training.

To attack a target, a submarine must search for and find its target, approach the target within weapons’ range, and then fire its weapon. Anti-Submarine warfare (ASW), on the other hand, is designed to disrupt this process. When hunting submarines, the search platform (ship, aircraft, or submarine) must search for, detect, classify, localize, and then either track or attack the submarine. Submarines use stealth (low acoustic signature) and underwater endurance to defeat the ASW effort. Improvements in both have been key enablers in advancing submarine design since World War II, allowing submarines to maintain a significant advantage in the ASW cat and mouse game.

Initially, nuclear power provided the answer to increasing both stealth and endurance for submarines. Nuclear powered submarines utilize a closed loop steam cycle to provide propulsion both above and under water and do not need to surface to recharge their batteries, as did older model diesels, greatly reducing the amount of time on the surface and therefore reducing vulnerability. Also, because they do not use traditional

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94 In one Cold War example, a submarine expert recalls that, “the entire Navy had to deploy in order to find and maintain one submarine” (Maloney quoted in Cote 2003, 70). Similarly, during the Falkland Islands War, the Royal Navy “expended nearly its entire ASW ordnance without sinking or disabling the two modern Argentinean submarines that were in the area” (Goldstein and Murray 2004, 186).
95 ASW platforms search for submarines using acoustic (SONAR), magnetic anomaly (MAD), radio (RADAR), electronic signal (ESM), infra-red (IR) plume, and visual detection methods. Sensors may be located on mobile search platforms like ships, aircraft and satellites, or they may be fixed sensors (usually placed on the sea-floor) that provide wide area surveillance. Once a target is detected it is called a datum, and the ASW platform must next classify the datum. In order to classify the datum, the ASW platform must determine whether it is in fact an enemy submarine, a friendly submarine, a decoy, or merely a false detection. Next, ASW platforms attempt to localize the target, or place it within a specific area from which the decision can be made to either track or attack the target.
diesel fuel, nuclear powered submarines have a virtually unlimited range. This freedom allows nuclear submarines the ability to transit to their patrol stations completely submerged and remain at sea for months at a time, an important advantage for a nation that has interests far away from its shores. Nuclear submarines are, however, extraordinarily expensive to build and require large amounts of maintenance and training to operate safely. Also, the PLAN’s current Han class nuclear submarines, developed in the late 1960s and early 1970s are universally derided as loud and easily detectable, making them not only ineffective against modern naval forces, but extremely vulnerable to an efficient ASW force.96

Submarine warfare has always been a deadly business with delicate and complicated machines. On or near the surface, submarines are incredibly vulnerable to detection and destruction. Therefore, they use their ability to hide under the ocean surface, and strike with little or no warning, using powerful, and difficult to counter, weapons. The submarine’s primary weapon, the torpedo, packs the most powerful punch of any conventional naval weapon system. ASW is a cat and mouse game where combatants put a premium on detecting and engaging the enemy first. There has been a constant battle to develop submarine launched weapons that can fire at an ASW platform from outside of the ASW platforms detection range and outside of its weapon’s release range. The addition of anti-ship cruise missiles (ASCMs) to the submarine’s arsenal has increased its standoff range from a few thousand yards to nearly 100nm, with a resulting increase in survivability and effectiveness for submarines.

96 The PLAN is currently producing the Type 093 SSN to replace the Han. Built with Russian engineering assistance, this submarine is expected to incorporate many of the quieting technologies of Russian SSNs, and its actual acoustic performance will be of great concern to the U.S. Navy when it commences sea trials.
b) Global Command and Control and Wide-Area Surveillance

Again, the regional anti-access model provides most of the relevant justifications and reasons as to why C² and wide-area surveillance are important to navies and necessary to enable effective targeting and cueing for naval assets. However, relatively inexpensive specific technologies, such as OTH-B, that might effectively provide a regional wide-area surveillance capability would not provide the same measure of effectiveness on a global or even hemispheric scale. The Chinese will need to form an integrated network of space and ground based sensors that would enable China to provide that type of surveillance capability.

The U.S. Department of Defense believes that China is already developing several spaced-based communication, navigation, and reconnaissance programs that might contribute to the wide-area surveillance and targeting network. “China has accorded space a high priority for investment... (and) is deploying advanced imagery, reconnaissance, and Earth resource systems with military applications...In the next decade, Beijing most likely will field radar, ocean surveillance, and high-resolution photo-reconnaissance satellites” (CMP 2007, 20).

An over-reliance on a space-based approach, while “bolstering national prestige and...demonstrating attributes of a world power,” might leave China vulnerable to the type of anti-satellite weapons that it recently demonstrated (CMP 2007, 20). Throughout the Cold War, the U.S. and the U.S.S.R. maintained surveillance facilities throughout the world. Utilizing the Cold War alliance structure, the U.S. maintained these generally highly secret facilities to provide persistent and low observable inputs into its C² networks. The United States still maintains many of these ground stations that provide...
ELINT and SIGINT; some provide a redundant communications capability between the national command authorities and deployed commanders. China might try to provide redundant global surveillance and communication coverage throughout the developing world by following the “pay for access” model used by many of China’s its economic concerns.

4) On the Right Track? Pieces in Place to Develop the “Global Sea Denial” Navy

a) Nascent SSN and Large Conventional Submarine Force

In developing this model, the PLAN will not necessarily be starting from scratch. The PLAN has operated SSN’s for almost 35 years and conventional submarines for over 50. However, the PLAN would face the dual challenges of developing and manning an expanded SSN force. An experienced cadre of operating nuclear submariners could provide the PLAN with the seed for an expanded force. Also, the large number of conventional attack submarines already in service may ease a PLAN attempt to develop a force structure based primarily on SSNs, by providing yet another relatively large group of submariners that would already be trained in submarine operations.

The Han class, the only SSN currently operating in the PLAN, is a 1960’s design. China’s follow-on class (Type 093) SSN will replace the Han. This program may prove critical to facilitating development of this force structure/maritime strategy model. Although utilizing technological assistance from the Russians to build this latest SSN, China already has an established conventional submarine capability. The Type 093
program will provide even greater experience to Chinese shipyards that may allow serial production of SSNs.
VII. IMPLICATIONS

The force structures presented in this paper each provide a certain set of capabilities that are optimized toward a certain strategy. Since the PRC is unlikely to openly elaborate its strategic goals, recognizing and identifying force structure might help identify China’s maritime strategic direction. Once strategic goals are defined, identifying the capabilities inherent in the recognized force structures may also assist in measuring the limits of strategy. All three of the models presented contain a series of trade offs and compromises that China must assess in order to choose a model that will fit a strategy that best defends the PRC’s maritime interests. This type of analysis might then further inform policy analysis on how those trade offs affect China’s strategic vision and what that vision means to the United States and the region’s security structure.

A. WHAT EACH MODEL MEANS

Each model presented in this paper increases current PLAN capabilities in support of a specific set of interests. Unless stricken by an unforeseen economic or political disaster, China’s will continue to modernize the PLA. China’s domestic politics and civil-military relations make it a near certainty that continued PLAN modernization efforts will contribute to coercive pressure on Taiwan. Beyond Taiwan, however, what is China’s envisioned role for the PLAN? The models presented here provide a point of convergence that can provide an insight into China’s strategic world view.
A PLAN designed for anti-access or sea-denial provides the greatest challenges for the United States. Whether to increase the PLA’s overall coercive efforts in support of unification or to limit U.S. ability to execute effective global sea control, either sea denial forces structure will rely heavily on submarines. The secretive nature of the “silent service” limits navy-to-navy interaction and increases the potential for confrontational encounters. A PLAN structured on the regional anti-access model, might imply that China sees the U.S. as a potential competitor in a regional crisis and desires an option to limit that involvement. However, it might not necessarily assume a confrontational posture with the U.S. on a global scale.

On the other hand, a global sea denial force structure invokes the “Hobbesian” view to international relations mentioned by Ni, and may imply that China views the U.S. as a direct strategic competitor and relations with the U.S. as a zero-sum game. Because of the technological challenge in confronting a large number of quiet SSNs, this model is the greatest threat to continued U.S. global maritime dominance. A global sea denial force structured around a fleet of nearly undetectable nuclear submarines would alter the global maritime balance, limiting the effects of U.S. naval presence when directly opposed by the PLAN.

However, the “Global Sea Denial” strategy is fundamentally defensive in nature. Although a potentially balance altering strategy, the “Global Sea Denial” navy may not ultimately serve Chinese interests the best. As China sheds its continental outlook, it is becoming a maritime nation. The assumption of this strategy is that a dominant naval power may try to disrupt China’s distant SLOCs. The U.S., as a nation reliant upon the freedom of maritime commerce to transit the world’s maritime highways is unlikely to
attempt this strategy without significant provocation from China. This strategy may prevent or deter the U.S. from blocking China’s SLOCs, but it does not allow China to actually exert positive control or influence over their SLOCs themselves. On the surface, a model that does not leave China capable of actually exerting control of its SLOCs should not seem attractive to China. However, even a perceived U.S. strategy of containment might drive China to assume that the U.S. views itself as an inevitable competitor in a zero-sum game. This model is a worse case strategy that does little to promote the maritime security that China relies upon for continued economic and political stability, and does not adequately assess fundamental U.S. vital interests. Should China attempt to develop this model, it could seriously harm U.S.-China relations and institute an increasingly expensive arms race as the U.S. develops counters to China’s

This model suggests the utility of increased Sino-American defense cooperation in order to avoid strategic misinterpretation. It also suggests increasingly focusing U.S. policy toward including China within regional security structures in order to encourage China as an increasingly responsible stakeholder in maritime security. The U.S. should continue to assure China of American commitment to ensure the freedom of navigation and the maritime commerce around the globe. It also suggests that U.S. defense officials should continue to develop potential counters to the quiet SSN threat, and maintain a robust regional base structure to hedge against this strategy.

Conversely, an influence projection navy, might provoke the most wide-spread concern among American foreign policy hawks, but would probably be the least likely to upset the established maritime dominance of the U.S. The idea of a PLAN strike group
patrolling the Indian Ocean is sure to rankle not only American navalists, but also Indian and Japanese maritime power advocates. However, a PLAN structured around two or three regularly patrolling strike groups is likely to confirm, rather than alter, American maritime dominance. In order to do project influence, the navy represented by this model needs to provide a visible presence around the world. By providing a visible presence, the influence projection navy serves to reinforce one of the primary goals of U.S. naval power: continued free access to the world’s oceans.

The “influence projection” navy may prove attractive to China because it furthers the PRC’s perception of itself as a maritime nation and provides it with a force structure that can begin to provide positive control of it interests abroad. Furthermore, the “influence projection” navy may provide the potential for increased Chinese participation in regional security initiatives and non-traditional security (e.g., disaster relief, anti-piracy and anti-terrorism) and greatly increases the likelihood of positive navy-to-navy contacts through positive exchange opportunities. Closer U.S. operational working relationships with the PLAN may work to assure the Chinese of positive U.S. intentions and allow the U.S. access to PLAN operational doctrine, techniques, and capabilities. This model suggests that the U.S should not necessarily attempt to contain a PLAN that begins steaming beyond traditional operating areas, but work to ensure a transparency in its operations. In fact, it may even suggest that, should the policy maker assume that China will continue with modernization efforts of the PLAN, the U.S. should encourage the “influence projection” model in order to prevent Chinese investment in the “Global Sea Denial” navy.
B. GENERAL REGIONAL IMPLICATIONS

Regardless of the type of model, an improvement in capability and radius of action for the PLAN will create tension in the region. Improved Chinese naval forces represent a legitimate threat to peer powers, such as the Japanese, who have their own economic and territorial interests to defend, but who possess limited long-range power projection resources from which to strike back. Although a more proficient and effective PLAN provides Chinese policy makers with a powerful military and economic tool that could be used to advance Chinese priorities in the region, it also fuels fears of Chinese hegemonic intentions in the region.

Japan, for example, is completely reliant on the ocean for commerce and survival. Constitutionally limited from “offensive” military forces, Japan has an interesting dilemma when tasked with protecting its own SLOCs. Japan’s naval forces, even in home waters, might be vulnerable to a first strike from Chinese submarines or advanced anti-access weapons, and have limited retaliatory options to carry the fight to the Chinese, should China quickly withdrawal, and due to domestic Japanese political concerns, preemptory options are off the table. This vulnerability has political and military force structure implications for Japan that lead to questions concerning deterrence. A modernizing PLAN may have the capability to operate and attack in Japan’s home waters, but the JMSDF is at a significant disadvantage if used in the China Sea against a Chinese fleet protected by its own air force and operating close to its defensive bastions. This may not be a tenable position for Japan as the PLAN modernizes. Japan self-restraint in not utilizing preemption to ward off potential Chinese attacks leaves it vulnerable. In order to limit the damage of a Chinese attack, or prevent
it all together, Japan may decide to develop a more offensive force of its own to counter the Chinese, or try to match Chinese force structure, creating a regional arms race.\textsuperscript{97}

\textsuperscript{97} Politically, the type of threats modeled here may give impetus for the Japanese to revisit the constitutional definitions of offensive operations and a further redefining of offensive weapon systems, but revisions of or changes to Japan’s constitution would also generate apprehension and suspicions among Japan’s neighbors (not just China) that have further implications for the regional strategic balance. Although outside of the scope of this paper, further discussion on development of a Japanese deterrence model with respect to rising Chinese maritime power could provide value to the ongoing discussion on Pacific security issues.
VIII. CONCLUSION

This paper has attempted to identify how sea power theory, maritime interests, constraints, and doctrine may indicate the direction of the PLAN’s development. China has, and continues to have, a somewhat confused approach to the modernization of its navy. Regardless of increased defense spending, fiscal constraints and a reliance on foreign sources for advanced technology will continue to limit military development. As China’s technology and weapon systems increase in quality, those systems will become more and more expensive. The PRC will need to continually increase defense spending to maintain a modicum of quantitative parity with regional powers like Japan and to maintain the quantitative dominance required to credibly coerce Taiwan. Should China continue its “scatter-gun” approach to PLAN modernization it risks increasing irrelevance for China as a maritime power. Therefore, China must eventually develop a coordinated approach to its naval development.

This paper presented the “Unification” model as the baseline for PLAN modernization. Taiwan will continue to dominate Chinese policy, and one should assume that any PLA modernization would focus its core efforts there. However, China does have growing maritime interests that require attention. China is unlikely to abrogate control of those maritime interests to the United States. Therefore, China will likely continue to expand its maritime influence. Should China consider its maritime interests generally secure under a Pax Americana, it will most likely develop a maritime strategy less geared to confrontation. The “influence projection” navy seems most suited for the types of maritime security operations (short of war) common today and will also serve to
expand China's role as a regional naval power. However, should China view the U.S. as a strategic competitor in a zero-sum game, it might develop a strategy of conventional maritime deterrence. This "Global Sea Denial" model will contribute to greater maritime instability by creating a potentially dangerous confrontational dynamic to the maritime environment.

China has significant, legitimate, and growing economic interests. China also has significant constraints and limitations to governmental military expenditures. Further complicating matters, the regime views its position as precarious in the sense that it China's maritime interests are critical not only to the economy and Chinese people, but also to regime survival. As China’s maritime interests have expanded, so has the realization of the vulnerability created by a weak PLAN. Burgeoning Chinese maritime interests and overseas trade may be tempting China’s leadership to expand it military influence beyond its borders and coastal areas. The challenge for Beijing will be to develop a strategy that manages those interests as it modernizes the PLAN.
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